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# The effects of ambiguous appearance-related feedback on body image, mood states, and intentions to use body change strategies in college women

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The Effects of Ambiguous Appearance-related Feedback on Body Image, Mood States,  
and Intentions to Use Body Changes Strategies in College Women

by

Sylvia Herbozo

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
Department of Psychology  
College of Arts and Sciences  
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The Effects of Ambiguous Appearance-related Feedback on Body Image, Mood States,  
and Intentions to Use Body Change Strategies in College Women

Sylvia Herbozo

ABSTRACT

Previous research has demonstrated the influential role of physical appearance-related feedback in the development of body image and eating disturbances. Teasing and negative feedback have been established as strong correlates and predictors of body dissatisfaction, maladaptive eating behaviors, and psychological distress. However, very little is known about ambiguous appearance-related feedback and its impact on others. The current study sought to explore this area with an experimental study to examine the effects of ambiguous appearance-related feedback on body image, mood states, and intentions to use body change strategies. Undergraduate women (N=146) were randomly assigned to an ambiguous appearance-related or ambiguous nonappearance-related feedback condition. Body image, mood states, and intentions to diet, exercise, and use unhealthy weight control methods were assessed before and after feedback was provided by a confederate. Results indicated no significant differences between feedback conditions in body image and mood states. The mean trends for all mood state, with the exception of anger, indicated better mood states after ambiguous appearance-related feedback compared to after ambiguous nonappearance-related feedback. State anger was greater in the ambiguous appearance-related feedback condition suggesting that this

particular type of feedback was interpreted in a negative manner. Further, there was a significant difference between feedback conditions for intentions to diet and use bulimic behaviors, with lower levels in the ambiguous appearance-related feedback condition. No significant differences were found for intentions to exercise. State appearance comparison was not shown to mediate the relationship between ambiguous feedback and body image, mood states, or intentions to use body change strategies. Trait appearance satisfaction, appearance comparison, appearance schematicity, and thin ideal internalization were found to moderate the relationship between ambiguous feedback and state depression. Trait appearance comparison moderated the relationship between ambiguous feedback and intentions to use bulimic behaviors. Exploratory analyses conducted with subsamples developed using high versus low levels of trait disturbance showed significant results for the subsample based on trait appearance comparison levels. The findings are discussed in the context of possible reasons for the unexpected responses to the ambiguous appearance-related versus nonappearance-related feedback. The limitations of the study and directions for future research are also noted.

## Chapter 1

### Introduction

#### *Overview*

The past decade has seen a heightened research interest in body image disturbance, specifically as it relates to the development and maintenance of unhealthy weight loss practices. *Body image* is most commonly defined as a subjective evaluation of one's physical appearance which includes various perceptual, affective, cognitive, and behavioral components (Offman & Bradley, 1990; Thompson, 1990). Any type of maladaptive response that is related to concerns about body size or shape is known as *body image disturbance* (Thompson, 1995). Most prevalence rates of body image disturbance have focused on body dissatisfaction. It has become evident that over the past 25 years, body dissatisfaction has significantly increased for both females and males, with females reporting greater body dissatisfaction about most physical attributes (Thompson et al., 1999). The pervasiveness of body dissatisfaction in our society is an issue of concern given its association with numerous health concerns, including eating disturbances (Thompson et al., 1999; Cash & Deagle, 1997), social anxiety (Cash & Flemming, 2002), depression (Denniston, Roth, & Gilroy, 1992; Noles, Cash, & Winstead, 1986), sexual difficulties (Wierderman, 2002), and poor self-esteem (Powell & Hendricks, 1999; Thompson & Altabe, 1991). Body dissatisfaction is also recognized as a precursor to eating disturbances (Thompson et al. 1999). The potential negative

consequences of body dissatisfaction have led to a greater emphasis on factors that influence body image development.

Interpersonal experiences, such as social interactions and feedback about one's physical appearance, have emerged as significant contributors to body image (Thompson et al., 1999). An individual's body image is strongly affected by others' reactions to their physical appearance (Thompson et al., 1999). Appearance-related feedback, in particular, provides individuals with a great deal of information about how others view them and the acceptability of their physical attributes. It often reflects others' opinions and expectations regarding physical attractiveness. This type of feedback includes both verbal and nonverbal messages about one's physical appearance, ranging from direct comments to more ambiguous comments or subtle body language.

Within the category of appearance-related commentary, there are even different types that seem to have distinct meanings and implications. Compliments about a physical attribute can be interpreted in a positive manner and enhance body image. On the contrary, appearance-related teasing and criticism have a negative connotation and seem to contribute to poor body image (Thompson et al., 1999). Interestingly, positive appearance-related commentary has also been associated with levels of distress that are similar to negative appearance-related commentary (Herbozo & Thompson, 2006a, 2006b). In regards to less explicit appearance-related feedback, the meaning of ambiguous comments and subtle body language are not always as evident. Ambiguous comments are those that may be interpreted in a negative, neutral, or positive manner. Examples of ambiguous appearance-related comment are as follows: "Have you been to the gym lately?" or "You look different since I last saw you." In a similar way, body

language, such as facial expressions and gestures (e.g., pointing), may be viewed as indicating approval or disapproval of a physical attribute.

Given the high value our society places on female physical attractiveness, it is not surprising that females are frequent targets of appearance-related feedback. Both adolescent and adult females receive appearance-related feedback from family, peers, friends, romantic partners, and even strangers (Thompson, 1992; Tantleff-Dunn & Thompson, 1995). Retrospective studies have shown the prevalence of appearance-related feedback in childhood and adolescence. In a sample of college women, Cash (1995) found that 72% of the women had been teased or criticized about their appearance for an average duration of 5.8 years. Peers in general (60%) were most often identified as perpetrators of teasing or criticism about physical appearance. Also, among the most frequent perpetrators, the “worst” perpetrators were collectively peers in general, specific peer(s), and friends (62%). Family members (35%), including brothers, sisters, mothers, fathers, and other relatives, were also mentioned as the “worst” perpetrator. Rieves and Cash (1996) also examined negative appearance-related feedback among college females and found results consistent with those of Cash (1995).

Schwartz et al. (1999) found that both college females and males receive verbal and nonverbal appearance-related feedback from their parents. Ninety-six of the females were exposed to less direct, and often nonverbal, appearance-related feedback from their mother and 94% from their father. Similar rates were found for the males (mother, 93%; father, 92%). To a lesser extent, parental feedback in the form of weight-related teasing comments was also reported. Twenty-one percent of females were recipients of weight-related teasing comments made by their mother and 28% by their father. Among the

males, 15% received weight-related teasing comments from their mother and 18% from their father. In general, there was a slight trend for females to receive more appearance-related feedback compared to males which coincides with the greater emphasis on female physical appearance in Western cultures (Thompson et al., 1999). It was also found that indirect and subtle appearance-related feedback (e.g., facial expressions) occurred more frequently than overt teasing comments.

More recently, researchers have examined a range of appearance-related feedback, including positive verbal commentary. Herbozo and Thompson (2006a) developed the Verbal Commentary on Physical Appearance Scale (VCOPAS) which has two subscales that assess positive appearance-related comments regarding body shape and overall physical appearance, in addition to a subscale that measures negative appearance-related comments. They found similar frequency rates of positive and negative comments using the VCOPAS with a college female sample. Positive appearance-related feedback has also been studied in older females. McLaren, Kuh, Hardy, & Gauvin (2004) investigated both positive and negative comments recalled across the lifespan among middle-aged women. Over half the women received positive comments from their partners. In contrast, about one quarter of the women received negative comments from this same source. Also, while growing up, approximately one quarter of the women received positive comments primarily from their mothers (64%) whereas one third of them received negative comments mostly from peers (62%). These findings indicate the importance of evaluating different types of appearance-related feedback from various sources across age groups.

The possible detrimental effects of negative appearance-related feedback have been demonstrated in many nationwide-wide surveys and empirically-based studies (Thompson et al., 1999). There is overwhelming evidence suggesting that appearance-related teasing is significantly related to body image and eating problems as well as poor psychological functioning in adolescent and adult females (e.g., Fabian & Thompson, 1989; Thompson, 1991; Thompson et al. 1995; Gleason, Alexander, & Somers, 2000; van den Berg, Wertheim, Thompson, & Paxton, 2002). Although weight-related teasing has received the most attention in previous research, recent studies have indicated that even nonverbal and subtle negative feedback is also associated with negative outcomes, such as body dissatisfaction, eating disturbance, and low self-esteem (Thompson et al., 1999; Tantleff-Dunn & Gokee, 2004).

However, a review of the literature indicates that very little is known about how less direct, ambiguous forms of appearance-related feedback, in particular, lead to problematic consequences for some individuals but not others. It is evident that the link between ambiguous appearance-related feedback and negative outcomes lacks theoretical conceptualization regarding the processing and acceptability of that type of feedback. The individual factors associated with processing such appearance-related feedback in a negative manner have not been thoroughly explored. Further, only a few studies have examined appearance-related feedback using an experimental design (e.g., Tantleff-Dunn & Thompson, 1998; Furman & Thompson, 2002) and no studies have done so with ambiguous appearance-related commentary in an *in vivo* context. The noted limitations of the current research on appearance-related feedback are worth addressing given the well-documented prevalence and effects of negative appearance-related feedback among

females.

Therefore, the current study on the effects of ambiguous appearance-related feedback will use a cognitive processing model as a conceptual framework. In this study, ambiguous appearance-related feedback or ambiguous nonappearance-related feedback was provided to undergraduate college females in order to evaluate the immediate effects on body image, mood states, and intentions to diet, use unhealthy weight control methods, and exercise. State appearance comparison was examined as a potential mediator. In addition, the trait variables of appearance satisfaction, appearance schematicity, thin-ideal internalization, and appearance comparison as well as history of appearance-related teasing were assessed as potential moderators.

The first section of this paper will review the literature examining the influence of negative appearance-related feedback on body image, eating disturbance, and psychological functioning. Next, the cognitive processing and social comparison models of body image disturbance will be described. The application of these models to eating disorders will also be discussed. Finally, a pilot study will be presented in detail followed by the hypotheses for the current study.

#### *Negative Appearance-related Feedback, Body Image, and Eating Disturbance*

In the first nationwide survey conducted in *Psychology Today*, Cash, Winstead, and Janda (1986) found that women who experienced appearance-related teasing during childhood were more likely to be dissatisfied with their appearance as adults. Using a subsample from the survey by Cash and colleagues (1986), Brown, Cash, & Lewis (1989) found that compared to adolescent female controls, adolescent females with binge-purge behaviors had a greater history of appearance-related teasing, were less satisfied with



their weight, experienced more anxiety about becoming fat, and had poorer psychosocial adjustment. A more recent nationwide survey conducted in *Psychology Today* (Garner, 1997) further supports the notion that appearance-related feedback influences one's body satisfaction. Of the 4,000 respondents, 44% of the women and 35% of the men reported that their body image was shaped by "being teased by others" during childhood and adolescence. Many of the respondents' comments demonstrate the extent to which previous appearance-related teasing has affected their body image. For example, a 37-year-old woman wrote, "No matter how thin I become, I always feel like the fat kid everyone made fun of" (p. 42, Garner, 1997). In addition, several respondents mentioned other interpersonal factors that have influenced their current body image. Forty percent of the women and 29% of the men reported that their partner's opinion about their appearance makes them feel unhappy about their body. Thirty percent of the women and 19% of the men said that "being around someone critical" also makes them feel bad about their body.

Numerous early research studies also provide evidence for the negative outcomes associated with teasing during childhood and adolescence. In a sample of college women, Thompson and Psaltis (1988) found that both teasing frequency and effect were strongly related to overall physical appearance satisfaction and eating disturbance. Fabian and Thompson (1989) reported that frequency of teasing was significantly associated with body satisfaction and effect of teasing with eating disturbance and depression in adolescent females. In regards to females with unhealthy eating patterns, Thompson (1991) found that eating disturbed college females experienced more teasing and negative effects of teasing compared to asymptomatic college females. The eating

disturbed college females also reported less general appearance satisfaction.

As a result of these initial findings, the negative verbal commentary model of body image and eating disturbances was proposed (Thompson, 1992). Negative appearance-related commentary, especially teasing, has been recognized as an important developmental factor in the formation of one's body image. The evident role of appearance-related teasing in the context of body image and eating disturbances led researchers to further investigate teasing and negative appearance-related feedback as well as other types of feedback using more-empirically supported measures.

In a 3-year longitudinal study, Cattarin and Thompson (1994) found that teasing history predicted later body dissatisfaction in adolescent females. A covariance structure modeling (CSM) study by Thompson et al. (1995) indicated that teasing history directly influenced the development of body image and eating disturbances in adolescent females. Similar findings have been reported in cross-cultural studies with adolescents (e.g., Lunner et al., 2000; van den Berg et al., 2002). For instance, in a CSM study on Australian adolescent girls, van den Berg and colleagues (2002) found that teasing history was the strongest predictor for body dissatisfaction. These studies with adolescents suggest that teasing may be related to the onset of body image and eating disturbances.

The negative correlates of appearance-related teasing are also evident in studies with adult females. Thompson and Heinberg (1993) reported that weight and size teasing among college females uniquely predicted body dissatisfaction and eating disturbance. In a previously mentioned study with college females, Cash (1995) found that being teased or criticized about one's physical appearance was moderately upsetting or more upsetting

for about 71% of the women who experienced these events. Approximately 70% of the teased or criticized women also said they still think about these events and that they influence their current body image to some extent. Interestingly, both prevalence and emotional impact (e.g., level of distress) of appearance-related teasing or criticism were strongly related to appearance evaluation and situational body-image dysphoria. This latter finding highlights the need to examine the emotional impact of appearance-related teasing or criticism experiences, in addition to the frequency of such experiences.

The findings of Cash (1995) were replicated and extended in a similar study by Rieves and Cash (1996) which was also described earlier. They reported that of the women who were teased or criticized about their physical appearance, 70% said these experiences were “moderately” to “extremely” upsetting and 38% felt they had a negative impact on their body image development. It was also found that being teased or criticized about one’s physical appearance seemed to have a harmful effect on body image during adulthood. These events were associated with current negative appearance evaluation, maladaptive appearance assumptions, body image dysphoria, and overweight preoccupation.

In a study focusing on ethnic differences among college women, Akan and Grilo (1995) found that frequency of weight and size-related teasing was associated with problematic eating behaviors and attitudes and body dissatisfaction in African-Americans and Caucasians. These associations were not found among Asian-American females; however, this ethnic group reported significantly less exposure to weight and size-related teasing. Stormer and Thompson (1996) found that history of weight-related teasing was a significant predictor of body image disturbance for a sample of college females. In a

subsequent CSM study with college women, Thompson, Coover, and Stormer (1999) reported that the effect of appearance-related teasing history on body image and eating disturbance was mediated by appearance-based comparisons. Body image was also identified as a mediational link between appearance-related teasing and eating disturbance. These findings coincide with other CSM studies on adolescent females (e.g., Thompson et al. 1995, van den Berg, Wertheim, Thompson, 2002) that indicate teasing regarding physical appearance may contribute to the development of body image and eating disturbances.

Cross-cultural studies further demonstrate the negative correlates of appearance-related teasing on adult females. In a study intended to replicate and extend the findings of Thompson and Stormer (1996), Mautner, Owen, and Furnham (2000) examined appearance-related teasing and body image disturbance in college females from the United States, Italy, and England. Consistent with the study by Stormer and Thompson (1996), history of weight-related teasing predicted body image disturbance in all three Western cultures. There were no cultural differences in the relationship between teasing history and body image disturbance. More recently, Shroff and Thompson (2004) evaluated the relationships between body mass index (BMI), history of weight-related teasing, media internalization, and body image and eating disturbance in a sample of Indian adolescent and adult females. For both female samples, weight-related teasing mediated the relationship between BMI and body dissatisfaction. This finding indicates that the occurrence of weight-related teasing, not weight (BMI) per se, may lead to body dissatisfaction. It also supports previous research (e.g., Lunner et al., 2000, van den Berg et al., 2002) with adolescent females in other Western cultures.

Unlike the research on appearance-related feedback among females, only a few studies have examined the potential negative impact of such interpersonal experiences for males. Gleason, Alexander, and Somers (2000) evaluated the influence of three types of childhood teasing (competency, weight, and appearance) on self-esteem and body image in a sample of college females and males. In general, males were negatively affected by fewer forms of teasing compared to females. Nevertheless, more frequent childhood teasing was a significant predictor of lower self-esteem and poorer body image for both females and males. An interesting finding was that females and males were affected by certain types of teasing in different ways. Competency-related teasing predicted self-esteem in males whereas appearance- and competency-related teasing predicted self-esteem in females. The only predictor of body image for both females and males was weight-related teasing.

Different effects of appearance-related feedback on females and males have also been found for less direct forms of feedback. Tantleff-Dunn et al. (1995) reported that appearance-related feedback, both verbal and nonverbal, was associated with poorer body image and more eating disturbance for both females and males. However, appearance-related feedback was also related to lower self-esteem and greater depression in females. Schwartz et al. (1999) found that appearance-related feedback, including nonverbal feedback, was associated with and predictive of overall physical appearance satisfaction in females, but not males. Yet, appearance-related feedback was a correlate and predictor of psychological functioning for both females and males. The appearance-related feedback studies conducted thus far with females and males illustrate the possible harmful effects of such feedback for both genders.

Studies with obese individuals suggest that negative appearance-related feedback may be particularly problematic for this population, especially adolescents. A population-based study of eating patterns and weight concerns among 4,746 adolescents (Project Eating Among Teens) demonstrates the potential negative consequences of weight-related teasing for overweight adolescents (Neumark-Sztainer et al., 2002). Neumark-Sztainer and colleagues (2002) reported numerous associations between weight-related teasing and unhealthy weight control methods, such as diet pills, laxatives, diuretics, and self-induced vomiting. The occurrence of teasing, rather than weight status (BMI), seemed to contribute to greater use of unhealthy weight control methods. In addition, a study by Eisenberg, Neumark-Sztainer, and Story (2003) found that more frequent exposure to weight-related teasing was significantly related to less body satisfaction, poor self-esteem, more depressive symptoms, and higher rates of suicide ideation and attempts in adolescent females and males across weight groups. As in the study by Neumark-Sztainer et al. (2002), weight-related teasing, not weight status (BMI) per se, influenced the negative outcomes.

The potential negative effects of weight-related teasing are evident in research with obese adults as well. Grilo et al. (1994) reported that greater frequency of weight and size teasing was related to more negative appearance evaluation and body dissatisfaction in obese women during adulthood. Wardle, Walter, and Fox (2002) found that women with a childhood onset of obesity (i.e., reported being overweight by age 16) had a higher BMI, greater body dissatisfaction, greater history of childhood teasing, and lower self-esteem compared to women with an adult-onset. It was also found that greater childhood teasing was associated with earlier age of obesity onset, higher BMI, higher

body dissatisfaction, and lower self-esteem in the entire sample. In a sample of obese women seeking weight loss, Matz, Foster, Faith, and Wadden (2002) identified adult teasing, but not youth teasing, as a significant predictor of body image dissatisfaction. Greater exposure to teasing during adulthood was also associated with higher levels of body image dissatisfaction. As noted by Matz, Foster, Faith, and Wadden (2002), these latter findings indicate the value of assessing obese females' current interpersonal experiences. Previous research has primarily focused on teasing and feedback during childhood and adolescence and its negative consequences in later years, with little attention given to such incidents occurring in adulthood.

Furthermore, there is preliminary evidence that indicates appearance-related teasing is associated with binge eating and poor psychological functioning. In a study (Project Eating Among Teens) noted earlier, Neumark-Sztainer et al. (2002) found that overweight adolescents who experienced frequent weight-related teasing were more likely to engage in binge eating than overweight adolescents who were not teased. This relationship between weight-related teasing and binge eating remained statistically significant even after BMI and demographic variables were controlled for. In addition, Jackson, Grilo, and Masheb (2000) reported that both weight and size teasing and general appearance teasing were significantly associated with poor self-esteem and depression in a clinical sample of women with binge eating disorder. Only general appearance teasing was associated with current body dissatisfaction. In a study comparing females with bulimia nervosa and females with binge-eating disorder, Jackman and colleagues (2002) found that weight and size teasing was associated with lower self-esteem whereas general appearance teasing was related to lower self-esteem and more depression among the

females with bulimia nervosa. For the females with binge eating disorder, general appearance teasing was associated with more dietary restraint and depression. Thus, these initial studies indicate that teasing may play a role in the development of an eating disorder characterized by binge eating and affect certain areas of psychological functioning.

Anecdotal evidence also illustrates how individuals with eating disorders can be affected by receiving feedback about their physical appearance. Many eating-disordered patients report that receiving negative appearance-related feedback led them to believe they are “physically defective in some way” (Rosen, 1992, p. 169). Body dysmorphic disordered patients similarly recall appearance-related comments, which triggered or worsened their preoccupation with an appearance “defect” (Rosen, 1992, p. 169). These case histories suggest that negative appearance-related feedback may have an enduring impact on one’s body image. It is likely that certain individuals who are frequently exposed to appearance-related feedback become sensitive to this issue and react more negatively to future incidents of such feedback (Thomspon, et al., 1999).

Although numerous studies support the notion that appearance-related feedback may contribute to the onset or maintenance of body image and eating problems, most of these studies are correlational in nature and do not allow for causal explanations. To date, only four studies have investigated negative appearance-related feedback in an experimental setting. Heinberg and Thompson (1992) examined the effects of body size feedback and target comparison group on college females’ overall body dissatisfaction. The females were provided feedback in which their body size was identified as smaller or larger (positive or negative feedback) when compared to the average USF student or



average USA citizen (particularistic or universalistic group). Body dissatisfaction, weight anxiety (state), mood, and self-esteem were assessed before and after the feedback. The degree to which the females felt their feedback was negative or positive and identified their specific comparison group as an important comparison group was also evaluated. The results indicated the type of feedback did not significantly influence the females' body image, mood, or self-esteem. However, body image disturbance was found in females who received body size feedback in comparison to a particularistic group but not those given feedback in reference to a universalistic group. The females with a particularistic target group reported greater anxiety and distress about their bodies regardless of the type of feedback given to them. Based on these findings, Heinberg and Thompson (1992) emphasize the importance of examining different target comparison groups and the threatening nature of comparisons with similar others.

Tantleff-Dunn and Thompson (1998) studied the effects of body image anxiety and appearance-related feedback on recall, judgment, and affective responses using two videotaped vignettes with college women. Each vignette consisted of a social interaction between a male and female acquaintance, with the male providing subtle appearance-related feedback (verbal or nonverbal) or non-appearance-related feedback to the female. After watching the videos, free recall of the social interaction and perceived reaction (ranging from negative to positive) of the woman in the video were assessed. Mood reactions to the vignettes were also examined. The findings indicated that free recall of the appearance-related feedback was not significantly different for females with high or low levels of body image anxiety. However, high body image anxiety females found incidents of appearance-related feedback to be more negative for the female recipient

than the non-appearance-related feedback. This difference was not found for the low body image anxiety females. Also, compared to females with low body image anxiety, those with high body image anxiety experienced higher levels of anger after viewing the appearance-related feedback video. Tantleff-Dunn and Thompson (1998) concluded that the reactions of the high body image anxiety females might have been influenced by a cognitive bias, leading them to perceive certain social interactions in a more negative manner.

More recently, in a sample of college women, Furman & Thompson (2002) examined the influence of teasing history on one's mood and body satisfaction after reading vignettes in which another female is the target of teasing. The female in the vignette either received a teasing comment regarding her physical appearance or her abilities during a social interaction. Unexpectedly, the results indicated that a history of teasing was not a significant predictor for mood responses in the negative appearance or abilities scenarios. Only eating disturbance uniquely predicted mood reactions for both scenarios. Furman and Thompson (2002) noted that the failure of teasing history to significantly affect mood responses might be due to the few women who reported teasing experiences. Another possibility is that teasing history might have influenced the onset of eating disturbance without affecting psychological responses to weight and shape-related experiences (Furman & Thompson, 2002).

Befort and Rickard (2003) investigated the effect of figure-size feedback on body image, self-esteem, and negative mood states of college men and women. This was a selected nonclinical sample that had a normal body weight range and did not report any symptoms of eating disorders. Both men and women were given positive, negative, or no

feedback about their figure-size. The feedback involved describing their body figure as “ideal” (positive feedback) or “somewhat overweight or disproportionate” (negative feedback) according to the opinions of their classmates. Body esteem, weight and appearance satisfaction, mood states, self-esteem, and feedback on physical appearance were measured before and after the feedback was provided. Gender differences in response to the figure-size feedback were of particular interest. Men were expected to show a positive response bias whereas women were expected to respond in line with the positive or negative valence of the feedback. The findings showed no significant differences between men and women. As noted by Befort and Rickard (2003), it is likely that the selection criteria for the study contributed to the lack of gender differences in response to the feedback. There was minimal gender differences in body image a priori due to the criteria used. Given the limited research involving manipulation of appearance-related feedback, it is evident that more experimental studies are needed to test the negative verbal commentary model of body image and eating disturbances.

The extant literature on physical appearance-related feedback, particularly negative feedback, clearly demonstrates its potential harmful effects on body image, eating patterns, and psychological functioning. Yet, there are still many unanswered questions about the processing of appearance-related feedback and the manner in which it leads to negative outcomes among only a subset of individuals. This is especially true with ambiguous-related feedback. Can ambiguous appearance-related feedback be processed in a way that produces effects similar to those of teasing and negative appearance-related feedback? What individual factors influence how message recipients process ambiguous appearance-related feedback? Specifically, what individual factors

influence whether or not they accept this feedback and subsequently modify attitudes and behaviors related to their physical appearance? The current study examines the impact of several individual factors (e.g., message recipient's appearance satisfaction, appearance-schema activation) on responses to ambiguous appearance-related feedback provided in an experimental setting. As highlighted earlier, studies on appearance-related feedback have not used an in vivo experimental design to investigate the processing of ambiguous appearance-related feedback. Previous studies also have not examined individual factors in the context of processing ambiguous appearance-related feedback. The novel application of a cognitive processing paradigm to the area of ambiguous appearance-related feedback is likely to increase our understanding of how this feedback may contribute to body image and eating disturbances.

#### *The Cognitive Processing Model*

Within the past few years, researchers have developed a cognitive, or information processing, model for the body image disturbance associated with eating disorders (Vitousek and Hollon, 1990; Thompson, et al. 1999). The most recent model by Williamson et al. (2004) integrates previous research in this area to provide an extensive framework for understanding the role of information processing in the development of body image disturbance and the differing levels of this disturbance. As with other cognitive models, the foundation of Williamson et al.'s model (2004) is schemas and schema-driven processing of information. Schemas are generally described as cognitive structures or mental representations that influence the processing of information. Self-schemas, in particular, have been defined as "cognitive generalizations about the self, derived from past experiences, that organize and guide the processing of the self-related

information contained in an individual's social experience" (p. 64, Markus, 1977). The cognitive processing model by Williamson et al. (2004) proposes a body self-schema which consists of memory and knowledge stores about the self and body size/shape and eating issues. As suggested by memory theories (Bower, 1981; Lang, 1984), it is argued that memories related to the body are associated with emotional memories related to the body. An implication of this assertion is that if a body memory is activated, then the corresponding emotional body memory will be activated as well (Williamson et al., 1999). The reverse is also expected to occur. Furthermore, it is suggested that the activation of the body self-schema is determined by the relevance of body-related information to environmental events. As the body self-schema is activated more frequently, it develops into a more dense network of associations that becomes easily activated and accessible from memory. This body self-schema is hypothesized to affect how much an individual pays attention to body and food-related stimuli and interprets self-relevant events.

Consistent with research on cognitive bias, Williamson et al.'s model (2004) is also based on the notion that an individual's psychological concerns influence their schemas and bias the processing of information relevant to those concerns. It is argued that the body self-schema of individuals who are overly concerned with body size/shape, food, and/or eating issues biases the manner in which information related to such issues is processed. These errors in information processing are not limited to individuals diagnosed with eating disorders, but rather, are also common among normal-weight and underweight individuals with particular traits (Williamson et al., 2004). Individuals characterized by a fear of fatness, an excessive concern with body size/shape, thin ideal

internalization, and perfectionism/obsessionality are considered to be the most susceptible to cognitive body-image related biases (Williamson, et al, 2004). Of these traits, thin ideal internalization has received the most empirical support as a risk factor promoting the development of body image and eating disturbances. Thin ideal internalization is defined as “the extent to which an individual cognitively ‘buys into’ socially defined ideals of attractiveness and engages in behaviors designed to produce an approximation of these ideals” (Thompson & Stice, 2001). In a recent meta-analysis study of risk and maintenance factors for eating pathology, Stice (2002) found that thin-ideal internalization was a causal risk factor for body dissatisfaction, dieting, negative affect, binge eating, and bulimic symptoms. Given that this particular trait is based on prior processing of sociocultural messages regarding the ideal body shape, it is likely to have the strongest influence on the manner in which body-related information is processed.

Further, different types of cognitive biases have been identified in Williamson et al.’s model (2004), including attentional bias, memory bias, judgment bias (or selective interpretational bias), body size overestimation, and preference for extreme thinness. This model also hypothesizes that among the “susceptible” individuals, cognitive biases are activated by exposure to body or food-related information, ambiguous stimuli, and self-reflection tasks, which are expected to activate the body self-schema. Finally, Williamson et al.’s model (2004) proposes various interactions between the body self-schema, negative emotion, and cognitive biases, all of which suggest a feedback loop where one component can potentially activate the other. For instance, it is hypothesized that activation of cognitive biases also activates negative emotion and negative emotion

interacts with the body self-schema to elicit cognitive biases. The model argues that the feedback loop may be experienced as an obsession and/or overwhelming anxiety that must be escaped or avoided. This aversive experience may lead to the use of compensatory behaviors or other behaviors (e.g., body checking) which reduces negative emotions but at the same time, reinforces the behavior (Williamson, 1990).

There is strong evidence for the conceptual foundations and hypotheses of Williamson et al.'s model (2004). In particular, previous research supports the model's cognitive body image-related biases and demonstrates the manner in which they contribute to body image and eating problems. The attentional bias, which is defined as increased attention towards stimuli related to body size/shape and food, has been investigated in a number of studies with eating disordered and non-eating disordered samples. These studies have used different tasks, including the modified Stroop Color Naming test (Long, Hinton, & Gillespie, 1994; Fairburn et al., 1991; Perprina et al., 1993), dichotic listening task (Schotte, McNaly, & Turner, 1990), and lexical decision task (Fuller, Williamson, & Anderson, 1995). It has been found that depending on the type of laboratory task, the selective processing of information associated with body size/shape and food (e.g., greater attention for such stimuli) seems to either impair or enhance task performance. Studies utilizing the emotional Stroop task have demonstrated an interaction effect characterized by slower reaction times for the color naming of eating disorder salient words (e.g., 'fat'). For instance, Long, Hinton, and Gillespie (1994) found that anorexic and obese restrained eaters took longer than a control group, to color-name body- and food-related words. Perprina et al. (1993) found a similar interference effect in anorexics, bulimics, and control with restrained eating behaviors. Studies

focusing exclusively on bulimics have also noted an interference in naming food, shape, and weight words (Cooper et al., 1992; Cooper & Fairburn, 1992) as well as body words (Davidson & Wright, 2002) in comparison to controls.

In contrast to emotional Stroop task studies, studies using a dichotic listening task or a lexical decision task have demonstrated that performance is enhanced by attentional bias. Schotte, McNally, and Turner (1990) conducted a dichotic listening task study and found that bulimics detected body-related words in the unattended passage more frequently than normal controls. Similarly, in a lexical decision task study, Fuller and colleagues (1995) found that normal weight-women with high body dysphoria were more accurate in detecting body and food words compared to women with low body dysphoria; however, there were no group differences in detecting control words. The findings of these studies indicate that individuals highly preoccupied with body size/shape and food, not only those with eating disorders, direct greater attention towards information related to their concerns.

The memory bias of Williamson et al.'s model (2004) has also been examined. It refers to a recall bias in which information related body size/shape and food is more readily encoded in memory and easily recalled than other types of information. Previous studies have used self-referent encoding tasks (Baker, Williamson, & Sylve, 1995; Sebastian, Williamson, & Blouin, 1996) as well as naturalistic memory recall tasks (Watkins et. al, 1995) to evaluate a memory bias for body-related stimuli. Baker, Williamson, and Sylve (1995) found that women with high body dysphoria recalled more fat words and fewer thin words than the women with low body dysphoria. There were also significant differences between the recall of body-related words and depressive and



neutral words. No significant recall differences indicative of a recall bias were reported for the low body dysphoric group. With regards to negative mood, the results showed that current body size estimation and body dysphoria increased following negative mood induction in a subset of the sample. In contrast, recall bias for fatness stimuli was not affected by this procedure.

In a similar study, Sebastian, Williamson, and Blouin (1996) found support for a memory bias in women with an eating disorder. They reported an increased recall for fat body words in an eating disorder group, but not the high body dysphoric group or control group. The lack of a memory bias for fat body words in the high body dysphoric group is likely due to use of a normal control group rather than a low body dysphoric group and the subsequent reduction in the power to detect group differences (Williamson, 1996). No significant group differences were evident in recall of nonfat body words or neutral words. Furthermore, Watkins and colleagues (1995) found that compared to individuals with low body dysphoria, those with high body dysphoria recalled more body-related items than other items (e.g., office items, non-office related items, food-related items) in an office setting. There were no significant differences between the groups for recall of other items. These studies on memory bias suggest the presence of an enhanced recall of fat body words in individuals with an eating disorder and those overly concerned with body size/shape and food issues. The study by Baker and colleagues (1995) also indicated that this recall bias for fatness stimuli is not influenced by negative mood states whereas body size estimation and body dysphoria are reactive to such mood states.

Previous studies have also investigated the judgment (or selective interpretation) bias in the Williamson et al. model (2004). This bias is defined as selective interpretation

of information in ambiguous situations that is consistent with one's body size and shape concerns. Watkins et al. (1995) found that compared to the low body dysphoric group, the high body dysphoric group had a significantly higher frequency of interpreting ambiguous words (e.g., polysemous such as "chest" or homophones such as "waste" or "waist") with a body-shape meaning than a non-body shape meaning. There were no significant differences between the groups regarding the interpretations of neutral (e.g., non-body shape) ambiguous words. Jackman and colleagues (1995) found that athletes with high body dysphoria applied a fatness interpretation to body-related ambiguous situations whereas the athletes with low body dysphoria applied a thinness interpretation to the same ambiguous situations. No significant differences were found in terms of how they interpreted ambiguous situations pertaining to health and performance concerns.

Consistent with the findings of Jackman et al. (1995), a similar study by Perrin (1995) indicated that women with body dysphoria and those with eating disorders recalled body-related situations with a fatness interpretation. The nonsymptomatic women used a thinness interpretation for the same ambiguous situations. The results also showed that both body dysphoria and eating disorder women were able to modify their cognitions when given instructions (e.g., imagine the scene with either a positive or negative meaning) to guide their interpretations. Although this effect was small, this latter finding has important implications for the treatment of eating disorders. It suggests that the negative manner in which eating disorder patients process body-related ambiguous information pertaining to the self can be altered with therapeutic intervention.

In addition to the attentional, memory, and judgment biases, Williamson (1996) has argued for recognizing body size overestimation and preference for thinness as other

forms of body image cognitive biases. He noted that a majority of the body estimation tasks involve making judgments about an ambiguous stimulus without any guidance; therefore, these tasks can be viewed as ambiguous situations that are susceptible to biased judgments. For example, some tasks require individuals to estimate the size of a particular body part or select a silhouette figure that most resembles their body shape. Tasks with self-referent instructions are hypothesized to trigger the body self-schema, including negative emotions and memories associated with body size/shape, and to most likely result in biased judgments of body size (e.g., a fatness interpretation) among high dysphoric individuals. These biased estimations are predicted to be consistent with the negative memories and emotions that are part of the body self-schema.

Williamson (1996) also noted that such judgment biases are probably influenced by the body-related attentional and memory biases discussed earlier. Individuals who easily recall and selectively process body-related information, such as those with high body dysphoria, may be more likely to misinterpret body-related stimuli in ambiguous situations. Furthermore, body size estimation has been shown to be labile in high dysphoric individuals experiencing negative emotion (Baker, Williamson, & Sylve, 1995; McKenzie, Williamson, & Cubic, 1993). As previously mentioned, the activation of body memories and of related emotional memories should co-occur, according to memory theories (Bower, 1981). The activation of negative emotion, in particular, is expected to make high body dysphoric individuals sensitive to body-related stimuli and in turn, lead to greater body size over estimation. This activation seems to determine the extent to which body size overestimation is labile.

In regards to the preference for thinness, Williamson (1996) noted that it should be viewed as “a person’s standard or expectation for perfection of physical appearance” (p. 55). This preference for thinness (or ideal body size) has been shown to be distinct from actual perceived body size. Studies have indicated that ideal and current body size estimates are separate constructs (Gleaves et al., 1995; Williamson et. al, 1993), with ideal body size being the construct that is more stable and unaffected by negative emotion (Baker, Williamson, & Sylve, 1995; McKenzie et al., 1993). Given these findings, Williamson (1996) proposed that the preference for extreme thinness might be due to an anchoring bias in which the ideal body size standard is anchored at a very thin level. This “anchor” of the thin ideal body size is hypothesized to shift to lower body weights over time in further efforts to reduce body dysphoria (Williamson, 1996). It is also predicted to motivate individuals to lose even more weight and result in a drive to attain an extremely thin body.

The reviewed studies on cognitive biases involving attention, memory, judgment, and preference for extreme thinness support the theoretical basis of the information processing model for body image disturbance (Williamson et al., 2004). The findings from these studies suggest that the cognitive biases are specific to body- and eating-related information and are common in individuals who are preoccupied with their body size and shape, in addition to those with eating disorders. However, it is evident that only a limited number of studies have examined each cognitive bias, many of which are not recent studies. Additional research on the cognitive biases that serve to maintain body image and eating problems is warranted. The current study was intended to contribute to this area by further exploring one of these biases, the judgment bias, specifically in the

context of ambiguous appearance-related feedback. Based on Williamson et al.'s (2004) cognitive processing model, this type of investigation may provide insight on the processing of ambiguous appearance-related feedback that can result in negative outcomes.

### *The Social Comparison Model*

The social comparison theory (Festinger, 1954) is another relevant model that provides a good framework for further understanding why some women might respond to ambiguous appearance-related feedback in a more negative manner than other women. According to the social comparison model (Festinger, 1954), individuals have an innate drive to self-evaluate themselves on numerous attributes, one of which is physical appearance. It is proposed that individuals who are uncertain about an attribute will determine their standing on that particular attribute by comparing themselves to objective sources of information or to others in the social environment. In addition to self-evaluation, self-improvement and self-enhancement have been identified as motives for engaging in social comparison that differentially influence the target selected for comparison (Wood, 1989). Individuals seeking self-improvement select a comparison target that is inferior on the attribute of interest, which is known as a *downward comparison* (Kruglanski & Mayseless, 1990). In contrast, those who desire self-enhancement select a comparison target that is superior on the attribute of interest, resulting in an *upward comparison* (Kruglanski & Mayseless, 1990). This latter type of comparison has been associated with negative outcomes, such as increases in emotional distress and decreases in self-esteem (Major, Testa, & Bylsma, 1991).

Social comparisons related to physical appearance, in particular, have been examined in the area of body image and eating disturbances. In this context, it is argued that individuals with a tendency to compare their physical appearance to others and engage in upward comparisons are more likely to be negatively influenced by sociocultural messages on the thin ideal body for females. Several correlational studies have consistently shown that higher levels of social comparison tendencies are associated with greater with body dissatisfaction (Thompson et al., 1999). Experimental studies (e.g., Heinberg & Thompson, 1992, Cattarin et al., 2000) in this area have further indicated that an overall tendency to engage in social comparisons, not the type of comparison per se, plays an important role in body image disturbance.

Given findings related to social comparison, researchers have proposed social comparison as a possible mediator linking various factors to body image disturbance (Heinberg & Thompson, 1995; Irving, 1990; Richins, 1991). In a covariance structure modeling study noted earlier, Thompson, Coover, & Stomer (1999) found that appearance-based social comparison mediated the relationship of early appearance-related teasing to body image and eating disturbance in a sample of college women. More recent studies have examined the actual appearance comparison processing. The findings from these studies support the mediational role of this specific type of social comparison processing. Tiggemann and Slater (2003) reported that the link between exposure to thin ideal body images in music videos and body satisfaction for college women was mediated by state appearance comparison. Similarly, Tiggemann and McGill (2004) found that state appearance comparison was a mediator for the relationship between exposure to thin ideal body images in magazines and mood and

body dissatisfaction among college women. These findings suggest that state social comparison is one mechanism by which sociocultural pressures regarding female physical attractiveness might result in negative effects.

Previous research has not focused specifically on state appearance comparison as a mediator linking appearance-related feedback, such as ambiguous feedback, with body image and eating disturbances. It is likely that the effect of ambiguous appearance-related feedback may depend on whether or not the message recipient engages in comparisons with the message source in terms of physical appearance. As with thin ideal body images in the media, women who compare themselves to a thin, attractive female message source may be those that respond negatively to ambiguous appearance-related feedback from that source.

For instance, a woman who receives ambiguous appearance-related feedback and then compares herself to a thin, attractive female message source, may be more vulnerable to experiencing body dissatisfaction and negative emotions. It is possible that the message recipient may place higher value on feedback coming from a thin, attractive message source who fits with the sociocultural ideal body shape. This message recipient may also be more likely to interpret the indirect feedback in a more negative manner. She may assume that the thin, attractive message source is informing her that she does not meet current social standards of physical attractiveness and in turn, feel bad about her own physical appearance. The subsequent body dissatisfaction may even lead her to engage in or increase the use of body change strategies, such as dieting, unhealthy weight loss methods, or exercising, to enhance her physical appearance. Thus, appearance comparison processing following the occurrence of ambiguous appearance-related

feedback is an area worth exploring in the current study given the potential detrimental effects. The processing of appearance comparisons may be an important target for body image and eating disturbance interventions.

In sum, previous research has shown that the development of body image and eating disturbance is greatly influenced by physical appearance-related feedback. Most studies in this area have primarily focused on teasing and negative appearance-related feedback. There is strong evidence that such feedback is often associated with body dissatisfaction, maladaptive eating behaviors, and psychological distress (Thompson et al., 1999). However, very little is known about ambiguous appearance-related feedback and its impact on others. Specifically, the processing of ambiguous appearance-related feedback has not been investigated.

The literature on the cognitive model proposed by Williamson et al. (2004) provides support for examining schematic processing and cognitive biases in an ambiguous context. Of the cognitive biases described in Williamson et al.'s model, the judgment bias seems the most relevant to the potential errors in the processing of ambiguous appearance-related feedback. Williamson et al.'s (2004) model also identifies several individual factors, such as appearance satisfaction, appearance schematicity, and thin-ideal internalization that might play an important role in the processing of such information. Further, studies related to the social comparison model of body image disturbance suggest that the tendency to engage in social comparisons as well as actual appearance comparisons are individual factors that are also likely to influence how ambiguous appearance-related feedback is processed. Also, given the prevalence and effects of appearance-related teasing, history of appearance-related teasing is another



individual factor that should be considered in the processing of ambiguous appearance-related feedback. The current study examines these individual factors in the context of ambiguous appearance-related feedback using a cognitive processing framework. This study is expected to have important clinical implications by indicating how ambiguous appearance-related feedback can potentially contribute to body image and eating disturbance. More specifically, it is expected that the findings will help identify factors to consider in interventions focusing on errors in processing ambiguous information related to physical appearance.

The main purpose of the current study is to examine the influence of ambiguous appearance-related feedback on the message recipient's body image, mood states, and intentions to use body change strategies using an in vivo exposure design. The message recipients are undergraduate female students who will receive either ambiguous appearance-related or non-appearance-related feedback. Body image and mood states will be assessed before and after the feedback is provided. Intentions to diet, use unhealthy weight control methods, and exercise will be assessed following the feedback. State appearance comparison will be studied as a potential mediator. Trait appearance satisfaction, trait appearance schematicity, trait thin-ideal internalization, trait appearance comparison, and history of appearance-related teasing will be examined as potential moderators influencing the message recipient's response to the feedback. It is expected that some message recipients will process the ambiguous appearance-related feedback in a more negative manner and experience worse outcomes.

The following hypotheses are examined:

1. Body image and mood states will be more negative in the ambiguous appearance-related feedback condition than the ambiguous nonappearance-related feedback condition after receiving the feedback.
2. Intentions to diet, use unhealthy weight control methods, and exercise will be greater in the ambiguous appearance-related feedback condition than the ambiguous nonappearance-related feedback condition after receiving the feedback.
3. State appearance comparison will mediate the effect of ambiguous appearance-related feedback on body image, mood states, and intentions to diet, use unhealthy weight control methods, and exercise.
4. Trait appearance satisfaction, trait appearance schematicity, trait appearance comparison, trait thin-ideal internalization, and history of appearance-related teasing will moderate the effect of ambiguous appearance-related feedback on body image, mood states, and intentions to diet, use unhealthy weight control methods, and exercise.

#### *Pilot Study*

Prior to the current study, a pilot study was conducted with a sample of undergraduate females. Only ambiguous appearance-related feedback was examined. The primary goals of this pilot study were to determine if: 1) the message recipients viewed the confederates' employment status, feedback, and flyers as credible; 2) the message recipients viewed the confederates as thin, attractive, and warm; 3) the ambiguous appearance-related feedback induced negative body image and moods among the message recipients. The secondary goal of the pilot study was to examine a combination pre- to post-test design and post-test only design, with a prime and no prime.

The prime was the administration of the trait measures at the beginning of the study. It was anticipated that the pilot study would indicate if: 1) the pre-test scores for the prime condition are different from the pre-test scores for the no prime condition; 2) the pre-test scores (prime or no prime condition) affect post-test scores (prime, post-test condition and no prime, post-test condition). The findings related to the study design were used to select the most appropriate order for administering measures in the current study. The experimental stimuli and procedures were also slightly modified based on the pilot study findings.

## Method

### *Participants*

The participants consisted of 51 female undergraduate students recruited from the University of South Florida's participant pool. The age of the sample ranged between 18 and 30 ( $M = 20.25$ ,  $SD = 1.77$ ). The sample consisted of 56.9% Caucasian ( $N = 29$ ), 13.7% African American ( $N = 7$ ), 11.8% Hispanic ( $N = 6$ ), 7.8% Asian-American ( $N = 4$ ), and 9.7% *other* ( $N = 5$ ). Based on self-reported height and weight, the average body mass index (BMI) was in the normal range ( $M = 23.60$ ,  $SD = 4.95$ ), with scores ranging from 16.64 to 43.07. Approximately 6% were underweight ( $N = 3$ ), 58.8% were normal weight ( $N = 30$ ), 25.5% were overweight ( $N = 13$ ), and 9.8% were obese ( $N = 5$ ). None of the participants had a current or past history of an eating disorder diagnosis nor received treatment for an eating disorder. All participants received extra credit points in a psychology course as compensation for participating in the study.

Participants were randomly assigned to one of four conditions varying in the measures and order of measures administered. The following four conditions were used

with the order of measures listed: (1) administration of the trait measures, pre-test measures, and post-test measures, (2) administration of the trait measures and post-test measures, (3) administration of the pre-test measures and post-test measures, or (4) administration of the post-test measures only. The measures administered to each participant depended on which group she had been randomly assigned to. Some measures were not administered to participants in certain groups (see Procedure section). All measures will be briefly described in this section and with greater detail in the measures section of the current study.

### *Measures*

#### Demographic Information

Participants were asked to complete a form with demographic information including age, height, weight, race/ethnicity and year in school (see Appendix A). Self-reported height in inches and weight in pounds were used to calculate body mass index (BMI) for all participants. The standard formula was utilized:  $[(\text{weight in pounds}/(\text{height in inches})^2)] \times 703$ .

#### Body Image

The Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation subscale (MBSRQ-AE; see Appendix B, Brown, Cash, & Mikulka, 1990) was used to measure the respondent's satisfaction with her physical appearance. Reliability was acceptable (Cronbach's alpha = .84) in this sample. The MBSRQ-AE was administered as a trait measure before the feedback was given to the participants. The Body Image States Scale (BISS; see Appendix C, Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002) was used to measure state body dissatisfaction. Reliability was

acceptable for the pre-test (Cronbach's alpha = .86) and post-test (Cronbach's alpha = .80) use of the BISS in this sample. The BISS was administered as a state measure before and after the feedback.

### Body Image and Mood

The Visual Analogue Scales (VAS; Appendix D, Heinberg & Thompson, 1995) were used to examine a variety of subjective states and conditions. Only the following VAS items were assessed: satisfaction with overall appearance, anger, anxiety, depression, and self-confidence. The VAS was administered as a state measure before and after the feedback was given to the participants.

### Appearance Schematicity

The Appearance Schema Inventory-Revised (ASI-R; Appendix E, Cash, Melnyk, & Hrabosky, 2004) was used to assess body image investment with regard to particular beliefs and assumptions about the importance, meaning, and influence of appearance in one's life. Reliability was acceptable (Cronbach's alpha = .86) in this sample. The ASI-R was administered as a trait measure before the feedback.

### Thin Ideal Internalization

The Sociocultural Attitudes Towards Appearance Scale-3-Internalization-General subscale (SATAQ-3-I-G; see Appendix F, Thompson et al., 2004) was used as a measure of social comparisons with and desires to look like models and stars in various media. Reliability was excellent (Cronbach's alpha = .94) in this sample. The SATAQ-3-I-G was administered as a trait measure before the feedback.

### Appearance Comparison

The Physical Appearance Comparison Scale (PACS; see Appendix G, Thompson, Heinberg, & Tantleff-Dunn, 1991) was used to measure the tendency to compare oneself to others on different aspects of physical appearance. Reliability was acceptable (Cronbach's alpha = .70) in this sample. The PACS was administered as a trait measure before the feedback.

The State Appearance Comparison Scale (see Appendix H) was used to assess comparison engendered by exposure to the experimental manipulation. Reliability was acceptable (Cronbach's alpha = .76) in this sample. This state measure was administered after the feedback following the post-test measures.

### Appearance-related Teasing

The Physical Appearance-Related Teasing Scale (PARTS; see Appendix I, Thompson, Fabian, Moulton, Dunn, & Altabe, 1991) was used to assess teasing history and consists of the Weight/Size Teasing and the General Appearance Teasing subscales. Reliability was excellent (Cronbach's alpha = .92) in this sample. The PARTS was administered as a trait measure before the feedback.

### Dieting

The Dutch Eating Behavior Questionnaire-Restraint Scale (DEBQ-RS; van Strien, Frijters, Bergers, & Defares, 1986) was used to measure the frequency of dieting behaviors. The directions of this scale were modified to assess usual and intended dieting behaviors (see Appendix J and K). Reliability was acceptable for the DEBQ-RS (Cronbach's alpha = .78) and excellent for the modified DEBQ-RS (Cronbach's alpha =

.93) in this sample. The DEBQ-RS assessing current dieting behaviors was administered as a trait measure before the feedback. The modified DEBQ-RS assessing intended dieting behaviors was administered as a post-test measure after the feedback.

### Bulimic Symptoms

The Eating Disorder Examination-Questionnaire-Bulimia subscale (EDE-Q-B; see Appendix L, Fairburn & Beglin, 1994) was used to assesses the frequency of binge eating and purging (e.g., vomiting, laxative and diuretic use, excessive exercising) over the past week. A modified version of the EDE-Q-B was also utilized to assess intentions to use unhealthy weight control behaviors (see Appendix M). Reliability was acceptable for the EDE-Q-B (Cronbach's alpha = .85) and low for the modified EDE-Q-B (Cronbach's alpha = .62) in this sample. The EDE-Q-B was administered as a trait measure before the feedback. The modified EDE-Q-B was administered as a post-test measure after the feedback.

### Exercise

The Multidimensional Health Behavior Inventory-Exercise subscale (MHBI-E; Kulbok, et al., 1999) was used to measure the frequency of physical activity such as vigorous exercise for at least 20 minutes a day, three times a week. The directions of the MHBI-E were modified to assess usual and intended exercise behaviors (see Appendix N and O). Reliability was acceptable for the MHBI-E (Cronbach's alpha = .85) and modified MHBI-E (Cronbach's alpha = .84) in this sample. The MHBI-E assessing current exercise behaviors was administered as a trait measure before the feedback. The

modified MHBI-E assessing intended exercise behaviors was administered as a post-test measure after the feedback.

### Eating Disorder Screening

Potential participants were prescreened via USF Experimentrak in order to minimize any risk associated with receiving ambiguous appearance-related feedback during the study. The prescreening consisted of a yes/no question asking respondents if they have ever been diagnosed or treated for an eating disorder. A “yes” response excluded potential participants from the study. They were not allowed to sign up for the study via Experimentrak.

### Message Source Rating Form

The Message Source Rating Form (MSRF) was created to assess the participants' opinion about the message source (e.g., confederate) on various domains (see Appendix P). These questions were related to the message source's employment status, feedback, and flyers (i.e., level of credibility) as well as her physical appearance (i.e., level of thinness, attractiveness) and warmth. A composite score for the three items on credibility was developed. Reliability for this composite was acceptable (Cronbach's alpha = .80). This form was administered to all participants after they were fully debriefed at the end of the study.

### Distraction Task

A distraction task was used after the administration of the trait measures as a washout period prior to the administration of the pre-test measures, experimental manipulation, and post-test measures. This distraction task involved asking participants



to think about the countries of the world and to list their top ten destinations. Previous research has shown that brief (5-8 minutes), externally-focused, active tasks bring experimentally-induced dysphoric mood states back to baseline levels (Lyubomirsky & Nolen-Hoeksema, 1993, 1995; Morrow & Nolen-Hoeksema, 1990).

### *Experimental Stimuli*

The experimental stimuli for the pilot (appearance condition only) and main study (appearance and nonappearance conditions) were developed at the same time. The feedback topics for each condition included physical appearance focusing on cosmetic procedures (appearance condition) and academic competence focusing on academic tutoring services (nonappearance condition). The latter topic was selected as a more neutral topic that still reflected a personal attribute. A script for the feedback interaction as well as a flyer and coupon were made for each condition. These materials were based on information compiled from websites of numerous sites offering the services of interest, cosmetic surgery procedures and tutoring services. Specifically, websites for cosmetic surgery offices and centers and those for tutoring services were reviewed. The terms and format used by these sources were included in the experimental stimuli. The noted websites were examined in order to provide accurate information about the procedures/services being offered to the public and to increase the external validity of the study by including the type of information available to the public via websites. An effort was also made to develop a script, flyer, and coupon that were very similar for each condition with the exception of the topic being addressed. The same template was used for all materials.

After the flyers and coupons were developed, each flyer and coupon was reviewed by an expert panel consisting of one licensed clinical psychologist and five doctoral students in clinical psychology specializing in the area of body image and eating disturbance. This expert panel was asked to examine each flyer and coupon in terms of its content, readability, and face validity. They were also asked to evaluate the similarity between the flyers with regard to wording, content coverage, and length. The coupons were examined in the same manner. Minor modifications in wording were made to the flyers and coupons based on the feedback received from the research lab members. Only the flyer and coupon for a cosmetic surgery center (South Tampa Center for Cosmetic Surgery) were used in the pilot study (see Appendix Q and R).

### *Confederates*

Two female research assistants who are identical twins served as the confederates for the study. These twins had a slender body type. Their body mass index (BMI) was about 19, which is at the lower end of the normal range (18.5-24.5). The underweight range is less than 18.5. As the confederates, these twins wore a fitted polo shirt with jeans and dress shoes. They wore the same polo shirt that matched the company that they were pretending to work for (South Tampa Center for Cosmetic Surgery). Each twin had an approximately equal number of assignments as confederate to the four conditions

### *Procedure*

Undergraduate female students were recruited from psychology courses to participate in a study called “mood and body satisfaction.” Each participant completed the experimental protocol on an individual basis. This study only included an ambiguous

appearance-related feedback condition. The measures and order of the measures were manipulated.

When the participant arrived at the laboratory, the researcher told her that she was running two participants at a time and was still waiting for the second participant to arrive. She then asked her to please take a seat outside of the experimental room and closed the door behind her. A female confederate arrived shortly after the participant and knocked on the door to the experimental room. The researcher opened the door and asked the confederate if she was here for a research study. After the confederate said yes, the researcher asked her to come in as well as the participant sitting outside the room. She then asked them to take a seat in either chair at the table. Since the confederate came in first, she could choose where to sit and always sat in the chair closest to the door. For the remainder of the study, the female confederate and the actual participant were treated the same.

After entering the experimental room, the participants were informed that the study is examining the relationship between “mood and body satisfaction” which was really part of the cover story. All participants were first asked to provide informed consent by reading and signing the informed consent document. This document varied depending on which condition the participant was assigned to. Participants in condition 1 (trait, pre-test, post-test) and 2 (trait, post-test) conditions were then asked to complete a packet of trait measures. This packet included the MBSRQ-AE, ASI-R, SATAQ-3-I-G, PACS, PARTS, DEBQ-RS, EDE-Q-B, and MHBI-E. The brief, five to eight minute distraction task only followed the completion of the trait measures in conditions 1 and 2. This task was intended to decrease the possibility of the trait measures having an effect

on the subsequent measures. Participants in condition 3 (pre-test, post-test) and 4 (post-test) were not administered the packet of trait measures nor the distraction task. Next, participants in condition 1 (trait, pre-test, post-test) and 3 (pre-test, post-test) completed the pre-test BISS and VAS measures. Participants in condition 2 (trait, post-test) and 4 (post-test only) were not administered any pre-test measures.

The participants (in all conditions) then watched a neutral video clip (a 5-minute nature video). The researcher left the room after this video clip was started. Once the video clip was finished, the confederate gave the participant a flyer (see Appendix Q) and provided ambiguous appearance-related feedback. This feedback was ambiguous in that it could be interpreted in a neutral or negative manner. It was based on a 3- to 4-minute prescribed dialogue (see Appendix S) relevant to the condition.

Following the feedback, the confederate excused herself from the experimental room to use the restroom and asked the participant to let the researcher know where she went if she returned before she came back. Before leaving, the confederate pulled out a stack of discount coupons (see Appendix R) for the South Tampa Center for Cosmetic Surgery. While placing this stack on the table in front of them, she said “Feel free to take a coupon if you would like a student discount for our center,” and then left the room. This away time was intended to give the participant time to process the feedback that she was given and to decide if she wanted to take advantage of the student discount without feeling pressured by the presence of the confederate. While the confederate was in the restroom, the researcher intentionally reentered the experimental room and acted surprised to see that the confederate was not there. This was done to further disguise the confederate’s role in the study. The confederate came back to the experimental room

shortly after the researcher returned.

The participants (in all conditions) were then asked to complete the post-test BISS and VAS as well as the modified DEBQ-RS, EDE-Q-B, and MHBI-E behavioral intention questionnaires. The last measure completed by the participant (in all conditions) was the State Appearance Comparison measure. After the post-test assessment, all participants were asked to write their opinion about the purpose of the study in order to assess whether the manipulation was adequately concealed. Specifically, they were asked “What was the purpose of this study?” Finally, participants were fully debriefed about the real purpose of the study and the rationale for using deception. They also received a debriefing form (see Appendix T) that described the purpose of the study in greater detail. They were asked to read this form while in the experimental room and were not allowed to keep this form. They were then given a form (see Appendix U) with contact information for therapy services and suggested readings. They were allowed to take this second form with them. After the debriefing process, the participants were asked to complete the Message Source Rating form. They were then awarded their extra credit points and asked not to discuss the study with anyone.

### *Analyses*

The pilot study used a combination pre- to post-test design and post-test only design, with a prime and no prime. The prime was the administration of the trait measures at the beginning of the study. The pre-test scores were compared to determine the effect of the prime, and post-test scores were compared to determine the effect of the prime and pre-testing.

Skewness and kurtosis values were examined for all outcome variables.

Log transformations were conducted on four variables that had values outside of the acceptable range. The transformed variables were used in subsequent analyses. Only the primary variables of interest, specifically all state measures, were examined.

Preliminary analyses were conducted to identify any initial differences among the groups. The demographic variables and BMI were examined by condition. One-way ANOVAs were used for continuous variables and  $\chi^2$  were used for categorical variables. Each item of the MSRF and the MSRF credibility composite score were evaluated. Separate one-way ANOVAs were performed on the message source form to test for differences by condition across all four conditions. Separate one-way ANOVAs were also conducted on each item of the MSRF to assess for differences by confederate across all four conditions.

Separate analyses were conducted on the state measures to assess for differences by condition. One-way ANOVAs were performed on the pre-test scores of the BISS for condition 1 (administration of the trait measures, pre-test measures, and post-test measures) and condition 3 (administration of the pre-test measures and post-test measures). One-way MANOVAs were performed on the pre-test scores of the VAS measures for the condition 1 (administration of the trait measures, pre-test measures, and post-test measures) and condition 3 (administration of the pre-test measures and post-test measures). Next, one-way ANCOVAs were run on the post-test scores of the BISS for condition 1 (administration of the trait measures, pre-test measures, and post-test measures) and condition 3 (administration of the pre-test measures and post-test measures) using the pre-test scores as the covariate. One-way MANCOVAs were run

on the post-test scores of the VAS measures for condition 1 (administration of the trait measures, pre-test measures, and post-test measures) and condition 3 (administration of the pre-test measures and post-test measures) with pre-test scores as covariates. Finally, one-way ANOVAS were also conducted on the post-test scores of the BISS for all four conditions which administered post-test measures. One-way MANOVAS were run on the post-test scores of the VAS measures for all four conditions which administered post-test measures.

In order to assess for state changes, paired sample t-tests were conducted on the pre- and post-test scores of the BISS and VAS for condition 1. The same t-tests were run on these pre- and post-test scores for condition 3. The other conditions did not administer both pre- and post-test measures. All analyses were performed with SPSS 15.0.

## Results

### *Preliminary Analyses*

Analyses were conducted to assess for any initial differences among the groups on the demographic variables. No significant differences were found across the groups on race,  $\chi^2(12)=8.27, p>.05.$ , age,  $F(3,47)=1.22, p>.05$ , year in school,  $F(3,47)=.50, p>.05$ , and BMI  $(3,47)=.65, p>.05$ . The pre-test measures were not examined given that these measures were not administered in all conditions. Based on these preliminary analyses, it can be assumed that random assignment was successfully used. The data from one participant in condition 1 (administration of the trait measures, pre-test measures, and post-test measures) was not included in the analyses due to an error in the order of the measures. All other participant data was included in the subsequent analyses.

## *Analyses*

### Descriptive Statistics

Table 1 lists the measures administered to each condition and the descriptives for those measures. As noted earlier, the MSRF was administered to all participants across conditions. Higher mean scores on the MSRF reflect a greater level of a particular feature (e.g. credibility) on a scale of 1 to 5. An examination of the means for the MSRF items focusing on credibility indicates that on average, the message source (confederate) was viewed by all groups as credible in terms of her employment status, feedback, and flyer. The credibility composite means (generally 11 out of 15) further suggest adequate credibility across all groups. The means for the remaining items indicate that on average, the message source was perceived by all groups as thin, attractive, and warm.

Table 1

#### *Means and Standard Deviations for Pre-test State Measures by Condition*

Measure	Condition 1 trait, pre-test, post-test N = 11	Condition 2 trait, post-test N = 13	Condition 3 pre-test, post-test N=13	Condition 4 pre-test, post-test N = 14
Pre-test BISS	36.36 (8.88)		33.23 (8.11)	
Pre-test VAS Appearance	64.55 (16.77)		59.23 (18.56)	
Pre-test VAS Anger	7.82 (10.05) *2.08 (1.96)		10.92 (19.10) *2.20 (2.57)	
Pre-test VAS Self-Confidence	66.55 (19.34)		62.00 (18.49)	
Pre-test VAS Anxiety	24.82 (25.58)		22.62 (26.08)	
Pre-test VAS Depression	15.82 (14.85) *3.39 (2.17)		14.54 (22.67)	

*Note:* \* = transformed value; BISS = Body Image States Scale; VAS = Visual Analogue Scale.



Table 1 (Continued)

Measure	Condition 1 trait, pre-test, post-test N = 11	Condition 2 trait, post-test N = 13	Condition 3 pre-test, post-test N=13	Condition 4 pre-test, post-test N = 14
Post-test BISS	34.91 (7.78)	33.77 (9.42)	34.23 (7.56)	34.50 (7.48)
Post-test VAS Appearance	61.46 (19.97)	58.69 (25.08)	57.85 (19.00)	65.29 (16.59)
Post-test VAS Anger	8.37 (12.22) *2.11 (2.07)	1.85 (3.16) *.81 (1.14)	17.15 (24.61) *2.88 (3.10)	12.29 (20.79) *2.40 (2.65)
Post-test VAS Self-Confidence	67.55 (19.61)	64.31(23.24)	60.00 (19.51)	65.86 (19.22)
Post-test VAS Anxiety	22.09 (29.49)	22.69 (27.74)	14.15 (20.66)	23.93 (26.53)
Post-test VAS Depression	15.45 (16.63) *3.18 (2.43)	15.62 (19.73) *3.07 (2.59)	15.31 (23.52) *2.67 (2.97)	23.00 (25.19) *4.04 (2.69)
MSRF Employment Credibility	3.91 (.70)	3.77 (.83)	3.92 (.86)	3.69 (1.18)
MSRF Feedback Credibility	3.91 (.70)	3.85(1.07)	3.75 (.87)	3.54 (.78)
MSRF Flyer Credibility	3.91 (.94)	3.92 (.51)	3.67 (.98)	3.92 (.95)
MSRF Thinness	3.45 (.52)	3.62 (.77)	3.54 (.51)	3.62 (.51)
MSRF Attractiveness	3.27 (.47)	2.84 (.80)	3.15 (.55)	3.46 (.66)
MSRF Warmth	3.27 (1.01)	3.38 (.96)	3.15 (.90)	2.85 (1.14)
MSRF Credibility Composite	11.72 (1.84)	11.33 (2.02)	11.33 (2.57)	11.15 (2.48)

Note: \* = transformed value; BISS = Body Image States Scale; VAS = Visual Analogue Scale.  
MSRF = Message Source Rating Form.

### ANOVAs on Message Source Rating Form

The credibility and other features of the message source were evaluated across conditions. Separate one-way ANOVAs on the each of the credibility scores as well as the credibility composite score indicated no significant group differences in the ratings of the message source's employment status, feedback, and flyer (see Table 2). Separate

one-way ANOVAs on each of the remaining message source scores also showed no significant group differences in the ratings of her thinness, attractiveness, and warmth. Finally, separate one-way ANOVAs on each item of the MSRF generally indicated no significant differences in the ratings of the message source when comparing both message sources (see Table 3). Both sources seemed to be equated on credibility, thinness, attractiveness, and warmth. The only exception was on the credibility item assessing employment status, with one confederate rated as slightly more credible than the other confederate ( $M = 4.14$  versus  $M = 3.59$ ).

Table 2

*Significance Levels for Univariate and Multivariate Analyses by Condition*

Measure	Conditions 1 & 3	Conditions 1, 2, 3, & 4
Pre-BISS	$F(1,22)=.82, p>.05_a$	
Pre-VAS	$F(4, 20) = .34, p>.05_b$	
Post-BISS	$F(1,22)=.05, p>.05_c$	$F(1,22)=.04, p>.05_a$
Post-VAS	$F(4,20)=1.42, p>.05_d$	$F(12,47)=1.25, p>.05_b$
MSRF Employment Credibility		$F(3,46)=.19, p>.05_a$
MSRF Feedback Credibility		$F(3,45)=.43, p>.05_a$
MSRF Flyer Credibility		$F(3,44)=.25, p>.05_a$
MSRF Thinness		$F(3,46)=.20, p>.05_a$
MSRF Attractiveness		<b><math>F(3,46)=2.11, p&gt;.05_a</math></b>
MSRF Warmth		$F(3,46)=.68, p>.05_a$
MSRF Credibility Composite		$F(3,44)=.13, p>.05_a$

*Note:* Condition 1= administration of trait, pre-test, and post-test measures; Condition 2 = administration of trait and post-test measures; Condition 3 = administration of pre-test and post-test measures; Condition 4 = administration of post-test measures; BISS = Body Image States Scale; VAS = Visual Analogue Scales - Appearance Satisfaction, Anger, Self-Confidence, Anxiety, and Depression; MSRF = Message Source Rating Form. Letter *a* subscript = *F* test for ANOVA; Letter *b* subscript = *F* test for MANOVA; Letter *c* subscript = *F* test for ANCOVA; Letter *d* subscript = *F* test for MANCOVA.

Table 3

*Means, Standard Deviations, and Significance Levels for Univariate Analyses by Confederate*

MSRF Item	Confederate 1	Confederate 2	F value
Employment Credibility	3.59 (.91) <sub>1</sub>	4.14 (.79) <sub>2</sub>	F(1,48)=5.09, $p < .05$
Feedback Credibility	3.57 (.96)	4.00 (.63)	F(1,47)=3.15, $p > .05$
Flyer Credibility	3.85 (.95)	3.86 (.73)	F(1,46)=.00, $p > .05$
Thinness	3.55 (.63)	3.57 (.51)	F(1,48)=.01, $p > .05$
Attractiveness	3.21 (.49)	3.14 (.85)	F(1,48)=.11, $p > .05$
Warmth	3.10 (1.14)	3.24 (.77)	F(1,48)=.22, $p > .05$

*Note.* Number subscripts denote significant differences across confederates.

### ANOVAs and MANOVAs on State Measures

Pre-test analyses were conducted to examine initial differences in state body image among conditions 1 and 3 using a one-way ANOVA. Pre-test analyses were also performed using a one-way MANOVA to examine initial differences in mood states among conditions 1 and 3. Post-test analyses were then performed for conditions 1 and 3 using a one-way ANCOVA to assess for differences in state body image after the ambiguous appearance-related feedback was given with pre-test scores as the covariate. Post-test analyses were also conducted for conditions 1 and 3 using a one-way MANCOVA to assess for differences in mood states after the ambiguous appearance-related feedback with pre-test scores as the covariates. No significant group differences were found on the pre-test measures nor on the post-test state measures (see Table 2). Additionally, post-test analyses were conducted using a one-way ANOVA to assess for differences in state body image across all conditions. Post-analyses were also run to examine differences in multiple mood states among all conditions using a one-way MANOVA. No significant group differences were found on the post-test state measures

among all conditions (see Table 2 above). These findings indicate that conditions 1 and 3 did not differ in state body image and mood states before or after ambiguous appearance-related feedback. When examined together, the four conditions also did not differ in state body image and mood state following the feedback. Overall, the administration of trait measures prior to pre- and post-test measures did not significantly influence the scores on these measures.

#### Paired Sample t-tests on State Measures

Pre-post test analyses were then conducted using paired sample t-tests to assess for state changes in body image and moods in conditions 1 and 3. These analyses were not performed for the other conditions (2 and 4) that did not include both pre- and post-test measures. No significant state changes were found. However, it is important to note that the N for each condition was very small (N = 11 for condition 1, N = 13 for condition 3).

There were mean trends in the expected directions for two variables of particular interest, state body image and appearance satisfaction. In condition 1, state body image scores decreased from pre-test ( $M = 36.36, SD = 8.89$ ) to post-test ( $M = 34.91, SD = 7.78$ ). State appearance satisfaction decreased from pre-test ( $M = 64.55, SD = 16.77$ ) to post-test ( $M = 61.45, SD = 19.97$ ) in condition 1. State appearance satisfaction also decreased pre-test ( $M = 59.23, SD = 18.56$ ) to post-test ( $M = 57.85, SD = 19.00$ ) in conditions 3. These changes in body image suggest that participants in conditions 1 and 3 felt worse about their physical appearance after receiving ambiguous appearance-related feedback. There were also increases in state

anger in conditions 1 (Pre-test:  $M = 7.82$ ,  $SD = 10.05$ , Post-test:  $M = 8.37$ ,  $SD = 12.22$ ) and condition 3 (Pre-test:  $M = 10.92$ ,  $SD = 19.10$ , Post-test:  $M = 17.15$ ,  $SD = 24.61$ ), indicating that participants in both conditions were more upset following the feedback. The transformed anger variables were used in these comparisons, although the  $M$ s and  $SD$ s for the non-transformed variables were reported. Therefore, the ambiguous appearance-related feedback likely contributed to the negative changes in body image and anger at post-test.

Overall, findings from the pilot study related to the inclusion and order of measures showed that post-test responses following the ambiguous appearance-related feedback did not differ significantly across conditions. For the two conditions (1 and 3) using both pre- and post-test measures, there were generally higher pre-test and post-test scores in the condition (1) that first administered a trait measure. However, the administration of a trait measure versus no trait measure prior to the pre- and post-test measures did not result in significantly different post-test responses. Given that the examined traits were of interest as potential moderators, a decision was made to use the measures and order of these measures in condition 1 (administration of trait, pre-test, and post-test measures) for the main study. Most importantly, the findings regarding the message sources suggested that the ambiguous appearance-related feedback was accepted as real feedback. There was evidence that this feedback induced lower levels of positive body image and higher levels of anger. The experimental manipulation seemed to be effective. Both message sources were also similarly perceived as thin and attractive, two characteristics relevant to the state comparison hypotheses for the current study. These

findings led the same cover story and confederates to be used for the current study which will be described in the next chapter.

## Chapter 2

### Method

#### *Participants*

The participants for the current study were 146 female undergraduate students recruited from the University of South Florida's participant pool. The PASS Power Analysis program (Hintze, 2001) was used to determine the sample size required to achieve sufficient power (.80) at an alpha level of .05 for the analyses. The age of the sample ranged between 18 and 29 ( $M = 20.28$ ,  $SD = 2.21$ ). The sample was racially diverse consisting of 56.8 % Caucasian ( $N = 83$ ), 19.9% African American ( $N = 29$ ), 13.7%, Hispanic ( $N = 20$ ), 6.2% Asian-American ( $N = 29$ ), and 3.4% *other* ( $N = 5$ ). Based on self-reported height and weight, the average body mass index (BMI) was in the normal range ( $M = 23.80$ ,  $SD = 4.89$ ), with scores ranging from 15.30 to 41.60. Approximately 7% (6.8%) of the sample were underweight ( $N = 10$ ), 64.4% were normal weight ( $N = 94$ ), 17.8% were overweight ( $N = 26$ ), and 11% were obese ( $N = 16$ ). None of the participants had a current or past history of an eating disorder diagnosis nor received treatment for an eating disorder. All participants received extra credit points in a psychology course as compensation for participating in the study.

Participants were randomly assigned to one of two conditions varying in the type of ambiguous feedback that they received. The following two conditions were used: (1) ambiguous appearance-related feedback or (2) ambiguous nonappearance-related

feedback. Unlike the pilot study, all participants in the current study were administered the same questionnaires and in the same order. The administered of measures were not different per condition.

### *Measures*

The measures used in the pilot study were also used in the current study. The only exception was the Message Source Rating Form (see Appendix V) which was revised based on findings from the pilot study.

### Demographic Information

Participants were asked to complete a form with demographic information including age, height, weight, race/ethnicity and year in school (see Appendix A). Self-reported height in inches and weight in pounds were used to calculate the body mass index (BMI) for all participants.

### Body Mass Index (BMI)

BMI is a measure of weight for height. It is often used as a variable in body image and eating disturbance research to account for the effects of body mass. Higher BMI values represent higher levels of body mass (Garrow & Webster, 1985). The standard formula was utilized to compute BMI:  $[(\text{weight in pounds}/(\text{height in inches})^2)] \times 703$ .

### Body Image

The Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation subscale (MBSRQ-AE; see Appendix B, Brown, Cash, & Mikulka, 1990) is a 7-item questionnaire that measures the respondent's satisfaction with her physical appearance. It



uses a 5-point scale ranging from *definitely disagree* to *definitely agree*. This subscale has shown good internal consistency (Cronbach's alpha = .88) in a sample of 1,070 women (Brown et al., 1990). Reliability was good (Cronbach's alpha = .85) in this sample. The MBSRQ-AE was used as a trait measure before the feedback was given to the participants.

The Body Image States Scale (BISS; see Appendix C, Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). The BISS is a 6-item measure that assesses state body dissatisfaction. It uses a 9-point, bipolar Likert response format. This scale has shown adequate 2-3 week test-retest reliability (.69) and internal consistency (Cronbach's alpha = .77) in a sample of undergraduate women (Cash, et al., 2002). It has also demonstrated good convergent validity with trait body image measures (Cash, et al., 2002). The BISS was administered as a state measure before and after the feedback. Reliability was good for the pretest (Cronbach's alpha = .85) and posttest (Cronbach's alpha = .84) use of the BISS in this sample.

### Body Image and Mood

Visual Analogue Scales (VAS; Appendix D, Heinberg & Thompson, 1995). The VAS are brief, nonverbal measures for evaluating a variety of subjective states and conditions. Only the following VAS items were examined: satisfaction with overall appearance, anger, anxiety, depression, and self-confidence. For each VAS item, respondents are asked to indicate their current position on the named mood state or construct by placing a vertical mark on a 100 mm horizontal line where the two endpoints represent the extreme parameters of that particular state or construct (e.g., none to

extreme). The distance from the farthest left point on the line (none) measured in millimeters reflects the respondent's position (Thompson et al., 1999).

The VAS has been widely-used because it is brief and can be repeated within a short time period. Additionally, given that participants do not choose a specific number (as with Likert formats), the VAS has been noted as resistant to the possible carryover effects wherein participants might repeat prior responses at post-testing. (Thompson, 2004). Various VAS have shown good convergence validity with longer measures of similar constructs (Heinberg & Thompson, 1995). Previous research has reported correlations above .60 between the VAS mood measures and similar scales on the Profile of Mood States, and that the VAS Appearance Satisfaction correlates .68 with the Eating Disorders Inventory-Body Dissatisfaction subscale (Heinberg & Thompson, 1995). The VAS has also demonstrated good test-retest reliabilities ( $r_s = .70-.93$ ) (Birkeland et. al, 2004).

The VAS was administered as a state measure before and after the feedback was given to the participants. The order of the VAS items was varied between participants for both the pre-test and post-test. Four different random orders of the VAS items were created. One of the four orders was randomly selected for each administration.

#### Appearance Schematicity

Appearance Schema Inventory-Revised (ASI-R; Appendix E, Cash, Melnyk, & Hrabosky, 2004). The ASI-R is a 20-item measure that assesses body image investment with regard to particular beliefs and assumptions about the importance, meaning, and influence of appearance in one's life. It uses a 5-point Likert scale ranging from *strongly*

*disagree to strongly agree*. This measure has shown good internal consistency (Cronbach's alphas  $> .80$ ) as well as good convergent validity with other measures of body image dimensions and psychosocial functioning (Cash, Melnyk, & Hrabosky, 2004). Reliability was good (Cronbach's alpha =  $.87$ ) in this sample. The ASI-R was used as a trait measure before the feedback.

#### Thin Ideal Internalization

Sociocultural Attitudes Towards Appearance Scale-3-Internalization-General subscale (SATAQ-3-I-G; Appendix F, Thompson et al., 2004) is a 9-item measure of social comparisons with and desires to look like models and stars in various media. This measure uses a five-point Likert scale ranging from *definitely agree* to *definitely disagree*. It has shown excellent reliability (Cronbach's alpha =  $.96$ ) (Thompson et al., 2004). Reliability was also excellent (Cronbach's alpha =  $.95$ ) in this sample. The SATAQ-3-Internalization-General subscale was used as a trait measure before the feedback.

#### Appearance Comparison

Physical Appearance Comparison Scale (PACS; Appendix G, Thompson, Heinberg, & Tantleff-Dunn, 1991). The PACS is a 5-item scale that measures the tendency to compare oneself to others on different aspects of physical appearance. This scale uses a 5-point Likert scale ranging from *never* to *always*. It has demonstrated adequate internal reliability and test-retest reliability as well as moderate convergent validity with measures of body image dissatisfaction, eating disturbance, and self-esteem (Thompson, Heinberg, & Tantleff, 1991). Reliability was acceptable (Cronbach's alpha

= .77) in this sample. The PACS was administered as a trait measure before the feedback.

State Appearance Comparison Scale. The State Appearance Comparison Scale (see Appendix H) is a 3-item scale designed to index comparison engendered by exposure to the experimental manipulation. These items are very similar to the items used in previous experimental studies examining state appearance comparison (e.g., Tiggeman & Slater, 2003; Tiggemann & McGill, 2004), which have demonstrated high internal consistency (Cronbach's alpha = .91; Tiggemann & McGill, 2004). In those studies, Tiggemann and colleagues (2003, 2004) developed three items to assess participants' appearance-related thoughts (*no thought to a lot of thought*) and comparisons (*no comparison to a lot of comparison*) while viewing video clips or magazine advertisements.

For the current study, appearance processing was measured by asking respondents to indicate the extent to which they thought about their own appearance over the past fifteen minutes (which is the time period when they will receive the ambiguous feedback). This item used a 7-point Likert scale ranging from *no thought about my appearance* to *a lot of thought about my appearance*. Similarly, appearance comparison was measured by asking respondents to indicate the extent to which they compared their overall appearance to that of the research participant (e.g., confederate) sitting next to them. They were also asked to indicate the extent to which they compared specific body parts. A 7-point Likert scale ranging from *no comparison* to *a lot of comparison* was used for both comparison items. As in previous studies by Tiggemann and colleagues (2003, 2004), a composite measure of state appearance comparison was obtained by

averaging the scores for all three items described above. The ratings on these items have been shown to be highly correlated (Tiggemann & McGill, 2004). Reliability was acceptable (Cronbach's alpha = .71) for the composite measure in this sample. This state measure was administered after the feedback following the post-test measures.

### Appearance-related Teasing

The Physical Appearance-Related Teasing Scale (PARTS; see Appendix I, Thompson, Fabian, Moulton, Dunn, & Altabe, 1991). The PARTS is an 18-item measure that assesses teasing history and consists of the Weight/Size Teasing and the General Appearance Teasing subscales. The Weight/Size Teasing and General Appearance Teasing subscales have demonstrated adequate internal consistency (Cronbach's alpha = .91 and .71, respectively), and test-retest reliability ( $r = .86$  and  $.87$ , respectively) for a sample of college females. The PARTS has also shown moderate convergent validity with measures of eating disturbance, body dissatisfaction, social comparison, depression, and self-esteem (Thompson et al., 1991). Reliability was good (Cronbach's alpha = .90) in this sample. The PARTS was administered as a trait measures before the feedback.

### Dieting

The Dutch Eating Behavior Questionnaire-Restraint Scale (DEBQ-RS; van Strien, Frijters, Bergers, & Defares, 1986). The DEBQ-RS is a 10-item scale that measures the frequency of dieting behaviors. It uses a 5-point Likert scale that ranges from *never* to *always*. The directions of this scale were modified to assess usual and intended dieting behaviors (see Appendix J and K). The DEBQ has shown good internal consistency (Cronbach's alpha = .95) and test-retest reliability ( $r = .92$ ) (Allison, Kalinsky, &

Gorman, 1992). Reliability was excellent for the DEBQ-RS (Cronbach's alpha = .95) and modified DEBQ-RS (Cronbach's alpha = .92) in this sample. The DEBQ-RS assessing current dieting behaviors was administered as a trait measure before the feedback. The modified DEBQ-RS assessing intended dieting behaviors was administered as a post-test measure after the feedback.

### Bulimic Symptoms

The Eating Disorder Examination-Questionnaire-Bulimia subscale (EDE-Q-B; see Appendix L, Fairburn & Beglin, 1994). The EDE-Q is derived from the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993), which is a widely used semistructured interview. The EDE-Q-Bulimia subscale is a 12-item measure that assesses the frequency of binge eating and purging (e.g., vomiting, laxative and diuretic use, excessive exercising) over the past week. The frequency of these behaviors is measured in terms of the number of days that they occurred. The EDE-Q has shown adequate internal consistency (Cronbach's alpha=.84) (Fairburn & Beglin, 1994) as well as acceptable criterion validity and convergent validity (Black & Wilson, 1996). Reliability was acceptable (Cronbach's alpha = .80) in this sample. The EDE-Q-B was administered as a trait measure before the feedback.

A modified version of the EDE-Q-B was also utilized to assess intentions to use unhealthy weight control behaviors (see Appendix M). The items (10-12) that measure the frequency of vomiting, laxatives/diuretics use, and excessive exercising to control weight were modified to assess intentions to engage in these compensatory behaviors using a 5-point Likert scale. Items related to intentions to use diet pills, fasting, and meal

skipping as weight control methods were also added to the scale. Reliability for the modified version was somewhat low (Cronbach's alpha = .65) in this sample. An item analysis did not reveal improvements in reliability if any item was deleted. The modified EDE-Q-B was administered as a post-test measure after the feedback.

### Exercise

The Multidimensional Health Behavior Inventory-Exercise subscale (MHBI-E; Kulbok, et al., 1999). The MHBI-Exercise subscale is a 4-item measure that assesses the frequency of physical activity such as vigorous exercise for at least 20 minutes a day, three times a week. This scale uses a 5-point Likert scale ranging from *never* to *always*. The directions of the MHBI-E were modified to assess usual and intended exercise behaviors (see Appendix N and O). Participants were asked "How often do you...." to measure usual exercise habits and also later asked "How often do you intend to...." to measure exercise intentions. The MHBI has demonstrated acceptable internal consistency (Cronbach's alpha = .80) and content and convergent validity (Kulbok et al., 1999). Test-retest reliability has not been assessed. Reliability was acceptable for the MHBI-E (Cronbach's alpha = .84) and modified MHBI-E (Cronbach's alpha = .83) in this sample. The MHBI-E assessing current exercise behaviors was administered as a trait measure before the feedback. The modified MHBI-E assessing intended exercise behaviors was administered as a post-test measure after the feedback.

### Eating Disorder Screening

Potential participants were prescreened via USF Experimentrak in order to minimize any risk associated with receiving ambiguous appearance-related feedback

during the study. The prescreening consisted of a yes/no question asking respondents if they have ever been diagnosed or treated for an eating disorder. A “yes” response excluded potential participants from the study. They were not allowed to sign up for the study via Experimentrak.

### Message Source Rating Form

The Message Source Rating Form (MSRF) consists of six questions that assess the participants’ opinion about the message source (e.g., confederate) on various domains (see Appendix V). The questions were related to the message source’s employment status, feedback, and flyers (e.g., level of credibility) as well as her physical appearance (e.g., level of thinness, attractiveness) and warmth. This was the same form used for the pilot study, with the exception of the first item. It was changed to more directly ask if the message source was viewed as an actual employee of the company that she was supposedly working for. The MSRF was used to determine if the confederates’ employment status, feedback, and flyers are credible and the confederates are viewed as thin, attractive, and warm. A composite score for the three items on credibility was developed. Reliability for this composite was acceptable (Cronbach’s alpha = .88). This form was administered to all participants after they were fully debriefed at the end of the study.

### Distraction Task

A distraction task was used after the administration of the trait measures as a washout period prior to the administration of the pre-test measures, experimental manipulation, and post-test measures. This distraction task involved asking participants



to think about the countries of the world and to list their top ten destinations. It was the same task that was used in the pilot study.

### *Experimental Stimuli*

The flyers used in the pilot study were slightly modified for the current study. The modifications consisted of changes to the wording used in the cosmetic surgery flyer. These changes were also made for the academic services flyer to keep them similar in terms of content and format (see Appendix W and X). No changes were made to the coupons (see Appendix Y and Z).

### *Confederates*

The two confederates used for the pilot study were the same confederates used for the current study. As noted earlier, the confederates are identical twins with a BMI of about 19 falling at the lower end of the normal range (18.5-24.5). The dress code used in the pilot study was also replicated. The confederates wore a fitted polo shirt with jeans and dress shoes. The only difference in their appearance was the company logo on the polo shirt being worn. Each confederate wore the polo shirt that matched the company that they were pretending to work for (either South Tampa Center for Cosmetic Surgery or South Tampa Center for Academic Enhancement). Each twin had an approximately equal number of assignments as confederate to the two conditions.

### *Procedure*

The procedure for the current study was very similar to the procedure used in the pilot study. Undergraduate female students were recruited from psychology courses to participate in a study called “mood and body satisfaction.” Each participant completed

the experimental protocol on an individual basis. The main difference between the pilot study and current study is that the pilot study only consisted of an ambiguous appearance-related feedback condition whereas the current study included an ambiguous appearance-related feedback condition and an ambiguous nonappearance-related feedback condition.

When the participant arrived at the laboratory, the researcher told her that she was running two participants at a time and was still waiting for the second participant to arrive. She then asked her to please take a seat outside of the experimental room and closed the door behind her. A female confederate arrived shortly after the participant and knocked on the door to the experimental room. The researcher opened the door and asked the confederate if she was here for a research study. After the confederate said yes, the researcher asked her to come in as well as the participant sitting outside the room. She then asked them to take a seat in either chair at the table. Since the confederate came in first, she could choose where to sit and always sat in the chair by the door. For the rest of the study, the female confederate and the actual participant were treated the same.

After sitting down at the table, the participant and confederate were informed that the study was examining the relationship between “mood and body satisfaction” which was really part of the cover story. The participants were first asked to provide informed consent by reading and signing the informed consent document. They were then asked to complete a packet of trait measures which included the MBSRQ-AE, ASI-R, SATAQ-3-I-G, PACS, PARTS, DEBQ-RS, EDE-Q-B, and MHBI-E. The brief, five to eight minute distraction task followed the completion of the trait measures in order to decrease the possibility of the trait measures having an effect on the subsequent measures.

Participants then completed the pre-test BISS and VAS.

Next, the participants watched a neutral video clip (a five minute nature video). The researcher left the room after this video clip was started. Once the video clip was finished, the confederate gave the participant a flyer (see Appendix W and X) and provided ambiguous feedback which varied (e.g., appearance-related or nonappearance-related) depending on which condition the participant was assigned to. This feedback was ambiguous in that it could be interpreted in a neutral or negative manner. It was based on a 3- to 4-minute prescribed dialogue (see Appendix AA and BB) relevant to each condition. The dialogue for the ambiguous appearance-related condition was the same one used in the pilot study with one minor modification. Permanent hair removal was removed from the list of procedures noted by the confederate because a few participants in the pilot study said that this component interrupted the procedure.

Following the feedback, the confederate excused herself from the experimental room to use the restroom and asked the participant to let the researcher know where she went if she returned before she came back. Before leaving, the confederate pulled out a stack of discount coupons (see Appendix Y and Z) for the center she was supposedly working for (either South Tampa Center for Cosmetic Surgery or South Tampa Center for Academic Services). While placing this stack on the table in front of them, she said “Feel free to take a coupon if you would like a student discount for our center,” and then left the room. This away time was intended to give the participant time to process the feedback that she was given and to decide if she wanted to take advantage of the student discount without feeling pressured by the presence of the confederate. While the confederate was in the restroom, the researcher intentionally reentered the experimental room and acted surprised to see that the confederate was not there. This was done to

further disguise the confederate's role in the study. The confederate came back to the laboratory room shortly after the researcher returned.

The participants were then asked to complete the post-test BISS and VAS as well as the modified DEBQ-RS, EDE-Q-B, and MHBI-E behavioral intention questionnaires. The last measure completed by the participants was the State Appearance Comparison measure. After the post-test assessment, all participants were asked to write their opinion about the purpose of the study in order to assess whether the manipulation was adequately concealed. Specifically, they were asked "What was the purpose of this study?" Finally, participants were fully debriefed about the real purpose of the study and the rationale for using deception. They also received a debriefing form (see Appendix CC and DD) that described the purpose of the study in greater detail. This was generally the same form used in the pilot study with additional information about each condition. The participants were asked to read this form while in the experimental room and were not allowed to keep this form. They were then given a form (see Appendix U) with contact information for therapy services and suggested readings. They were allowed to take this second form with them. After the debriefing process, the participants were asked to complete the Message Source Rating form. They were then awarded their extra credit points and asked not to discuss the study with anyone.

### *Design and Analyses*

The current study used a pre- to post-test design for both conditions with ambiguous appearance-related feedback or nonappearance related feedback. Skewness and kurtosis values were examined for all outcome variables. Descriptive statistics were

computed for all variables. Pearson Product Moment and Point-Biserial correlations were calculated for all continuous and categorical variables, respectively, examined as dependent variables.

Preliminary analyses were conducted to assess for any initial differences among the groups. The demographic variables, BMI, pre-test trait variables (MBSRQ-AE, ASI-R, SATAQ-3-I-G, PACS, PARTS, DEBQ-RS, EDE-Q-B, and MHBI-E), and pre-test state variables (BISS and VAS) were examined by condition. One-way ANOVAS were used for continuous variables and  $\chi^2$  was used for categorical variables. Each MSRF item and the MSRF credibility composite score were examined. Separate one-way ANOVAs were performed on the message source form to assess for differences by condition. Separate one-way ANOVAs were also conducted on each item of the MSRF to assess for differences by confederate across both conditions.

The hypotheses focusing on group differences were tested by conducting ANCOVAs and MANCOVAs with relevant pre-test measures as the covariate. Hypotheses 1 stated that there would be more negative changes in state body image and mood states for the ambiguous appearance-related feedback condition than the ambiguous nonappearance-related feedback condition following the feedback. This hypothesis was tested by using a one-way ANCOVA on the BISS and a one-way MANCOVA on the VAS (appearance satisfaction, anger, self-confidence, anxiety, and depression) with the pre-test scores as the covariates.

Similarly, hypotheses 2 stated that there would be greater intentions to diet, use unhealthy weight control methods, and exercise in the ambiguous appearance-related

feedback condition than the ambiguous nonappearance-related feedback condition after receiving the feedback. To examine this hypothesis, separate one-way ANCOVAs were run on the modified intentions versions of the DEBQ-RS, EDE-Q-B, and MHBI-E using the pre-test trait scores as the covariate.

Hypothesis 3 stated that state appearance comparison would mediate the effect of ambiguous appearance-related feedback on state body image, mood states, and intentions to diet, use unhealthy weight control methods, and exercise. The guidelines provided by Baron and Kenny (1986) for testing mediation were used. For hypothesis 3, several preconditions for establishing mediation, as outlined by Baron and Kenny (1986), were examined. First, all three correlations among the independent, dependent, and mediator variables in question must be statistically significant. If one of these correlations is not significant, then significant mediation cannot be found. The other preconditions for identifying mediation are as follows: (1) the independent variable (ambiguous feedback) must affect the mediator variable (state appearance comparison), (2) the independent variable (ambiguous feedback) must affect the dependent variable (state body image, mood states, intentions to diet, intentions to use unhealthy weight control methods, intentions to exercise), (3) the mediator variable (state appearance comparison) must affect the dependent variable (state body image, mood states, intentions to diet, intentions to use unhealthy weight control methods, intentions to exercise), (4) when controlling for the mediator variable (state appearance comparison), the effect of the independent variable (ambiguous feedback) on the dependent variable (state body image, mood states, intentions to diet, intentions to use unhealthy weight control methods, intentions to exercise) should be close to zero. Mediation effects were only tested for the variables

that met all preconditions. The scores of dependent variables assessed at pre-test were used as a covariate in each regression equation for that variable.

Hypothesis 4 stated that trait appearance satisfaction, trait appearance schematicity, trait appearance comparison, trait thin-ideal internalization, and history of appearance-related teasing would moderate the effect of ambiguous appearance-related feedback on state body image, mood states, and intentions to diet, use unhealthy weight control methods, and exercise. The guidelines provided by Baron and Kenny (1986) for testing moderation were also utilized. The correlation between the independent variable (ambiguous feedback) and moderator variable (trait) should reflect no significant relationship. Ideally, correlations between the moderator variable and dependent variable should also indicate no significant relationship, allowing for a more interpretable moderation effect (interaction term). A moderation effect is established if the interaction between the independent variable (ambiguous feedback) and the moderator variable (trait) is significant in a regression analyses after controlling for the effects of the independent variable (ambiguous feedback) and the moderator (trait), according to Baron and Kenney (1986). The interaction has to offer additional prediction beyond that accounted for by the other variables in the regression equation. As with the mediation tests, the scores of dependent variables assessed at pre-test were used as a covariate in each regression equation for that variable.

Additionally, exploratory analyses were performed with subsamples of the original sample. These subsamples were developed by computing the median score for each trait measure (MBSRQ-AE, PACS, ASI-R, PARTS, SATAQ-3-I-G) administered at pre-test. This score was then used as a marking point to identify a subsample based on

that trait measure. Depending on the trait measure, trait scores at or above/below the median score were considered to fall in a “clinical” range. This led to a clinical group and non-clinical group. Separate 2 (Feedback Condition: appearance, nonappearance) X 2 (Disturbance Level: high trait level, low trait level) ANCOVAs were computed using the new group condition (Disturbance Level) as an additional between subjects factor. A 2 (Feedback Condition: appearance, nonappearance) X 2 (Disturbance Level: high trait level, low trait level) MANCOVA was also computed using the new group condition (Clinical/Non-Clinical) as an additional between subjects factor. The ANCOVAs and MANCOVAs run for each subsample were a replication of the planned ANCOVAs and MANCOVAs on the measures described above. Relevant pre-test scores were also used as covariates in these analyses. All analyses were performed with SPSS 15.0.



## Chapter 3

### Results

#### *Preliminary Analyses*

Ten participants were omitted from all analyses resulting in a sample size of 146. The ambiguous appearance-related condition had an N of 80. The ambiguous nonappearance-related condition had an N of 66. Reasons for exclusion included one of the following: (1) the pre-tests were not fully completed, (2) the study procedures were interrupted by the participant, or (3) there was an error in the administration of measures. An examination of skewness and kurtosis values for all outcome variables indicated that nine variables had values outside of the acceptable range. Log transformations were conducted for these variables. Subsequent analyses used the transformed variables. The descriptive statistics for the pre-test trait and state measures and the message source form by condition are presented in Table 4. The post-test state measures will be reported in a later section.

Table 4

*Means and Standard Deviations for Pre-test Trait and State Measures and Message Source Rating Form by Condition*

Measure	Ambiguous Appearance-related Feedback (N=80)	Ambiguous Nonappearance-related Feedback (N=66)
MBSRQ-AE	25.39 (4.22)	23.94 (5.50)
PACS	13.65 (3.76)	14.55 (3.88)
ASI-R	66.13 (11.36)	69.00 (11.78)
PARTS	28.18 (11.08) <sub>a</sub> *5.22 (.95) <sub>a</sub>	32.14 (12.59) *5.57 (1.06)
SATAG-I-G	24.66 (10.29)	24.79 (9.27)
DEBQ-RS	23.06 (9.41) <sub>a</sub>	26.97 (10.42)
EDE-Q-B	9.31 (8.18) <sub>a</sub> *2.69 (1.45)	12.28 (9.52) *3.15 (1.55)
MHBI-E	11.04 (3.40)	11.82 (4.28)
BISS	34.13 (8.8) <sub>a</sub>	30.41 (9.33) <sub>b</sub>
VAS Appearance	62.90 (22.20)	56.65 (24.29)
VAS Anger	9.94 (18.13) *2.19 (2.29)	13.68 (20.12) *2.65 (2.60)
VAS Self-Confidence	62.56 (24.01)	60.95 (22.69)
VAS Anxiety	25.65 (26.21) *4.15 (2.92)	28.47 (30.39) *4.21 (3.31)
VAS Depression	14.43 (21.52) *2.78 (2.61)	22.06 (27.87) *3.53 (3.12)
SCS Appearance Thoughts	4.32 (1.71)	4.88 (1.46)
SCS Overall Appearance	2.75 (1.63)	3.04 (1.60)
SCS Specific Body Parts	2.43 (1.48)	2.39 (1.60)
SCS Total	9.50 (3.96)	10.31 (3.58)
MSRF Employment Credibility	3.49 (1.00) <sub>a</sub>	4.21 (.71)

*Note:* \* = transformed value; MBSRQ-AE = Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation; Appearance Schematicity Inventory-Revised; PARTS = Physical Appearance-related Teasing Scale; SATAG-3-I-G = Sociocultural Attitudes Towards Appearance Questionnaire-Internalization General subscale; DEBQ-RS = Dutch Eating Behavior Questionnaire-Restraint Scale; Eating Disorder Examination-Questionnaire-Bulimia subscale; MHBI-E = Multidimensional Health Behavior Inventory-Exercise subscale; SCS=State Comparison Scale; MSRF = Message Source Rating Form. Letter subscripts indicate significant differences across conditions.

Table 4 (Continued)

Measure	Ambiguous Appearance-related Feedback (N=80)	Ambiguous Nonappearance-related Feedback (N=66)
MSRF Employment Credibility	3.49 (1.00) <sub>a</sub>	4.21 (.71)
MSRF Feedback Credibility	3.56 (1.00) <sub>a</sub>	4.32 (.66)
MSRF Flyer Credibility	3.68 (1.01) <sub>a</sub>	4.38 (.70)
MSRF Thinness	3.58 (.59)	3.58 (.70)
MSRF Attractiveness	3.32 (.67)	3.41 (.52)
MSRF Warmth	3.30 (.72)	3.48 (.71)
MSRF Credibility Composite	3.58 (.89) <sub>a</sub>	4.30 (.59)

*Note:* \* = transformed value; MSRF = Message Source Rating Form. Letter subscripts indicate significant differences across conditions.

Analyses were conducted to assess for any initial differences among the groups on the demographic variables. No significant differences were found across the groups on race,  $\chi^2(4)=1.66, p>.05.$ , age,  $F(1,44)=1.74, p>.05,$  year in school,  $F(1,144)=2.19, p>.05,$  and BMI (1,144)=.42,  $p>.05.$  Significant differences were found among the groups for two pre-test trait variables and one pre-test state variable. There were significant group differences on history of teasing,  $F(1,44)=4.35, p=.04$  and dieting behaviors,  $F(1,44)=5.66, p=.02.$  A significant group difference was also found on state body image,  $F(1,44)=6.57, p=.01.$  These significant findings were addressed by covarying out each of these variables in planned analyses.

The items and credibility composite score of the MSRF were examined separately using one-way ANOVAs to assess for differences by condition. These items measured the degree to which the message source (randomly assigned to each participant's condition) was rated as credible in terms of their employment status, feedback, and flyer

as well as thin, attractive, and warm. Significant group differences in ratings were found for the three items focusing on credibility and the credibility composite (see Table 5). An examination of these three item means for each group showed that the participants in the ambiguous appearance-related condition rated the message source as more credible than those in the ambiguous nonappearance-related condition (see Table 4 above). This issue was addressed by considering the use of the credibility composite as a covariate in subsequent analyses. The option of omitting participants with a credibility composite score of less than 3 (reflecting average credibility) from subsequent analyses was also explored. This omission created an N of 126. A comparison of the original results with the results based on using each of the noted methods indicated that there were only minor changes in the findings. Therefore, the credibility composite was not used as a covariate and no participants were omitted from subsequent analyses.

Table 5

*Significance Levels for Univariate Analyses by Condition*

MSRF Item	<i>F</i> value
Employment Credibility	$F(1,143)=23.96, p<.05$
Feedback Credibility	$F(1,143)=28.16, p<.05$
Flyer Credibility	$F(1,143)22.07, p<.05$
Thinness	$F(1,143)=.00, p>.05$
Attractiveness	$F(1,143)=.83, p>.05$
Warmth	$F(1,143)=2.30, p>.05$
Credibility Composite	$F(1,143)=32.14, p<.05$

One-way ANOVAs conducted separately on each MSRF item to assess for differences by confederate across conditions also showed no significant differences (see Table 6). When comparing both message sources, they seemed to be rated as equivalent in their level of credibility, thinness, attractiveness, and warmth. It was assumed that the message sources did not significantly differ in key features related to the cover story and hypotheses.

Table 6

*Means, Standard Deviations, and Significance Levels for Univariate Analyses by Confederate*

MSRF Item	Confederate 1	Confederate 2	<i>F</i> value
Confederate Employment Credibility	3.68 (.98)	3.95 (.90)	$F(1,143)=3.01, p>.05$
Confederate Feedback Credibility	3.76 (1.04)	4.03 (.83)	$F(1,143)=2.84, p>.05$
Confederate Flyer Credibility	3.91 (1.06)	4.08 (.84)	$F(1,143)=1.11, p>.05$
Confederate Thinness	3.53 (.61)	3.62 (.67)	$F(1,143)=.77, p>.05$
Confederate Attractiveness	3.32 (.58)	3.39 (.63)	$F(1,143)=.42, p>.05$
Confederate Warmth	3.26 (.70)	3.49 (.72)	$F(1,143)=3.73, p>.05$

Correlations among the pre-test trait and state measures were examined to ensure relationships coincided with research on body image. As expected, a majority of the pre-test variables were significantly correlated in the predicted directions (see Table 7).

Exercise behaviors was the only variable that was correlated with few pre-test trait and state measures. However, it was significantly correlated with dieting and bulimic behaviors which has been shown in previous research studies.

Correlations between pre-test and post-test state score (state body image, appearance satisfaction, anger, self-confidence, anxiety, and depression) for each variable were evaluated. Correlations between pre-test trait scores and corresponding intention scores (dieting, bulimic, and exercise behaviors) for each variable were also examined. Significant correlations were found for all of the variables ( $r$ 's ranging from .54 to .90). The pre-test scores were used as covariates in subsequent analyses to decrease the chance of within-group error variance, given the correlations between these scores were highly correlated.

Table 7. Correlations among Pre-test Trait and State Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. MBSRQ-AE														
2. PACS	-.43**													
3. ASI-R	-.36**	.67**												
4. PARTS	-.33**	.27**	.27**											
5. SATAQ-I-G	-.30**	.63**	.60**	.08										
6. DEBQ-RS	-.53**	.47**	.42**	.35**	.39**									
7. EDE-Q	-.50**	.54*	.54**	.39**	.49**	.68**								
8. MHBI-E	-.13	.10**	.16	.17*	.08	.44**	.26**							
9. BISS	.71**	-.42**	-.36**	-.36**	-.36*	-.61**	-.64*	-.19*						
10. VAS Appear	.61**	-.38**	-.35**	-.29**	-.42*	-.48**	-.59*	-.11*	.77**					
11. VAS Anger	-.22**	.37**	.24**	.16	.33**	.25**	.28**	.10	-.31**	-.19*				
12. VAS Self-Co	.61**	-.39**	-.34**	-.33**	-.40**	-.45**	-.52**	-.15	.67**	.72**	-.28**			
13. VAS Anxiety	.19*	.29**	.20**	.15	.19*	.19*	.33**	-.05	-.27**	-.20*	.49**	-.34**		
14. VAS Depress	-.38**	.43**	.34**	.25**	.33**	.34**	.44**	.02	-.47**	-.38**	.56**	-.42**	.62**	

Note: MBSRQ-AE = Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation subscale; ASI-R = Appearance Schematicity Inventory-Revised; PARTS = Physical Appearance-related Teasing Scale; SATAQ-I-G = Sociocultural Attitudes Towards Appearance Questionnaire-3-Internalization General subscale; DEBQ-RS = Dutch Eating Behavior Questionnaire-Restraint Scale; EDE-Q-B = Eating Disorder Examination-Questionnaire-Bulimia subscale; MHBI-E = Multidimensional Health Behavior Inventory-Exercise subscale; BISS = Body Image States Scale; VAS Appear = Visual Analogue Scale Appearance; VAS Anger = Visual Analogue Scale Anger; VAS Self-Con = Visual Analogue Scale Self-Confidence; VAS Anxiety = Visual Analogue Scale Anxiety; VAS Depress = VAS Depression.

\*p<.05

\*\*p<.01

## *Planned Analyses*

### ANCOVAs and MANCOVAs on State Measures

A one-way ANCOVA was performed to examine group differences in post-test state body image using pre-test scores as the covariate (Hypothesis 1). A one-way MANCOVA was also conducted to examine group differences in multiple post-test state moods using pre-test scores as the covariates (Hypothesis 1). As shown in Table 8, no significant group differences were found in the ANCOVA for state body image covarying out the pre-test score. An examination of the mean trends suggested that the ambiguous appearance-related feedback resulted in changes that were in the opposite direction (more positive) of those produced by the ambiguous nonappearance-related feedback. Similar results were found for the various mood states, with the exception of anger. There was a marginally significant condition effect in the MANCOVA for state moods,  $F(4, 142)=2.23, p=.055$ , partial  $\eta^2=.076$ . An evaluation of the univariate analyses revealed a significant condition effect for state anger,  $F(1, 141)=6.08, p<.05$ , partial  $\eta^2=.042$ . The ambiguous appearance-related feedback condition (adjusted  $M = 2.09$ ) had greater levels of anger after the feedback than the ambiguous nonappearance-related feedback condition (adjusted  $M = 1.56$ ).

### ANCOVAs on Intention Measures

Additionally, separate one-way ANCOVAs were computed to examine group differences in intentions to use body change strategies with corresponding pre-test scores as the covariate (Hypothesis 2). As shown in Table 9, a marginally significant condition effect was found for dieting intentions in the ANCOVA,  $F(1,144)=3.77, p=.054$ , partial



$\eta^2=.026$ . The ambiguous nonappearance-related feedback condition (adjusted  $M = 19.07$ ) resulted in greater dieting intentions than the ambiguous appearance-related feedback (adjusted  $M = 17.74$ ). A significant condition effect was also found in the ANCOVA for intentions to use bulimic behaviors,  $F(1,144) = 9.67, p<.05$ , partial  $\eta^2=.063$ . The ambiguous nonappearance-related feedback condition (adjusted  $M = 2.97$ ) elicited greater bulimic intentions than the ambiguous appearance-related feedback (adjusted  $M = 2.77$ ). The ANCOVA analyses revealed no significant group differences for intentions to exercise when pre-test scores were controlled.

Table 8

*Means, Standard Errors, Significance Levels, and Partial  $\eta^2$  Values for Planned Univariate and Multivariate Analyses by Condition*

	Ambiguous Appearance-related Feedback Adjusted means & SE	Ambiguous Nonappearance-related Feedback Adjusted means & SE	<i>F</i> and <i>p</i> values	partial $\eta^2$ values
<u>ANCOVA</u> State Body Image	34.04 (.41)	33.55 (.45)	$F(1, 143)=.64, p>.05$	partial $\eta^2=.004$
<u>MANCOVA</u> All Mood States			$F(4, 142)=2.23, p=.055$	partial $\eta^2= .076$
<u>ANCOVA</u> State Appearance Satisfaction	64.81 (1.57)	60.93 (1.73)	$F(1, 144)=2.71, p>.05_a$	partial $\eta^2=.019$
State Anger	*2.09 (.14) <sub>1</sub>	*1.56 (.16) <sub>1</sub>	$F(1, 144)=6.08, p<.05_a$	partial $\eta^2=.042$
State Self-Confidence	65.01 (1.25)	*63.36 (1.38)	$F(1, 144)=.77, p>.05_a$	partial $\eta^2=.005$
State Anxiety	*3.08 (.21)	*3.10 (.23)	$F(1, 144)=.00, p>.05_a$	partial $\eta^2=.000$

*Note.* \* = transformed value. Number subscripts indicate significant differences across conditions. Letter *a* subscript = Univariate *F* tests from MANCOVA.

Table 8 (Continued)

	Ambiguous Appearance-related Feedback Adjusted means & SE	Ambiguous Nonappearance- related Feedback Adjusted means & SE	<i>F</i> and <i>p</i> values	partial $\eta^2$ values
<u>ANCOVA</u> State Depression	*2.41 (.16)	*2.47 (.18)	$F(1, 144)=.07,$ $p>.05_a$	partial $\eta^2=.000$
Diet Intentions	17.74 (.46)	19.07 (.50)	$F(1,144)=3.77,$ $p=.054$	partial $\eta^2=.026$
Bulimic Intentions	2.77 (.04) <sub>1</sub>	2.97 (.05) <sub>1</sub>	$F(1,144)=9.67,$ $p<.05$	partial $\eta^2=.063$
Exercise Intentions	12.25 (.29)	13.06 (.32)	$F(1,143)=3.54,$ $p>.05$	partial $\eta^2=.024$

*Note.* \* = transformed value. Number subscripts indicate significant differences across conditions.

### Mediational Analyses

State appearance comparison was hypothesized to mediate the effect of ambiguous appearance-related feedback on state body image, mood, and intentions to diet, use unhealthy weight control methods, and exercise (Hypothesis 3). As indicated by Baron and Kenny's (1986) guidelines for establishing mediation, the correlations among the predictor, mediator, and each outcome variable were first examined. All three correlations among the independent, dependent, and mediator variables in question were not statistically significant for the planned mediation analyses (see Table 9). Specifically, the mediator (state appearance comparison) was not significantly correlated with the independent variable (ambiguous feedback) ( $r_{pb} = -.11, p>.05$ ), which should be the case if the independent variable affects the mediator. Given that this precondition was not met, the planned mediational analyses were not performed.

Table 9

*Correlations among Ambiguous Feedback, State Appearance Comparison, and Outcome Variables*

	1	2	3	4	5	6	7	8	9	10	11
1. Feedback Cond											
2. State App Comp	-.11										
3. PT BISS	.22**	-.28**									
4. PT VAS Appear	.17*	-.35**	.81**								
5. PT VAS Anger	.04	.22**	-.18*	-.18*							
6. PT VAS Self-Con	.07	-.28**	.71**	.77**	-.21*						
7. PT VAS Anxiety	-.02	.22**	-.22**	-.25**	.48**	-.32**					
8. PT VAS Depress	-.13	.24**	-.45**	-.40*	.49*	-.43**	.66**				
9. DEBQ-RS Inten	-.25**	.20*	-.50	-.42**	.11	-.33**	.18*	.27**			
10. EDE-Q-B Inten	-.29**	.19*	-.43	-.41**	.15	-.33**	.18*	.25**	.62**		
11. MHBI-E Inten	-.18**	-.13*	-.22	-.18	.00	-.08	.06**	.03	.48**	.38**	

*Note:* Feedback Cond = Feedback Condition; State App Comp = State Appearance Comparison; PT BISS = Post-test Body Image States Scale; PT VAS Appear = Post-test Visual Analogue Scale Appearance; PT VAS Anger = Post-test Visual Analogue Scale Anger; PT VAS Self-Con = Post-test Visual Analogue Scale Self-Confidence; PT VAS Anxiety = Post-test Visual Analogue Scale Anxiety; PT VAS Depress = Post-test VAS Depression; DEBQ-RS Inten = Dutch Eating Behavior Questionnaire-Restraint Scale Intentions; EDE-Q-B Inten = Eating Disorder Examination-Questionnaire-Bulimia subscale Intentions; MHBI-E = Multidimensional Health Behavior Inventory-Exercise subscale Intentions.

\*p<.05

\*\*p<.01

## Moderational Analyses

Trait appearance satisfaction, trait appearance schematicity, trait appearance comparison, trait thin-ideal internalization, and history of appearance-related teasing were each hypothesized to moderate the effect of ambiguous appearance-related feedback on state body image, mood, and intentions to diet, use unhealthy weight control methods, and exercise (Hypothesis 4). Using the guidelines provided by Baron and Kenny (1986) for testing moderation, the correlations among the independent variable, each moderator variable, and each dependent variable were first examined. The correlations among ambiguous feedback and each trait variable in question were not statistically significant, with the exception of teasing history ( $r = -.17, p < .05$ ). Given that there should be no relationship between the independent variable and moderator variable, moderational analyses were not performed for testing teasing history as a moderator. Additionally, the correlations between each moderator variable and almost all dependent variables were significant (see Table 10). According to the Baron and Kenny's (1986) guidelines, however, it is not required that the moderator and dependent variable be uncorrelated in order to perform moderation analyses. It is also important to note that all moderator variables were measured prior to the experimental manipulation, an ideal temporal sequence in moderation analyses (Kenny, 2006; Kraemer, Wilson, Fairburn, & Agras, 2002). Based on these findings, moderation analyses were run on all the hypothesized moderator variables except teasing history.

Table 10

*Correlations among Ambiguous Feedback, Trait, and Outcome Variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Feedback Cond													
2. MBSRQ-AE	.15												
3. PACS	-.12	-.43**											
4. ASI-R	-.12	-.36**	.67**										
5. PARTS	-.17*	-.33**	.27**	.27**									
6. SATAQ I-G	-.01	-.30**	.63**	.60**	.08								
7. PT BISS	.22**	.67**	-.34**	-.30**	-.34**	-.32**							
8. PT VAS Appear	.17*	.60**	-.35**	-.34**	-.35**	-.41**	.81**						
9. PT VAS Anger	.04	-.09	.31**	.16	.07	.26**	-.18**	-.18*					
10. PT VAS Self-Con	.07	.54**	-.36**	-.35**	-.40**	-.40**	.71**	.78*	-.21*				
11. PT VAS Anxiety	-.02	-.12	.26**	.20*	.08	.22*	-.22**	-.25**	.48**	-.32**			
12. PT VAS Depress	-.13	-.33**	.42**	.36**	.21*	.36**	-.45**	-.40**	.49**	-.43**	.66**		
13. DEBQ-RS Inten	-.25**	-.41**	.43**	.46**	.32**	.37**	-.50**	-.42**	.11	-.33**	.18*	.27**	

*Note:* Feedback Cond = Feedback Condition; MBSRQ-AE = Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation subscale; ASI-R = Appearance Schematicity Inventory-Revised; PARTS = Physical Appearance-related Teasing Scale; SATAQ-I-G = Sociocultural Attitudes Towards Appearance Questionnaire-3-Internalization General subscale; PT BISS = Post-test Body Image States Scale; PT VAS Appear = Post-test Visual Analogue Scale Appearance; PT VAS Anger = Post-test Visual Analogue Scale Anger; PT VAS Self-Con = Post-test Visual Analogue Scale Self-Confidence; PT VAS Anxiety = Post-test Visual Analogue Scale Anxiety; PT VAS Depress = Post-test VAS Depression; DEBQ-RS Inten = Dutch Eating Behavior Questionnaire-Restraint Scale Intentions. \*p<.05, \*\*p<.01

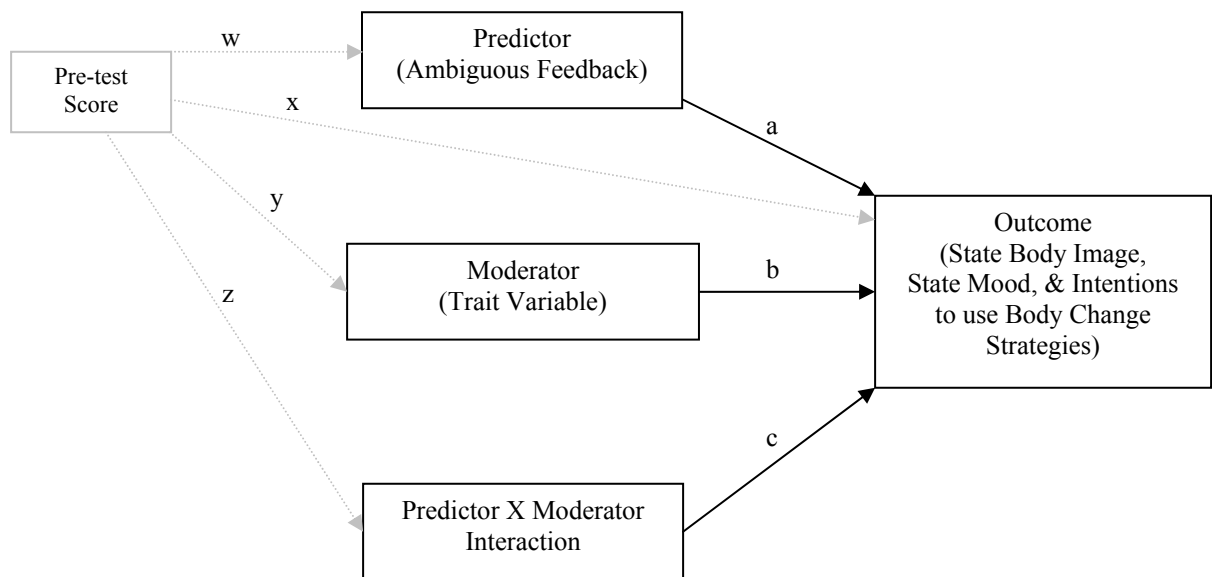
Table 10 (Continued)

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i>
14. EDE-Q-B Inten	-.29**	-.35**	.31**	.35**	.31**	.31**	-.43**	-.41**	.15	-.33**	.18*	.25**	.62**		
15. MHBI-E Inten	-.18*	-.22**	.12**	.22**	.24**	.10	-.22**	-.18*	-.00	-.08	-.06**	.03	.48**	.38**	

*Note:* EDE-Q-B Inten = Eating Disorder Examination-Questionnaire-Bulimia subscale Intentions; MHBI-E = Multidimensional Health Behavior Inventory-Exercise subscale Intentions. \* $p < .05$ , \*\* $p < .01$

Trait appearance satisfaction, trait appearance schematicity, trait appearance comparison, and trait thin-ideal internalization were each tested as a moderator of state body image, mood, and intentions to diet, use unhealthy weight control methods, and exercise. The general model for all tests of moderation is illustrated in figure 1. Regression analyses were performed with ambiguous feedback as the predictor (path a), each trait variable as a moderator, and the interaction of the predictor and the moderator (path c). Centered variables were created and used instead of the original variables to reduce the likelihood of multicollinearity problems. For each regression, the pre-test score of the outcome variable (paths w, x, y, z) was also used as a covariate for that variable. If the interaction (path c) is significant, then the moderator being examined is established as a moderator.

Figure 1. General Moderational Model



Nine separate regression equations were computed for each of the four trait moderators noted above (see Appendix EE to HH). Only six of the regressions had

significant interactions, indicating a moderation effect (see Table 11). Trait appearance satisfaction, trait appearance comparison, trait appearance schematicity, and trait thin ideal internalization were established as a moderator between ambiguous feedback and post-test state depression. All four hypothesized trait moderators had significant interaction terms (path c) with magnitudes of standardized  $\beta$ s ranging from .15 to .20, after controlling for pre-test state depression score, ambiguous feedback, and pre-test trait score. The  $R^2$ s for the models ranged from .59 to .81.

Table 11

*Standardized Beta Weights and  $R^2$  Values for Significant Moderation Analyses*

Trait	Post-test Variable	Pre-Test Variable	Ambiguous Feedback	Pre-test Trait Variable	Interaction	$R^2$
Appearance Satisfaction	State Self-Confidence	.91**	.05	.05	-.10*	.81
	State Depression	.84**	-.02	-.11	.15**	.74
Appearance Comparison	State Depression	.81**	-.10	.20**	-.18**	.74
	Bulimic Intentions	.74**	-.10	-.12	.20*	.59
Appearance Schematicity	State Depression	.83**	-.01	.22**	-.19**	.75
Thin Ideal Internalization	State Depression	.82**	-.02	.24*	-.20*	.75

*Note:* Post-test BISS = Post-test Body Image States Scale; Post-test VAS Appear = Post-test Visual Analogue Scale Appearance; Post-test VAS Anger = Post-test Visual Analogue Scale Anger; Post-test VAS Self-Con = Post-test Visual Analogue Scale Self-Confidence; Post-test VAS Anxiety = Post-test Visual Analogue Scale Anxiety; PT VAS Depress = Post-test VAS Depression; DEBQ-RS Inten = Dutch Eating Behavior Questionnaire-Restraint Scale Intentions; EDE-Q-B Inten = Eating Disorder Examination-Questionnaire-Bulimia subscale Intentions; MHBI-E = Multidimensional Health Behavior Inventory-Exercise subscale Intentions.

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



Additionally, trait appearance satisfaction moderated the effect of ambiguous feedback on state self-confidence. The interaction term (path c) for this model was significant, standardized  $\beta = -.10$ ,  $p < .05$ , when the pre-test self-confidence score, ambiguous feedback, and pre-test trait appearance satisfaction were controlled for. The  $R^2$  for the entire model was .81. Trait appearance comparison also moderated the relationship between ambiguous feedback and intentions to use bulimic behaviors. This model had a significant interaction term (path c), standardized  $\beta = .20$ ,  $p < .05$ , after controlling for pre-test bulimic behaviors, ambiguous feedback, and pre-test trait appearance comparison. All other tests for moderation resulted in non-significant interaction terms (see Appendix EE to HH).

Overall, the findings from the regression analyses suggest that trait appearance satisfaction, trait appearance comparison, trait appearance schematicity, and trait thin ideal internalization all moderated the relationship between ambiguous feedback and post-test state depression. Appearance satisfaction and appearance comparison also each moderated an additional relationship between ambiguous feedback and state self-confidence and between this feedback and bulimic intentions, respectively. None of the hypothesized trait variables moderated the effect of ambiguous feedback and post-test variables reflecting body image (BISS and VAS appearance satisfaction).

#### *Exploratory Analyses*

Exploratory analyses were conducted on subsamples of individuals based on a median split on trait measures. This was done because of the unexpected findings using the full sample. As noted earlier, the ambiguous appearance-related condition had more positive outcomes (e.g., better body image, higher self-confidence) compared to the

ambiguous nonappearance-related condition. The initial hypotheses focusing on group differences (Hypothesis 1 and 2) were tested using these two subsamples.

The following analyses were conducted for each subsample. A 2 (Feedback Condition: appearance, nonappearance) X 2 (Disturbance Level: high trait level, low trait level) ANCOVA was run on state body image using the pre-test scores as the covariate. A 2 (Feedback Condition: appearance, nonappearance) X 2 (Disturbance Level: high trait level, low trait level) MANCOVA was performed on multiple state moods with pre-test scores as the covariates. Separate 2 (Feedback Condition: appearance, nonappearance) X 2 (Disturbance Level: high trait level, low trait level) ANCOVAs were run on intention behaviors using relevant pre-test scores as the covariate. The MANCOVAs and ANCOVAs indicated significant interactions between feedback condition and the subsample split into high versus low levels of trait appearance comparison. The subsamples based on high versus low levels of appearance satisfaction, appearance schematicity, teasing history, and thin-ideal internalization did not have any significant interaction effects. Only the findings for appearance comparison subsample will be reported.

#### ANCOVAs and MANCOVAs for Appearance Comparison Subsample

There was a significant interaction between feedback condition and dispositional level of appearance comparison in the ANCOVA for state body image,  $F(1,141) = 5.39$ ,  $p < .05$ ,  $\eta^2 = .037$ . Females with high trait appearance comparison had a more positive body image after receiving the ambiguous appearance-related feedback (adjusted  $M = 36.00$ ) compared to those with high trait appearance comparison in the ambiguous nonappearance-related feedback (adjusted  $M = 32.89$ ) and those with low trait appearance

comparison after receiving the ambiguous appearance-related condition (adjusted  $M = 33.58$ ) and ambiguous nonappearance-related condition (adjusted  $M = 33.78$ ).

There was also a significant interaction between feedback condition and dispositional level of appearance comparison in the MANCOVA,  $F(5, 133) = 4.22$ ,  $p = .001$ ,  $\eta^2 = .14$ . An examination of the ANCOVAs indicated a significant condition effect for state anger,  $F(1, 137) = 9.88$ ,  $p < .05$ ,  $\eta^2 = .067$ . The ambiguous appearance-related feedback condition (adjusted  $M = 2.32$ ) resulted in greater levels of anger than the ambiguous nonappearance-related feedback (adjusted  $M = 1.52$ ). The mean trends for the interaction effect indicated that females with high trait appearance comparison had the greater levels of state anger after receiving the ambiguous appearance-related feedback (adjusted  $M = 2.69$ ) in comparison to those with high trait appearance comparison after receiving the ambiguous nonappearance-related feedback (adjusted  $M = 1.42$ ) and those with low trait appearance comparison after receiving the ambiguous appearance-related feedback (adjusted  $M = 1.95$ ) and nonappearance-related feedback (adjusted  $M = 1.62$ ).

A significant interaction between feedback condition and dispositional level of appearance comparison was found for state depression,  $F(1, 137) = 8.64$ ,  $p < .05$ ,  $\eta^2 = .059$ . Females with high trait appearance comparison had greater levels of state depression in the ambiguous nonappearance-related condition (adjusted  $M = 3.45$ ) compared to those with high trait appearance comparison in the ambiguous appearance-related condition (adjusted  $M = 2.15$ ) and those with low trait appearance comparison in the ambiguous appearance-related condition (adjusted  $M = 2.46$ ) and in the ambiguous nonappearance-related condition (adjusted  $M = 2.14$ ).

In addition, a significant interaction between feedback condition and dispositional level of appearance comparison was found in the ANCOVA for intentions to use bulimic behaviors,  $F(1, 141) = 6.51, p < .05, \eta^2 = .044$ . Females with high trait appearance comparison had greater bulimic intentions in the ambiguous nonappearance-related condition (adjusted  $M = 3.19$ ) than those with high trait appearance comparison in the ambiguous appearance-related condition (adjusted  $M = 2.69$ ) and those with low trait appearance comparison in the ambiguous appearance-related condition (adjusted  $M = 2.90$ ) and in the ambiguous nonappearance-related condition (adjusted  $M = 2.78$ ). There were no other significant interactions between feedback condition and dispositional level of appearance comparison for intentions to use body change strategies.

## Chapter 4

### Discussion

The main objective of the current study was to examine the immediate effects of ambiguous appearance-related feedback on state body image, mood, and intentions to use body change strategies. The ambiguous appearance-related condition was hypothesized to elicit more negative state body image and mood than the ambiguous nonappearance-related feedback condition. Similarly, it was expected that the ambiguous appearance-related condition would produce greater intentions to use body change strategies, including dieting, bulimic, and exercise behaviors compared to the ambiguous nonappearance-related feedback condition.

Additional objectives of the current study were to examine state appearance comparison as a mediator as well as a number of traits as moderators influencing the immediate responses to the feedback. State appearance comparison was hypothesized to mediate the relationship between ambiguous feedback and state body image, mood, and intentions to use the noted body change strategies. Trait appearance satisfaction, trait appearance schematicity, trait appearance comparison, trait thin-ideal internalization, and appearance-related teasing history were expected to each moderate the relationship among the ambiguous feedback and state body image, mood, and intentions to use certain body change strategies. Initial trait levels were also used to identify subsamples in order to explore the possibility of differences in responses to the ambiguous feedback as

dependent not only on feedback condition but also on trait level of disturbance (high versus low).

Most of the hypotheses were not supported by the findings of the current study. In terms of body image, there was no evidence of significant differences in state body image at post-test as expected. Post-test differences were marginally significant for a set of mood states (appearance satisfaction, anger, self-confidence, anxiety, depression). However, the mean trends for each mood state, with the exception of anger, indicated better mood states after the ambiguous appearance-related feedback in comparison to after the ambiguous nonappearance-related feedback. In contrast to the other mood states, the finding for state anger at post-test was in the predicted direction. As hypothesized, state anger was greater in the ambiguous appearance-related feedback condition than in the ambiguous nonappearance-related feedback condition. A trend reflecting this post-test difference in state anger was also found in the pilot study, suggesting distinct anger responses following each type of feedback. The current findings are consistent with those of Tantleff-Dunn and Thompson (1998) who also found greater anger at post-test for participants exposed to a videotape of male to female interactions containing appearance-related comments and behaviors compared to those exposed to a videotape with the same type of interactions but without the appearance-related feedback. In line with the current study, they were attempting to demonstrate biased interpretation of appearance-related information. Appearance-related feedback seemed to have a more negative effect on state anger in comparison to the nonappearance-related feedback for both studies.

The current study also found significant differences for intentions to diet and intentions to use bulimic behaviors at post-test. Contrary to hypotheses regarding intention behaviors, the ambiguous nonappearance-related feedback elicited greater dieting and bulimic intentions compared to the ambiguous nonappearance-related feedback. Dieting and bulimic intentions were significantly lower in the ambiguous appearance-related condition. There were no significant differences for intentions to exercise at post-test.

The examination of the ambiguous appearance-related and nonappearance-related feedback in mediational and moderational analyses did not fully support the hypotheses. Mediational analyses could not be performed testing state appearance comparison as a mediator for the effect of ambiguous feedback on state body image, mood, and intentions to diet, use unhealthy weight control methods, and exercise. State appearance comparison was not significantly correlated with ambiguous feedback ( $r_{pb} = -.11, p > .05$ ), which is a prerequisite for conducting mediational analyses. The correlations among the predictor, mediator, and each outcome variable must all be significant, according to Baron and Kenny's (1986) guidelines for establishing mediation. The lack of a relationship between state appearance comparison and ambiguous feedback indicated that mediational analyses should not be conducted.

Moderational analyses were conducted for four of the five proposed moderators. Appearance-related teasing history was not examined as moderator because it was not significantly correlated with ambiguous feedback ( $r = -.17, p < .05$ ). A significant correlation between the predictor and moderator is required for tests of moderation as noted by Baron and Kenny (1986). Moderational analyses examined appearance

satisfaction, appearance comparison, appearance schematicity, and thin-ideal internalization as potential moderators of state body image, various moods, and intentions to use body change strategies (dieting, bulimic, and exercise behaviors). No moderators were established for state body image. However, all four traits were identified as moderators for the same mood state, depression. Trait appearance satisfaction, trait appearance comparison, trait appearance schematicity, and trait thin ideal internalization each moderated the relationship between ambiguous feedback and post-test state depression. Trait appearance satisfaction was also a moderator for ambiguous feedback and post-test self-confidence. In addition, trait appearance comparison moderated the relationship between ambiguous feedback and intentions to use bulimic behaviors. All other moderational tests indicated that other mood states or intention behaviors were not moderated by any traits..

Exploratory analyses were conducted on subsamples developed using high versus low levels of trait disturbance. It was hypothesized that females with more problematic dispositional levels (high or low depending on the trait) would respond to ambiguous appearance-related feedback in a more negative manner in terms of state body image, various moods, and intentions to use body change strategies. There were significant findings for the subsample based on dispositional levels of appearance comparison (high versus low trait levels). A number of these findings support and expand upon findings reported on the original sample. Most notably, there were post-test differences in state anger in the predicted direction. As in the original sample, the ambiguous appearance-related condition elicited greater anger than the ambiguous nonappearance-related condition in this subsample. There were also post-test differences in state depression,



state body image, and intentions to use bulimic behaviors which were influenced by both feedback condition and dispositional level. Contrary to expectations, the levels of state depression and body image as well as intention behaviors were highest for females with high trait comparison in the ambiguous nonappearance-related condition. Nevertheless, these findings highlight appearance comparison as an important trait to consider and further investigate in the context of appearance-related feedback.

It is important to try to understand the possible reasons for the failure to find support for the bulk of hypotheses. The overall lack of significant findings in the expected directions, particularly for state body image and mood changes after the feedback, may reflect limitations of the feedback stimuli. Feedback regarding academic tutoring services was the control feedback selected to compare to appearance-related feedback on cosmetic surgery procedures because of its similar focus on a personal attribute (academic competence and physical appearance). The nonappearance-related feedback condition was conceptualized as a neutral comparison group and was hypothesized to elicit little, if any, changes in state body image, moods, or intention behaviors. However, it appears that the nonappearance-related feedback was not received as lightly as expected.

The feedback on tutoring services may have induced negative responses for individuals concerned with their academic performance especially given that a school setting was used. For instance, the mean trends for the mood states indicated slightly lower self-confidence and greater anxiety and depression in the nonappearance-related condition. With regard to state body image, the mean trends for the two mood states specific to physical appearance showed lower body image and appearance satisfaction in

this same condition. Although this finding may seem counterintuitive, it may be related to the mood states that were found to be more negative for the nonappearance-related feedback condition. Feelings of depression, for instance, have been associated with poor body image in previous research (e.g., Mori & Morey, 1991, Noles, Cash, & Winstead, 1986). It has been argued that females with greater feelings of depression are often more likely to view themselves as less physically attractive than females with lower feelings of depression. The same may be true for females with lower feelings of self-confidence given the current societal emphasis on physical attractiveness as a determinant of female beauty. Females with more negative feelings in general may have a body image that is more vulnerable to external feedback from others. In addition, the traits identified as moderators suggest other possible explanations for the unexpected findings. Trait levels of appearance satisfaction, appearance comparison, appearance schematicity, and thin ideal internalization were each moderators for the ambiguous feedback and depression. It is likely that whether or not individuals react negatively to ambiguous feedback depends on particular dispositional levels. This seems to be most relevant to trait appearance comparison as indicated by the significant findings from the subsample with high versus low levels of trait appearance comparison. Additional research is needed to elucidate the role of the identified moderators in this context using feedback stimuli that has addressed the noted limitations.

Furthermore, the appearance-related and nonappearance-related feedback was intended to be ambiguous in nature to allow for a neutral or negative (biased) interpretation. However, it is likely that the feedback was not similar in its level of ambiguity. In comparison to the appearance-related feedback, the nonappearance-related

feedback may have been perceived as more relevant to the participants (e.g., student status), possibly allowing for more negative interpretations and responses. The appearance-related feedback focused on procedures to alter one's physical appearance which may not have been of any interest for some participants. If so, this feedback may have served as a reminder of the extreme measures that some individuals take to address their appearance concerns. Rather than induce negative responses, the appearance-related feedback may have unintentionally made some participants feel better on various affective domains, including body image.

There are also other limitations that warrant attention. The sample size for the study was relatively small and may have influenced the power to detect interaction effects. In regards to the sample itself, only female undergraduate students were included in the study with a majority of them of being Caucasian. Future research should examine the hypotheses addressed in this study with samples consisting of males and non-college students as well as a proportionate number of ethnic groups. Additionally, an exclusion criterion related to previous eating disorder diagnosis or treatment was used to minimize any risk associated with receiving ambiguous appearance-related feedback during the study. However, this criterion may have restricted the range of the sample in regard to disordered eating, and in turn, affected the results by reducing any potential negative effects of the appearance-related feedback on individuals with higher levels of disordered eating. Research on more eating disturbed samples should be conducted. Finally, the study only used self-report measures which may not accurately reflect actual behaviors, especially for eating behaviors. A further limitation with regard to self-report measures is that a social desirability scale was not included in the study. Given the deception

component and relatively sensitive nature of the appearance-related feedback, there is a strong possibility that participants responded in a manner that they felt was socially acceptable. Future research should aim to more accurately assess actual behavioral change by using a social desirability scale in addition to the selected measures.

In addition, the time period from when the confederate left the room after providing the feedback to when she returned was approximately five minutes which may have been too long and revealed the cover story. Although an examination of the confederate's credibility suggested high credibility, it is not known whether participants were reporting their true beliefs regarding the cover story, especially since credibility was evaluated after the debriefing. As state earlier, a social desirability scale was not utilized and such a measure would be useful in determining the extent to which the cover story, specifically the confederate's role and feedback, was accepted as genuine. It is also important to note that the script used by the confederates was developed to be brief and straightforward with little to no discussion between the confederate and the participant. There is a possibility that the appearance-related feedback, in particular, was too short or not detailed enough to allow for negative interpretations and effects on body image and mood states. Therefore, it is unclear whether the length of the feedback affected the results.

Despite the minimal support for the hypotheses, future research should further investigate the effects of appearance-related feedback on body image and eating behaviors in an ambiguous setting. Previous research has shown that both verbal and more subtle forms of appearance-related feedback are common and associated with body image problems and disordered eating (Thompson et al., 1999; Tantleff-Dunn & Gokee,

2004). An examination of this type of feedback in an ambiguous context can provide useful information with regard to errors in processing appearance-related information that likely exist among individuals with poor body image as argued by Williamson et al. (2004). A better understanding of the different ways that ambiguous appearance-related information, such as feedback provided by others, can be interpreted is likely to have important clinical implications. Additional research in this area may potentially indicate which cognitive strategies and approaches should be utilized in treatments for body image and eating disturbances allowing for more empirically-based treatments.

## References

- Allison, D.B., Kalinsky, L.B., & Gorman, B.S. (1992). A comparison of the psychometric properties of three measures of dietary restraint. *Psychological Assessment, 4*, 391-198.
- Akan, G. E., & Grilo, C. M. (1995). Sociocultural influences on eating attitudes and behaviors, body image, and psychological functioning: A comparison of African-American, Asian-American, and Caucasian college women. *International Journal of Eating Disorders 18*, 181-187.
- Black, C.M.D. & Wilson, G.T. (1996). Assessment of eating disorders: Interview versus questionnaire. *International Journal of Eating Disorders, 20*, 43-50.
- Baker, J. D., Williamson, D. A., & Sylve, C. (1995). Body-image disturbance, memory bias and body dysphoric: Effects of a negative mood induction. *Behavior Therapy, 26*, 747-759.
- Baron, R. M., & Kenny, D. A. (1986). The Moderator-Mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Befort, C. A., & Rickard, K. M. (2003). Gender similarities in response to figure-size feedback in a selected nonclinical population. *Sex Roles, 49*, 71-80.
- Birkeland, R., Thompson, J. K., Herbozo, S., Roehrig, M., & Cafri, G. (2005). Media exposure, mood, and body image dissatisfaction: A test of social comparison and information processing paradigms. *Body Image: An International Journal of Research, 2*, 53-61.
- Bower, G. H. (1981). Mood and memory. *American Psychologist, 36*, 129-148.
- Brown, T. A., Cash, T. F., & Lewis, R. J. (1989). Body-image disturbances in adolescent female binge-purgers: A brief report of the results of a national survey in the U.S.A. *Journal of Clinical Psychology and Psychiatry, 30*, 605-613.
- Brown, T. A., Cash, T. F., & Mikulka, P. J. (1990). Attitudinal body-image assessment: Factor analysis of the Body Self-Relations Questionnaire. *Journal of Personality Assessment, 55*, 135-144.

- Cash, T. F. (1995). Developmental teasing about physical appearance: Retrospective descriptions and relationships with body image. *Social Behavior and Personality*, 23, 123-130.
- Cash, T. F., & Deagle, E. A. (1997). The nature and extent of body-image disturbances in anorexia nervosa and bulimia nervosa: A meta-analysis. *International Journal of Eating Disorders*, 21, 2-19.
- Cash, T. F., & Flemming, E. C., (2002). Body images and social relations. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: A handbook of theory, research, and clinical practice* (pp. 277-286). New York: Guilford Press.
- Cash, T. F., Fleming, E. C., Alindogan, J., Steadman, L., & Whitehead, A. (2002). Beyond body image as a trait: The development and validation of the Body Image States Scale. *Eating Disorders: The Journal of Treatment and Prevention*, 10, 103-113.
- Cash, T. F., Melnyk, S. E., & Hrabosky, J. I. (2004). The assessment of body image investment: An extensive revision of the Appearance Schema Inventory. *International Journal of Eating Disorders*, 35, 305-316.
- Cash, T. F., Winstead, B. A., & Janda, L. H. (1986). Body Image Survey report: The great American shape-up. *Psychology Today*, 24, 30-37.
- Cattarin, J. and Thompson, J. K. (1994). A three-year longitudinal study of body image, eating disturbance, and general psychological functioning in adolescent females. *Eating Disorders: Treatment and Prevention*, 2, 114-125.
- Cooper, M. J., Anastasiades, P., & Fairburn, C. G. (1992). Selective processing of eating-, shape-, and weight-related words in persons with bulimia nervosa. *Journal of Abnormal Psychology*, 101, 352-355.
- Cooper, M. J., & Fairburn, C. G. (1992). Selection processing of eating, weight, and shape related words in patterns with eating disorders and dieters. *British Journal of Clinical Psychology*, 31, 363-365.
- Davidson, E. J., & Wright, P. (2002). Selective processing of shape and weight-related words in bulimia nervosa: Use of a computerized Stroop test. *Eating Behaviors*, 3, 261-273.
- Denniston, C., Roth, D., & Gilroy, F. (1992). Dysphoria and body image among college woman. *International Journal of Eating Disorders*, 12, 449-452.

- Eisenberg, M. E., Neumark-Sztainer, D., & Story M. (2003). Associations of weight-based teasing and emotional well-being among adolescents. *Archives of Pediatrics and Adolescent Medicine*, 157, 733-738.
- Fabian, L. J., & Thompson, J. K. (1989). Body image and eating disturbance in young females. *International Journal of Eating Disorders*, 8, 63-74.
- Garner, D. M. (1997, January/February). The Body Image Survey. *Psychology Today*, 32-84.
- Garrow, J. S., & Webster J. (1985). Quetelet's index ( $W/H^2$ ) as a measure of fatness. *International Journal of Obesity*, 9, 147-153.
- Gleason, J.H., Alexander, A. M., & Somers, C. L. (2000). Later adolescents' reactions to three types of childhood teasing: Relations with self-esteem and body image. *Social Behavior and Personality*, 28, 471-480.
- Grilo, C. M., Wilfley, D. E., Brownwell, K. D., & Rodin, J. (1994). Teasing, body image, and self-esteem in a clinical sample of obese women. *Addictive Behavior*, 19, 443-450.
- Fabian, L. J., & Thompson, J. K. (1989). Body image and eating disturbance in young females. *International Journal of Eating Disorders*, 8, 63-74.
- Fairburn, C.G. & Beglin, S.J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*, 16(4), 363-370.
- Fairburn, C.G. & Cooper, Z. (1993). The Eating Disorder Examination (12th edition). In C. Fairburn & G. Wilson (Eds.), *Binge Eating: Nature, assessment, and treatment* (pp. 317-360). New York: Guildford Press.
- Fairburn, C. G., Cooper, P. J., Cooper, M. J., McKenna, F. P., & Anastasiades, P. (1991). Selective information processing in bulimia nervosa. *International Journal of Eating Disorders*, 10, 415-422.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117-140.
- Fuller, R. D., Williamson, D. A., & Anderson, T. W. (1995). Selective information processing of body size and food related stimuli in women who are preoccupied with body size. *Advances in Health Care Research*, 14, 61-66.



- Furman, K., & Thompson, J. K. (2002). Body image, teasing, and mood alterations: An experimental study of exposure to negative verbal commentary. *International Journal of Eating Disorders*, 32, 449-457.
- Garner, D. M. (1997, January/February). The Body Image Survey. *Psychology Today*, 32-84.
- Garner, D. M. (2005). *Eating disorder inventory-3: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Gleason, J.H., Alexander, A. M., & Somers, C. L. (2000). Later adolescents' reactions to three types of childhood teasing: Relations with self-esteem and body image. *Social Behavior and Personality*, 28, 471-480.
- Gleaves, D. H., Williamson, D. A., Eberenz, K. P., Sebastian, S. E., & Barker, S. E. (1995). Testing a multidimensional model of body image construct using structural modeling. *Journal of Personality Assessment*, 64, 478-493.
- Heinberg, L. J., & Thompson, J. K. (1992). The effects of figure size feedback (positive vs. negative) and target comparison group (particularistic vs. universalistic) on body image disturbance. *International Journal of Eating Disorders*, 12, 441-448.
- Heinberg, L. J., & Thompson, J. K. (1995). Body image and televised images of thinness and attractiveness: A controlled laboratory investigation. *Journal of Social and Clinical Psychology*, 14, 325-338.
- Herbozo, S., & Thompson, J.K. (2006a). Development and validation of the Verbal Commentary on Physical Appearance Scale: Considering both positive and negative commentary. *Body Image: An International Journal of Research*, 3, 335-344.
- Herbozo, S., & Thompson, J.K. (2006b) Appearance-related commentary, body image, and self-esteem: Does the distress associated with the commentary matter? *Body Image: An International Journal of Research*, 3, 255-262.
- Hintze, J. (2001). NCSS and PASS. Number cruncher statistical systems. Kaysville, UT. [www.ncss.com](http://www.ncss.com).
- Irving, L. M. (1990). Mirror images: Effects of the standard of beauty on the self- and body-esteem of women exhibiting varying levels of bulimic symptoms. *Journal of Social and Clinical Psychology*, 9, 230-242.

- Jackman, L. P., Williamson, D. A., Netemeyer, R. G., & Anderson, D. A. (1995). Do weight pre-occupied women misinterpret ambiguous stimuli related to body size? *Cognitive Therapy and Research, 19*, 341-355.
- Jackson, T. D., Grilo, C. M., & Masheb, R. M. (2002). Teasing history and eating disorder features: An age- and body mass index-matched comparison of bulimia nervosa and binge-eating disorder. *Comprehensive Psychiatry, 43*, 108-113.
- Kenny, D.A. (2006). *Mediation*. Retrieved March 5, 2006 from <http://davidakenny.net/cm/mediate.htm>.
- Kraemer, H.C., Wilson, G.T., Fairburn, C.G., & Agras, W.S. (2002). Mediators and moderators of treatment effects in randomized clinical trials. *Archives of General Psychiatry, 59*, 877-884.
- Kruglanski, A. W., & Maysseless, O. (1990). Classic and current social comparison research: Expanding the perspective. *Psychological Bulletin, 108*, 195-208.
- Kulbok, P.A., Carter, K.F., Baldwin, J.H., Gilmartin, M.J., & Kirkwood, B. (1999). The multidimensional health behavior inventory. *Journal of Nursing Measurement, 7*, 177-195.
- Lang, P. J. (1984). Cognition in emotion: Concept and action. In C. Izard, J. Kagan, & R. Zajonc (Eds.), *Emotion, cognition, and behavior* (pp. 192-226). New York: Cambridge University Press.
- Long, C. G., Hinton, C., & Gillespie, N. K., (1994). Selective processing of food and body size words: Application of the Stroop test with obese restrained eaters, anorexics, and normals. *International Journal of Eating Disorders, 15*, 279-283.
- Lunner, K., Werthem, E., Thomson, J. K., Paxton, S. J., McDonald, F., & Halvaarson, K. S (2000). A cross-cultural examination of weight-related teasing, body image, and eating disturbance in Swedish and Australian samples. *International Journal of Eating Disorders, 28*, 430-435.
- Lyubomirsky, S. & Nolen-Hoeksema, S. (1993). Self-perpetuating properties of dysphoric rumination. *Journal of Personality and Social Psychology, 65*, 330-349.
- Lyubomirsky, S. & Nolen-Hoeksema, S. (1995). Effects of self-focused rumination on negative thinking and interpersonal problem solving. *Journal of Personality and Social Psychology, 69*, 176-190.

- Major, B., Testa, M., & Blysmá, W. H. (1991). Responses to upward and downward social comparisons: The impact of esteem-relevance and perceived control. In J. Suls & T. A. Ashby (Eds.), *Social comparison: Contemporary theory and research* (pp. 237-260). Hillsdale, NJ: Erlbaum.
- Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, *35*, 63-78.
- Matz, P. E., Foster, G. D., Faith, M. S., & Wadden, T. A. (2002). Correlates of body image dissatisfaction among overweight women seeking weight loss. *Journal of Consulting and Clinical Psychology*, *70*, 1040-1044.
- Mautner, R. D., Owen, S. V., & Furnham, A. (2000). Cross-cultural explanations of body image disturbance in western cultural samples. *International Journal of Eating Disorders*, *28*, 165-172.
- McKenzie, S. J., Williamson, D. A., & Cubic, B. A. (1993). Stable and reactive body image disturbances in bulimia nervosa. *Behavior Therapy*, *24*, 195-207.
- McLaren, L., Kuh, D., Hardy, R., & Gauvin, L. (2004). Positive and negative body-related comments and their relationship with body dissatisfaction in middle-aged women. *Psychology and Health*, *19*, 261-272.
- Morrow, J. & Nolen-Hoeksema, S. (1990). Effects of response to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology*, *58*, 519-527.
- Neumark-Sztainer, D., Faulkner, N., Story, M., Perry, C., Hannan, P. J., & Mulert, S. (2002). Weight-teasing among adolescents: Correlations with weight status and disordered eating behaviors. *International Journal of Obesity and Related Metabolic Disorders*, *26*, 123-131.
- Noles, S. W., Cash, T. F., & Winstead, B. (1986). Body image, physical attractiveness, and depression. *Journal of Consulting and Clinical Psychology*, *53*, 88-94.
- Perprina, C., Hemsely, D., Treasure, J., & de Silva, P. (1995). Is the selective information processing of food and body words specific to patients with eating disorders. *International Journal of Eating Disorders*, *14*, 359-366.
- Perrin, L. (1995). *Interpretation of ambiguous body-related stimuli in the eating disorders*. Unpublished doctoral dissertation, Louisiana State University, Baton Rouge.

- Powell, M. R., & Hendricks, B. (1999). Body schema, gender, and other correlates in nonclinical populations, *Genetic, Social, and General Psychology Monographs*, 125, 333-412.
- Richins, M. L. (1991). Social comparison and the idealized images of advertising. *Journal of Consumer Research*, 18, 71-83.
- Rieves, L., & Cash, T. F. (1996). Social developmental factors and women's body-image attitudes. *Journal of Social Behavior and Personality*, 11, 63-78.
- Rosen, James C. (1992). Body-image disorder: Definition, development, and contribution to eating disorders. In J.H. Crowther, D.L., Tennenbaum, S.E. Hobfoll & M. A. P Stephens (Eds.), *The etiology of bulimia: The individual and familial context*. pp. 155-177. Washington, D.C.: Hemisphere Publishing Corporation.
- Schwartz, D. J., Phares, V., Tantleff-Dunn, S., & Thompson, J. K. (1999). Body image, psychological functioning, and parental feedback regarding physical appearance. *International Journal of Eating Disorders*, 25, 339-343.
- Schotte, D. E., McNally, R. J., & Turner, M. L., (1990). A dichotic listening analysis of body weight concern in bulimia nervosa. *International Journal of Eating Disorders*, 9, 109-113.
- Sebastian, S. B., Williamson, D. A., & Blouin, D. C. (1996). Memory bias for fatness stimuli in the eating disorders. *Cognitive Therapy and Research*, 20, 275-286.
- Shroff, H., & Thompson, J. K. (2004). Body image and eating disturbance in India: Media and interpersonal influences. *International Journal of Eating Disorders*, 35, 198-203.
- Stice, E. (2001). Risk factors for eating pathology: Recent advances and future directions. In R. Striegel-Moore & L. Smolak (Eds.), *Eating disorders: New direction for future research and practice* (pp. 57-73). Washington, DC: American Psychological Association.
- Stormer, S. M. & Thompson, J. K. (1996). Explanations of Body Image Disturbance: A Test of Maturational Status, Negative Verbal Commentary, Social Comparison, and Sociocultural Hypotheses. *International Journal of Eating Disorders*, 19, 193-202.
- Tantleff-Dunn, S., & Gokee, J. (2002). Interpersonal influences on body image. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: A handbook of theory, research, and clinical practice* (pp. 108-116). New York: Guilford Press.

- Tantleff-Dunn, S., & Thompson, J. K. (1998). Body image and appearance-related feedback: Recall, judgment, and affective response. *Journal of Social and Clinical Psychology, 17*, 319-340.
- Tantleff-Dunn, S., Thompson, J. K., & Dunn, M. F. (1995). Development and validation of the Feedback on Physical Appearance Scale (FOPAS). *Eating Disorders: The Journal of Treatment and Prevention, 3*, 341-350.
- Thompson, J. K. (1990). *Body image disturbance: Assessment and treatment*. Elmsford, NY: Pergamon Press.
- Thompson, J. K. (1991). Body shape preferences: Effects of instructional protocol and level of eating disturbance. *International Journal of Eating Disorders, 10*, 193-198.
- Thompson, J.K. (1992). Body image: Extent of disturbance, associated features, theoretical models, assessment methodologies, intervention strategies, and a proposal for a new DSM-IV diagnostic category – Body Image Disorder. In M. Hersen, R. M. Eisler, and P. M. Miller (Eds.), *Progress in Behavior Modification* (Vol. 28, pp. 3-54). Sycamore, IL: Sycamore Press.
- Thompson, J.K. (1995). Assessment of body image. In D. Allison (Ed.), *Handbook of assessment methods for eating behaviors and weight-related problems* (pp. 119-148). Thousand Oaks, CA: Sage.
- Thompson, J.K., & Altabe, M. N. (1991). Psychometric properties of the Figure Rating Scale. *International Journal of Eating Disorders, 10*, 615-619.
- Thompson, J. K., Covert, M. D., & Stormer, S. (1999). Body image, social comparison, and eating disturbance: A covariance structure modeling investigation. *International Journal of Eating Disorders, 26*, 43-51.
- Thompson, J. K., Covert, M. D., Richards, K. J., Johnson, S., and Cattarin, J. (1995). Development of body image, eating disturbance, and general psychological functioning in female adolescents: Covariance structure modeling and longitudinal investigations. *International Journal of Eating Disorders, 18*, 221-236.
- Thompson, J. K., Fabian, L. J., Moulton, D. O., Dunn, M. E., & Altabe, M. N. (1991). Development and Validation of the Physical Appearance Related Teasing Scale. *Journal of Personality Assessment, 56*(3), 513-521.
- Thompson, J. K., & Heinberg, L. J. (1993). Preliminary test of two hypotheses of body image disturbance. *International Journal of Eating Disorders, 14*, 59-63.

- Thompson, J. K., Heinberg, L., Altabe, M. N., & Tantleff-Dunn, S. (1999). *Exacting Beauty: Theory, Assessment, and Treatment of Body Image Disturbance*. Washington: American Psychological Association.
- Thompson, J. K., & Heinberg, L. J., & Tantleff-Dunn, S. (1991). The Physical Appearance Comparison Scale (PACS). *The Behavior Therapist, 14*, 174.
- Thompson, J. K., & Psaltis, K. (1988). Multiple aspects and correlates of body figure ratings: A replication and extension of Fallon and Rozin (1985). *International Journal of Eating Disorders, 7*, 813-818.
- Thompson, J. K., & Stice, E. (2001). Thin-ideal internalization: Mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Current Directions in Psychological Science, 10*(5), 181-183.
- Thompson, J.K., van den Berg, P, Roehrig, M., Guarda, A.S., & Heinberg, L.J. (2004). The sociocultural attitudes towards appearance questionnaire-3 (SATAQ-3): Development and validation. *International Journal of Eating Disorders, 35*, 293-304.
- Tiggemann, M., & McGill, B. (2004). The role of social comparison in the effect of magazine advertisements on women's mood and body dissatisfaction. *Journal of Social and Clinical Psychology, 23*, 23-44.
- Tiggemann, M., & Slater, A. (200). Thin ideals in music television: A source of social comparison and body dissatisfaction. *International Journal of Eating Disorders, 35*, 48-58.
- Wardle, J., Waller, J, & Fox, E. (2002). Age of onset and body dissatisfaction in obesity. *Addictive Behaviors, 27*, 561-573.
- Watkins, P. C., Martin, C., Muller, S., & Day, S. K. (1995). Cognitive biases associated with feelings of fatness: Unhealthy responses to healthy messages. *Advances in Health Care Research, 14*, 67-73.
- Wiederman, M. W. (2002). Body image and sexual functioning. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: A handbook of theory, research, and clinical practice* (pp. 287-294). New York: Guilford Press.
- Williamson, D. A. (1990). *Assessment of eating disorders: Obesity, bulimia, and anorexia*. New York: Pergamon.
- Williamson, D. A. (1996). Body image disturbance in eating disorders: A form of cognitive bias?, *Eating Disorders, 4*, 47-58.

- Williamson, D. A., Gleaves, D. H., Watkins, P. C., & Schlundt, D. G. (1993). Validation of a self-ideal body size discrepancy as a measure of body size dissatisfaction. *Journal of Psychopathology and Behavioral Assessment, 15*, 57-68.
- Williamson, D. A., Muller, S. L., Reas, D. L., & Thaw, J. M. (1999). Cognitive bias in eating disorders: Implications for theory and treatment. *Behavior Modification, 23*, 556-577.
- Williamson, D. A., Stewart, T. M., White, M. A., & York-Crowe, E. (2004). An information processing perspective on body image. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: A handbook of theory, research, and clinical practice* (pp. 47-54). New York: Guilford Press.
- Wood, J. V. (1989). Theory and research concerning social comparison of personal attributes. *Psychological Bulletin, 106*, 231-248.
- van den Berg, P., Wertheim, E. H., Thompson, J. K., & Paxton, S. J. (2002). Development of body image, eating disturbance, and general psychological functioning in adolescent females: A replication using covariance structure modeling in an Australian sample. *International Journal of Eating Disorders, 32*, 46-51.
- van Strien, T., Frijters, J.E., Bergers, G.P., & Defares, P.B. (1986). The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. *International Journal of Eating Disorders, 5*(2), 295-315.
- Vitousek, K. B., & Hollon, S. D. (1990). The investigation of schematic content and processing in eating disorders. *Cognitive Therapy and Research, 14*, 191-214.

## Appendices



Appendix A: Demographic Information

Thank you for participating in this study. Please read the directions for each group of questions and answer each one to the best of your ability.

DEMOGRAPHIC INFORMATION

Age: \_\_\_\_\_

Height: \_\_\_\_\_

Weight: \_\_\_\_\_

Race/Ethnicity: (please circle one):

Asian-American

African-American

Caucasian

Hispanic

Other: Please specify \_\_\_\_\_

Year in School: (please circle one)

Freshman

Sophomore

Junior

Senior

Other: Please specify \_\_\_\_\_

Appendix B: Multidimensional Body-Self Relations Questionnaire-  
Appearance Evaluation Subscale

Using the scale below, please circle the number that best matches your agreement with the following statements.

Definitely Disagree 1	Mostly Disagree 2	Neither Agree Nor Disagree 3	Mostly Agree 4	Definitely Agree 5
-----------------------------	-------------------------	------------------------------------	----------------------	--------------------------

- |   |           |
|---|-----------|
| 1. My body is sexually appealing.               | 1 2 3 4 5 |
| 2. I like my looks just the way they are.       | 1 2 3 4 5 |
| 3. Most people would consider me good-looking.  | 1 2 3 4 5 |
| 4. I like the way I look without my clothes on. | 1 2 3 4 5 |
| 5. I like the way my clothes fit me.            | 1 2 3 4 5 |
| 6. I dislike my physique.                       | 1 2 3 4 5 |
| 7. I am physically unattractive.                | 1 2 3 4 5 |

## Appendix C: Body Image States Scale

For each of the items below, check the box beside the one statement that best describes how you feel RIGHT NOW AT THIS VERY MOMENT. Read the items carefully to be sure the statement you choose accurately and honestly describes how you feel right now.

1. Right now I feel...

- Extremely dissatisfied* with my physical appearance
- Mostly dissatisfied* with my physical appearance
- Moderately dissatisfied* with my physical appearance
- Slightly dissatisfied* with my physical appearance
- Neither dissatisfied nor satisfied* with my physical appearance
- Slightly satisfied* with my physical appearance
- Moderately satisfied* with my physical appearance
- Mostly satisfied* with my physical appearance
- Extremely satisfied* with my physical appearance

2. Right now I feel...

- Extremely dissatisfied* with my body size and shape
- Mostly dissatisfied* with my body size and shape
- Moderately dissatisfied* with my body size and shape
- Slightly dissatisfied* with my body size and shape
- Neither dissatisfied nor satisfied* with my body size and shape
- Slightly satisfied* with my body size and shape
- Moderately satisfied* with my body size and shape
- Mostly satisfied* with my body size and shape
- Extremely satisfied* with my body size and shape

3. Right now I feel...

- Extremely dissatisfied* with my weight
- Mostly dissatisfied* with my weight
- Moderately dissatisfied* with my weight
- Slightly dissatisfied* with my weight
- Neither dissatisfied nor satisfied* with my weight
- Slightly satisfied* with my weight
- Moderately satisfied* with my weight
- Mostly satisfied* with my weight
- Extremely satisfied* with my weight

Appendix C (Continued)

4. Right now I feel...

- ☐ **Extremely** physically *attractive*
- ☐ **Very** physically *attractive*
- ☐ **Moderately** physically *attractive*
- ☐ **Slightly** physically *attractive*
- ☐ **Neither attractive nor unattractive**
- ☐ **Slightly** physically *unattractive*
- ☐ **Moderately** physically *unattractive*
- ☐ **Very** physically *unattractive*
- ☐ **Extremely** physically *unattractive*

5. Right now I feel...

- ☐ **A great deal worse** about my looks than I usually feel
- ☐ **Much worse** about my looks than I usually feel
- ☐ **Somewhat worse** about my looks than I usually feel
- ☐ **Just slightly worse** about my looks than I usually feel
- ☐ **About the same** about my looks as usual
- ☐ **Just slightly better** about my looks than I usually feel
- ☐ **Somewhat better** about my looks than I usually feel
- ☐ **Much better** about my looks than I usually feel
- ☐ **A great deal better** about my looks than I usually feel

6. Right now I feel that I look...

- ☐ **A great deal better** than the average person looks
- ☐ **Much better** than the average person looks
- ☐ **Somewhat better** than the average person looks
- ☐ **Just slightly better** than the average person looks
- ☐ **About the same** as the average person looks
- ☐ **Just slightly worse** than the average person looks
- ☐ **Somewhat worse** than the average person looks
- ☐ **Much worse** than the average person looks
- ☐ **A great deal worse** than the average person looks

Appendix D: Visual Analog Scales

Instructions: Place a mark through the area of the line that matches your current level of feeling for the following emotions:

1. Anxiety

**None** \_\_\_\_\_ **Extreme**

2. Depression

**None** \_\_\_\_\_ **Extreme**

3. Satisfaction with Overall Appearance

**None** \_\_\_\_\_ **Extreme**

4. Anger

**None** \_\_\_\_\_ **Extreme**

5. Self-Confidence

**None** \_\_\_\_\_ **Extreme**

Appendix E: Appearance Schema Inventory-Revised Short Form

The statements below are beliefs that people may or may not have about their physical appearance and the influence of appearance on life. Decide the extent to which you personally **disagree or agree** with each statement and enter a number from 1 to 5. There are no right or wrong answers. Just be truthful about your personal beliefs.

	1	2	3	4	5
	<b>Strongly Disagree</b>	<b>Mostly Disagree</b>	<b>Neither Agree or Disagree</b>	<b>Mostly Agree</b>	<b>Strongly Agree</b>
_____	1.	I spend little time on my physical appearance.			
_____	2.	When I see good-looking people, I wonder about how my own looks measure up.			
_____	3.	I try to be as physically attractive as I can be.			
_____	4.	I have never paid much attention to what I look like.			
_____	5.	I seldom compare my appearance to that of other people I see.			
_____	6.	I often check my appearance in a mirror just to make sure I look okay.			
_____	7.	When something makes me feel good or bad about my looks, I tend to dwell on it.			
_____	8.	If I like how I look on a given day, it's easy to feel happy about other things.			
_____	9.	If somebody had a negative reaction to what I look like, it wouldn't bother me.			
_____	10.	When it comes to my physical appearance, I have high standards.			
_____	11.	My physical appearance has had little influence on my life.			
_____	12.	Dressing well is not a priority for me			
_____	13.	When I meet people for the first time, I wonder what they think about how I look.			

Appendix E (Continued)

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>Strongly Disagree</b>	<b>Mostly Disagree</b>	<b>Neither Agree or Disagree</b>	<b>Mostly Agree</b>	<b>Strongly Agree</b>
_____					
	14.	In my everyday life, lots of things happen that make me think about what I look like.			
_____					
	15.	If I dislike how I look on a given day, it's hard to feel happy about other things.			
_____					
	16.	I fantasize about what it would be like to be better looking than I am.			
_____					
	17.	Before going out, I make sure that I look as good as I possibly can.			
_____					
	18.	What I look like is an important part of who I am.			
_____					
	19.	By controlling my appearance, I can control many of the social and emotional events in my life.			
_____					
	20.	My appearance is responsible for much of what's happened to me in my life.			

Appendix F: Sociocultural Attitudes Towards Appearance Scale-3-  
Internalization-General subscale

Using the scale below, please write the number that best matches your agreement with the following statements.

Definitely Disagree	Mostly Disagree	Neither Agree Nor Disagree	Mostly Agree	Definitely Agree
1	2	3	4	5

1. \_\_\_\_\_ I would like my body to look like the people who are on TV.
2. \_\_\_\_\_ I compare my body to the bodies of TV and movie stars.
3. \_\_\_\_\_ I would like my body to look like the models who appear in magazines.
4. \_\_\_\_\_ I compare my appearance to the appearance of TV and movie stars.
5. \_\_\_\_\_ I would like my body to look like the people who are in movies.
6. \_\_\_\_\_ I compare my body to the bodies of people who appear in magazines
7. \_\_\_\_\_ I wish I looked like the models in music videos.
8. \_\_\_\_\_ I compare my appearance to the appearance of people in magazines.
9. \_\_\_\_\_ I try to look like the people on TV.



## Appendix G: Physical Appearance Comparison Scale

Using the scale below, please circle the number that best matches your agreement with the following statements.

Never	Seldom	Sometimes	Often	Always
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 1. At parties or other social events, I compare my physical appearance to the physical appearance of others.                   | 1 | 2 | 3 | 4 | 5 |
| 2. The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others. | 1 | 2 | 3 | 4 | 5 |
| 3. At parties or other social events, I compare how I Am dressed to how other people are dressed                               | 1 | 2 | 3 | 4 | 5 |
| 4. Comparing your “looks” to the “looks” of others is a bad way to determine if you are attractive or unattractive.            | 1 | 2 | 3 | 4 | 5 |
| 5. In social situations, I sometimes compare my figure to the figures of other people.   | 1 | 2 | 3 | 4 | 5 |

Appendix H: State Appearance Comparison Scale

*In the past fifteen minutes, to what extent did you...*

1. Think about your own appearance?

No thought about my appearance.....A lot of thought about my appearance  
1                    2                    3                    4                    5                    6                    7

2. Compare your overall appearance to that of the other research participant in the study?

No comparison.....A lot of comparison  
1                    2                    3                    4                    5                    6                    7

3. Compare your specific body parts to those of the other research participant in the study?

No comparison.....A lot of comparison  
1                    2                    3                    4                    5                    6                    7

## Appendix I: Physical Appearance-Related Teasing Scale

Each question pertains to the time period of when you were growing up. Please respond by circling the appropriate number for the following scale: Never (1), Frequently (5).

- |  |       |   |            |
|--|-------|---|------------|
| 1. When you were a child, did you feel that your peers were staring at because you were overweight?    | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 2. When you were a child, did you ever feel like people were making fun of you because of your weight? | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 3. Were you ridiculed as a child about being overweight?   | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 4. When you were a child, did people make jokes about you being too big?                               | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 5. When you were a child, were you laughed at for trying out for sports because you were too heavy?    | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 6. Did your brother(s) or other male relatives call you names like “fatso” when they got angry at you? | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 7. Did your father ever make jokes that referred to your weight?                                       | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 8. Did other kids call you derogatory names that related to your size or weight?                       | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 9. Did you ever feel like people were pointing at you because of your size or weight?                  | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 10. Were you the brunt of family jokes because of your weight?   | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 11. Did people point you out of a crowd because of your weight?  | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 12. Did you ever hear your classmate snicker when you walked into the classroom alone?                 | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |
| 13. When you were growing up, did people say you dressed funny?  | Never |   | Frequently |
|  | 1     | 2 | 3 4 5      |

Appendix I (Continued)

14. Did people say you had funny teeth?	Never				Frequently
	1	2	3	4	5
15. Did kids call you funny looking?	Never				Frequently
	1	2	3	4	5
16. Did other kids tease you about wearing clothes that didn't match or were out of style?	Never				Frequently
	1	2	3	4	5
17. Did other kids ever make jokes about your hair?	Never				Frequently
	1	2	3	4	5
18. When you were a child were you scoffed at for looking like a weakling?	Never				Frequently
	1	2	3	4	5

Appendix J: Dutch Eating Behavior Questionnaire-Restraint Scale

Circle the best response to describe your usual behavior:

	Never	Seldom	Sometimes	Often	Always
1. Did you eat less than you normally would to lose weight?	1	2	3	4	5
2. Did you try to eat less at meal times than you would like to eat?	1	2	3	4	5
3. How often did you refuse food or drink because you were concerned about your weight?	1	2	3	4	5
4. Did you watch exactly what you ate?	1	2	3	4	5
5. Did you deliberately eat foods that were slimming?	1	2	3	4	5
6. If you ate too much, did you eat less than usual the next day?	1	2	3	4	5
7. Did you deliberately eat less in order not to become heavier?	1	2	3	4	5
8. How often did you try not to eat between meals because you were watching your weight?	1	2	3	4	5
9. How often in the evenings did you try not to eat because you were watching your weight?	1	2	3	4	5
10. Did you take into account your weight in deciding what to eat?	1	2	3	4	5

Appendix K: Modified Dutch Eating Behavior Questionnaire-Restraint Scale

Circle the best response to describe the behaviors you intend to engage in:

	Strongly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Strongly Agree
1. Do you plan to eat less than you normally would to lose weight?	1	2	3	4	5
2. Do you plan to eat less at mealtimes than you would like to eat?	1	2	3	4	5
3. Do you plan to refuse food or drink to lose weight?	1	2	3	4	5
4. Do you plan to watch exactly what you eat?	1	2	3	4	5
5. Do you plan to deliberately eat foods that are slimming?	1	2	3	4	5
6. If you overeat one day, do you plan to eat less than usual the next day?	1	2	3	4	5
7. Do you plan to deliberately eat less in order to not become heavier?	1	2	3	4	5

Appendix L: Eating Disorder Examination-Questionnaire-Bulimia subscale

**Please circle the response that describes your behavior over the past week:**

- |   | No   | 1    | 2    | 3    | 4    | 5    | 6    | 7    |
|---|------|------|------|------|------|------|------|------|
| <b>On how many <u>days</u> during the past <u>week</u>...</b>                     | days | days | days | days | days | days | days | days |
| 1. Have you felt fat?.....  | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    |
| 2. Have you had a definite fear that you<br>might gain weight or become fat?..... | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    |

- | <b>Over the past <u>week</u>...</b>   | Not at all | Slightly | Moderately | Extremely |   |   |   |
|---|------------|----------|------------|-----------|---|---|---|
| 3. Has your weight influenced how you think<br>about (judge) yourself as a person?.....   | 0          | 1        | 2          | 3         | 4 | 5 | 6 |
| 4. Has your shape influenced how you think<br>about (judge) yourself as a person?.....  | 0          | 1        | 2          | 3         | 4 | 5 | 6 |
| 5. During the <b>past week</b> have there been times when you felt you have eaten what<br>other people would regard as an unusually <u>large</u> amount of food given the<br>circumstances? <span style="float: right;">YES NO</span>   |            |          |            |           |   |   |   |
| 6. During the times when you ate an unusually large amount of food, did you<br>experience a <u>loss of control</u> , i.e. feel you couldn't stop eating or control what<br>or how much you were eating? <span style="float: right;">YES NO</span>                             |            |          |            |           |   |   |   |
| 7. How many <b>times during the past week</b> have you eaten an unusually <u>large</u><br>amount of food and experienced a loss of control? _____<br>(please write in number or indicate zero)  |            |          |            |           |   |   |   |
| 8. During the <b>past week</b> , have you had other times where you <u>felt</u> you<br><u>uncontrollably</u> ate a <u>large</u> amount of food, but the amount eaten would<br><u>not</u> have been considered large by most people? <span style="float: right;">YES NO</span> |            |          |            |           |   |   |   |
| 9. How many <b>times during the past week</b> have you uncontrollably eaten a large<br>amount of food that others might not consider large? _____<br>(please write in number or indicate zero)  |            |          |            |           |   |   |   |
| 10. How many <b>times during the past week</b> have you made yourself sick in order to<br>prevent weight gain or counteract the effects of eating? _____<br>(write in number or indicate zero)  |            |          |            |           |   |   |   |
| 11. How many <b>times during the past week</b> have you used laxatives or diuretics in<br>order to prevent weight gain or counteract the effects of eating? _____<br>(write in number or indicate zero)   |            |          |            |           |   |   |   |

Appendix L (Continued)

12. How many **times during the past week** have you engaged in excessive exercise specifically for the purpose of counteracting overeating episodes? \_\_\_\_\_  
(write in number or indicate zero)



Appendix M: Modified Eating Disorder Examination-Questionnaire-Bulimia subscale

Circle the best response to describe the behaviors you intend to engage in:

	Strongly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Strongly Agree
1. I plan to make myself sick in order to prevent weight gain or counteract the effects of eating.	1	2	3	4	5
2. I plan to use laxatives or diuretics in order to prevent weight gain or counteract the effects of eating.	1	2	3	4	5
3. I plan to vigorously exercise for an hour or more in order to prevent weight gain or counteract the effects of eating.	1	2	3	4	5
4. I plan to use diet pills in order to prevent weight gain or help me lose weight.	1	2	3	4	5
5. I plan to smoke cigarettes in order to prevent weight gain or help me lose weight.	1	2	3	4	5
6. I plan to skip meals in order to prevent weight gain or help me lose weight.	1	2	3	4	5

Appendix N: Multidimensional Health Behavior Inventory-Exercise subscale.

Directions: The following statements describe a broad range of health-related actions or behaviors that you may or may not do. Read each behavior statement and circle the number following each statement that tells how often you usually do this behavior.

	NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS
1. Participate in recreational physical activities as walking, biking, dancing or sports regularly at least twice a week.	1	2	3	4	5
2. Exercise vigorously for at least 20 minutes 3 times a week.	1	2	3	4	5
3. Increase your physical activity to lose weight.	1	2	3	4	5
4. Run, jog, or swim for exercise at least 3 times per week.	1	2	3	4	5

Appendix O: Modified Multidimensional Health Behavior Inventory-Exercise subscale

Directions: The following statements describe a broad range of health-related actions or behaviors that you may or may not do. Read each behavior statement and circle the number following each statement that tells how often you intend to do this behavior.

	NEVER	RARELY	SOMETIMES	OFTEN	ALWAYS
1. Participate in recreational physical activities as walking, biking, dancing or sports regularly at least twice a week.	1	2	3	4	5
2. Exercise vigorously for at least 20 minutes 3 times a week.	1	2	3	4	5
3. Increase your physical activity to lose weight.	1	2	3	4	5
4. Run, jog, or swim for exercise at least 3 times per week.	1	2	3	4	5

## Appendix P: Message Source Rating Form for the Pilot Study

As you have been informed, the feedback that was given to you by the other “research participant” (e.g., message source) was part of the study. Please read each of the following questions carefully and circle the number that best reflects your response to the question.

1. Overall, how credible (e.g., believable) was the message source as an actual employee of their company?

1	2	3	4	5
Not credible at all	Not very credible	Somewhat credible	Very credible	Extremely credible

2. Overall, how credible (e.g., believable) was the feedback given to you by the message source?

1	2	3	4	5
Not credible at all	Not very credible	Somewhat credible	Very credible	Extremely credible

3. Overall, how credible (e.g., believable) was the flyer given to you by the message source?

1	2	3	4	5
Not credible at all	Not very credible	Somewhat credible	Very credible	Extremely credible

4. Overall, how thin was the message source?

1	2	3	4	5
Not thin at all	Not very thin	Somewhat thin	Very thin	Extremely thin

5. Overall, how attractive was the message source?

1	2	3	4	5
Not attractive at all	Not very attractive	Somewhat attractive	Very attractive	Extremely attractive

6. Overall, how warm was the message source?

1	2	3	4	5
Not warm at all	Not very warm	Somewhat warm	Very warm	Extremely warm

Appendix Q: Flyer for Ambiguous Appearance-related Feedback Condition  
of the Pilot Study



*South Tampa Center for Cosmetic Surgery*

1115 W. Platt Street  
Tampa, FL 33606  
Phone: (813) 251-9690  
Fax: (813) 251-9691

**10% Discount Special for USF students!**

We have served the South Tampa area for several years and have helped hundreds of people improve their physical appearance. You are invited to come to our center for an initial consultation and have your questions about our services answered. Once the appropriate procedures are determined, you will be provided with detailed information about the procedures and packages that we offer. You will also be given an estimate for the proposed services and fees at the time of your consultation. USF students will receive this consultation for free!

Here are some of the many procedures that we offer:

- Botox
- Breast Enlargement
- Cheek Enlargement or Implants
- Chin Enlargement or Implant
- Collagen
- Eyelid Lift
- Face Lift
- Facial Peels **NEW!**
- Lesion Removal **NEW!**
- Liposuction and Liposculpture
- N-Lite Laser
- Permanent Hair Removal
- Skin Care Programs
- Tattoo Removal
- Treatment for Leg Veins
- Tummy Tuck

To schedule your initial consultation, call (813) 251-9690 and ask for Maria Gonzalez.

Appendix R: Coupon for Ambiguous Appearance-related Feedback Condition  
of the Pilot Study

**Student Discount for USF Students!**

**Receive a 10% discount off your first cosmetic procedure for being a USF student! Be sure to mention this coupon at your initial consultation.**

*South Tampa Center for Cosmetic Surgery*

1115 W. Platt Street  
Tampa, FL 33606  
Phone: (813) 251-9690  
Fax: (813) 251-9691

## Appendix S: Script for Ambiguous Appearance-related Feedback Condition of the Pilot Study

After the video clip is finished, the confederate will turn to the participant and say, “Hi, I’m a representative for the South Tampa Center for Cosmetic Surgery. We are currently offering a free consultation for USF students.” The confederate will then pull out a flyer from her bag. This flyer will list the center’s contact information as well as the services being offered by that center. The confederate will then note a few of the procedures listed by saying, “Some of the procedures that we offer include: Botox, breast enlargement, liposuction and permanent hair removal. You should take advantage of the free consultation.”

Following the feedback incident, the confederate will turn to the participant and say “I’m going to the restroom. If the researcher returns before I do, can you please tell her where I went?” Before leaving, the confederate will also pull out a stack of discount coupons for the South Tampa Center for Cosmetic Surgery. While placing this stack on the table in front of them, she will say “Feel free to take a coupon if you want a student discount for our center.” The confederate will then leave to the restroom.

The researcher will reenter the laboratory room while the confederate is in the restroom. The confederate will come back to the laboratory room shortly after the researcher has returned. The participant and confederate will then be asked to complete a packet of posttest measures.

Appendix T: First Debriefing Form for Ambiguous Appearance-related  
Feedback Condition of the Pilot Study

Debriefing Form

Previous research has shown that the development of body image and eating disturbance is greatly influenced by physical appearance-related feedback (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999, Tantleff-Dunn & Gokee, 2003). Most studies in this area have primarily focused on teasing and negative appearance-related feedback. It has become evident that such feedback is often associated with body dissatisfaction, maladaptive eating behaviors, and psychological distress (Thompson et al., 1999). However, very little is known about ambiguous appearance-related feedback and its impact on others. Specifically, there are still many unanswered questions regarding the processing of ambiguous appearance-related feedback. The purpose of the present study is to examine the influence of various factors on how ambiguous appearance-related feedback is processed and leads to negative outcomes for only a subset of individuals. It is important that you are aware that deception was used in this study. The person who was in the room with you was not another research participant, but rather an actor working with the research team. Nothing she said was in anyway related to how she thought about your appearance. Instead, her feedback was part of a scripted process to help examine our hypotheses about ambiguous appearance-related feedback. Everyone who participated in this study was treated similarly. The findings of this study are likely to provide a better understanding of the manner in which ambiguous appearance-related feedback may contribute to body image and eating disturbances.



Appendix U: Second Debriefing Form for Ambiguous Appearance-related Feedback  
Condition of the Pilot Study

Your participation in this study on physical appearance-related commentary is greatly appreciated. Sometimes, completing questionnaires about your physical appearance may temporarily result in distressing feelings and/or thoughts. If you experience such negative outcomes for a prolonged period of time after this study or have been experiencing them prior to this study, you may benefit from seeking therapy services. Contact the USF Counseling Center for Human Development at 974-2831 or the USF Psychological Services Center at 974-2496 if you are interested in learning more about their therapy services for students. If you have any questions about the study or therapy services, feel free to ask one of the researchers.

Suggested Readings:

Thompson, J.K., Heinberg, L.J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting Beauty: Theory, Assessment, and Treatment of Body Image Disturbance*. American Psychological Association: Washington, D.C.

Cash, T.F., & Pruzinsky, T. (2002). *Body Image: A Handbook of Theory, Research, and Clinical Practice*. Guilford Press: New York.

Appendix V: Revised Message Source Rating Form for the Current Study

As you have been informed, the information that was given to you by the other “research participant” (e.g., message source) was part of the study. Please read each of the following questions carefully and circle the number that best reflects your response to the question.

1. Overall, how credible (e.g., believable) was the message source as an actual employee of the company that she was supposedly working for?

1	2	3	4	5
Not credible at all	Not very credible	Somewhat credible	Very credible	Extremely credible

2. Overall, how credible (e.g., believable) was the information given to you by the message source?

1	2	3	4	5
Not credible at all	Not very credible	Somewhat credible	Very credible	Extremely credible

3. Overall, how credible (e.g., believable) was the flyer given to you by the message source?

1	2	3	4	5
Not credible at all	Not very credible	Somewhat credible	Very credible	Extremely credible

4. Overall, how thin was the message source?

1	2	3	4	5
Not thin at all	Not very thin	Somewhat thin	Very thin	Extremely thin

5. Overall, how attractive was the message source?

1	2	3	4	5
Not attractive at all	Not very attractive	Somewhat attractive	Very attractive	Extremely attractive

6. Overall, how warm was the message source?

1	2	3	4	5
Not warm at all	Not very warm	Somewhat warm	Very warm	Extremely warm

Appendix W: Flyer for Ambiguous Appearance-related Feedback Condition  
of the Current Study



*South Tampa Center for Cosmetic Surgery*

1115 W. Platt Street  
Tampa, FL 33606  
Phone: (813) 251-9690  
Fax: (813) 251-9691

**Free Consultation for USF students!**

We have served the South Tampa area for several years and have helped hundreds of people improve their physical appearance. You are invited to come to our center for an initial consultation and have your questions about our services answered. Once the appropriate procedures for you are determined, you will be provided with detailed information about the procedures and packages that we offer. You will also be given an estimate for the recommended procedures and fees at the time of your consultation. USF students will receive this consultation for free!

Here are some of the many procedures that we offer:

- Botox Breast Enlargement
- Cheek Enlargement or Implants
- Chin Enlargement or Implant
- Collagen
- Eyelid Lift
- Face Lift
- Facial Peels
- Lesion Removal **NEW!**
- Liposuction and Liposculpture
- N-Lite Laser **NEW!**
- Rhinoplasty
- Tattoo Removal
- Treatment for Leg Veins
- Tummy Tuck

To schedule your initial consultation, call (813) 251-9690 and ask for Maria Gonzalez.

Appendix X: Flyer for Ambiguous Nonappearance-related Feedback Condition  
of the Current Study



*South Tampa Center for Academic Enhancement*

1115 W. Platt Street  
Tampa, FL 33606  
Phone: (813) 251-9690  
Fax: (813) 251-9691

**Free Consultation for USF students!**

We have served the South Tampa area for several years and have helped hundreds of students improve their academic performance. You are invited to come to our center for an initial consultation and have your questions about our services answered. Once the appropriate services for you are determined, you will be provided with detailed information about the services and packages that we offer. You will also be given an estimate for the recommended services and fees at the time of your consultation. USF students will receive this consultation for free!

Here are some of the many areas for tutoring that we offer:

- Anatomy
- Algebra
- Biology
- Calculus
- Chemistry
- English
- French
- Italian
- Latin **NEW!**
- Organic Chemistry
- Physics **NEW!**
- Precalculus
- Spanish
- Statistics
- Writing

To schedule an appointment, call (813) 251-9690 and ask for Maria Gonzalez.

Appendix Y: Coupon for Ambiguous Appearance-related Feedback Condition  
of the Current Study

**Student Discount for USF Students!**

**Receive a 10% discount off your first cosmetic  
surgery procedure for being a USF student! Be sure  
to mention this coupon at your initial consultation.**

*South Tampa Center for Cosmetic Surgery*

1115 W. Platt Street  
Tampa, FL 33606  
Phone: (813) 251-9690  
Fax: (813) 251-9691

Appendix Z: Coupon for Ambiguous Nonappearance-related Feedback Condition  
of the Current Study

**Student Discount for USF Students!**

**Receive a 10% discount off your first tutoring  
service for being a USF student! Be sure to  
mention this coupon at your initial consultation.**

*South Tampa Center for Academic Services*

1115 W. Platt Street  
Tampa, FL 33606  
Phone: (813) 251-9690  
Fax: (813) 251-9691

## Appendix AA: Script for the Ambiguous Appearance-related Feedback Condition of the Current Study

After the video clip is finished, the confederate will turn to the participant and say, “Hi, I’m a representative for the South Tampa Center for Cosmetic Surgery. We are currently offering a free consultation for USF students.” The confederate will then pull out a flyer from her bag. This flyer will list the center’s contact information as well as the procedures being offered by that center. The confederate will then note a few of the procedures listed by saying, “Some of the procedures that we offer include: Botox, breast enlargement, liposuction and tummy tuck. You should take advantage of the free consultation being offered.”

Following the feedback incident, the confederate will turn to the participant and say “I’m going to the restroom. If the researcher returns before I do, can you please tell her where I went?” Before leaving, the confederate will also pull out a stack of discount coupons for the South Tampa Center for Cosmetic Surgery. While placing this stack on the table in front of them, she will say “Feel free to take more than one coupon for a student discount at our center.” The confederate will then leave to the restroom.

The researcher will reenter the laboratory room while the confederate is in the restroom. The confederate will come back to the laboratory room shortly after the researcher has returned. The participant and confederate will then be asked to complete a packet of posttest measures.

## Appendix BB: Script for Ambiguous Nonappearance-related Feedback Condition of the Current Study

After the video clip is finished, the confederate will turn to the participant and say, “Hi, I’m a representative for the South Tampa Center for Academic Enhancement. We are currently offering a free consultation for USF students.” The confederate will then pull out a flyer from her bag. This flyer will list the center’s contact information as well as the services being offered by that center. The confederate will then note a few of the services listed by saying, “Some of the areas for tutoring that we offer include: Algebra, Chemistry, Spanish, and Statistics. You should take advantage of the free consultation being offered.”

Following the feedback incident, the confederate will turn to the participant and say “I’m going to the restroom. If the researcher returns before I do, can you please tell her where I went?” Before leaving, the confederate will also pull out a stack of discount coupons for the South Tampa Center for Academic Enhancement. While placing this stack on the table in front of them, she will say “Feel free to take more than one coupon for a student discount at our center.” The confederate will then leave to the restroom.

The researcher will reenter the laboratory room while the confederate is in the restroom. The confederate will come back to the laboratory room shortly after the researcher has returned. The participant and confederate will then be asked to complete a packet of posttest measures.



Appendix CC: First Debriefing Form for Ambiguous Appearance-related Feedback  
Condition of the Current Study

Debriefing Form

Previous research has shown that the development of body image and eating disturbance is greatly influenced by physical appearance-related feedback (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999, Tantleff-Dunn & Gokee, 2003). Most studies in this area have primarily focused on teasing and negative appearance-related feedback. It has become evident that such feedback is often associated with body dissatisfaction, maladaptive eating behaviors, and psychological distress (Thompson et al., 1999). However, very little is known about ambiguous appearance-related feedback and its impact on others. Specifically, there are still many unanswered questions regarding the processing of ambiguous appearance-related feedback. The purpose of the present study is to examine the influence of various factors on how ambiguous appearance-related feedback is processed and leads to negative outcomes for only a subset of individuals. It is important that you are aware that deception was used in this study. The person who was in the room with you was not another research participant, but rather an actor working with the research team. Nothing she said was in anyway related to what she thought about your intelligence. Instead, her feedback was part of a scripted process to help examine our hypotheses about ambiguous appearance-related feedback and ambiguous nonappearance-related feedback. Everyone who participated in this study was treated similarly. The findings of this study are likely to provide a better understanding of the manner in which ambiguous appearance-related feedback may contribute to body image and eating disturbances.

Appendix DD: First Debriefing Form for Ambiguous Nonappearance-related Feedback  
Condition of the Current Study

Debriefing Form

Previous research has shown that the development of body image and eating disturbance is greatly influenced by physical appearance-related feedback (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999, Tantleff-Dunn & Gokee, 2003). Most studies in this area have primarily focused on teasing and negative appearance-related feedback. It has become evident that such feedback is often associated with body dissatisfaction, maladaptive eating behaviors, and psychological distress (Thompson et al., 1999). However, very little is known about ambiguous appearance-related feedback and its impact on others. Specifically, there are still many unanswered questions regarding the processing of ambiguous appearance-related feedback. The purpose of the present study is to examine the influence of various factors on how ambiguous appearance-related feedback is processed and leads to negative outcomes for only a subset of individuals. It is important that you are aware that deception was used in this study. The person who was in the room with you was not another research participant, but rather an actor working with the research team. Nothing she said was in anyway related to what she thought about your intelligence. Instead, her feedback was part of a scripted process to help examine our hypotheses about ambiguous appearance-related feedback and ambiguous nonappearance-related feedback. Everyone who participated in this study was treated similarly. The findings of this study are likely to provide a better understanding of the manner in which ambiguous appearance-related feedback may contribute to body image and eating disturbances.

Appendix EE: Standardized Beta Weights and R<sup>2</sup> Values for Moderation Analyses with Trait Appearance Satisfaction

	Pre-Test Variable	Ambiguous Feedback	Pre-test Trait Variable	Interaction	R <sup>2</sup>
Post-test BISS	.83**	.03	.13*	-.06	.81
Post-test VAS Appear	.67**	.05	.24**	-.09	.65
Post-test VAS Anger	.83	.11	.05	.04	.67
Post-test VAS Self-Con	.91**	.05	.05	-.10*	.81
Post-test VAS Anxiety	.80**	-.02	.01	.04	.63
Post-test VAS Depress	.84**	-.02	-.11	.15**	.74
DEBQ-RS Inten	.86**	-.09*	.03	.05	.72
EDE-Q-B Inten	.51**	-.20**	-.16	.15	.63
MHBI-E Inten	.72**	-.09	-.10	-.04	.76

*Note:* Post-test BISS = Post-test Body Image States Scale; Post-test VAS Appear = Post-test Visual Analogue Scale Appearance; Post-test VAS Anger = Post-test Visual Analogue Scale Anger; Post-test VAS Self-Con = Post-test Visual Analogue Scale Self-Confidence; Post-test VAS Anxiety = Post-test Visual Analogue Scale Anxiety; PT VAS Depress = Post-test VAS Depression; DEBQ-RS Inten = Dutch Eating Behavior Questionnaire-Restraint Scale Intentions; EDE-Q-B Inten = Eating Disorder Examination-Questionnaire-Bulimia subscale Intentions; MHBI-E = Multidimensional Health Behavior Inventory-Exercise subscale Intentions.

\*p<.05

\*\*p<.01

Appendix FF: Standardized Beta Weights and R<sup>2</sup> Values for Moderation Analyses with Trait Appearance Comparison

	Pre-Test Variable	Ambiguous Feedback	Pre-test Trait Variable	Interaction	R <sup>2</sup>
Post-test BISS	.91**	.03	-.02	.09	.81
Post-test VAS Appear	.76**	.06	-.11	.07	.63
Post-test VAS Anger	.81**	.12*	-.05	.10	.67
Post-test VAS Self-Con	.89**	.04	.02	-.03	.80
Post-test VAS Anxiety	.78**	-.01	.05	-.02	.63
Post-test VAS Depress	.81**	-.10	.20**	-.18**	.74
DEBQ-RS Inten	.80**	-.09*	.06	-.00	.72
EDE-Q-B Inten	.74**	-.10	-.12	.20*	.59
MHBI-E Inten	.56**	-.30**	.10	.15	.39

*Note:* Post-test BISS = Post-test Body Image States Scale; Post-test VAS Appear = Post-test Visual Analogue Scale Appearance; Post-test VAS Anger = Post-test Visual Analogue Scale Anger; Post-test VAS Self-Con = Post-test Visual Analogue Scale Self-Confidence; Post-test VAS Anxiety = Post-test Visual Analogue Scale Anxiety; PT VAS Depress = Post-test VAS Depression; DEBQ-RS Inten = Dutch Eating Behavior Questionnaire-Restraint Scale Intentions; EDE-Q-B Inten = Eating Disorder Examination-Questionnaire-Bulimia subscale Intentions; MHBI-E = Multidimensional Health Behavior Inventory-Exercise subscale Intentions

\*p<.05

\*\*p<.01

Appendix GG: Standardized Beta Weights and R<sup>2</sup> Values for Moderation Analyses with Trait Appearance Schematicity

	Pre-Test Variable	Ambiguous Feedback	Pre-test Trait Variable	Interaction	R <sup>2</sup>
Post-test BISS	.75**	.06	-.09	.03	.63
Post-test VAS Appear	.90**	.03	-.01	.05	.81
Post-test VAS Anger	.82**	.12*	-.04	.03	.66
Post-test VAS Self-Con	.88**	.04	-.01	-.05	.81
Post-test VAS Anxiety	.78**	-.01	.07	-.04	.63
Post-test VAS Depress	.83**	-.01	.22**	-.19**	.75
DEBQ-RS Inten	.78**	-.08	.09	.04	.73
EDE-Q-B Inten	.53**	-.20**	.12	-.11	.39
MHBI-E Inten	.73**	-.09	.03	.09	.58

*Note:* Post-test BISS = Post-test Body Image States Scale; Post-test VAS Appear = Post-test Visual Analogue Scale Appearance; Post-test VAS Anger = Post-test Visual Analogue Scale Anger; Post-test VAS Self-Con = Post-test Visual Analogue Scale Self-Confidence; Post-test VAS Anxiety = Post-test Visual Analogue Scale Anxiety; PT VAS Depress = Post-test VAS Depression; DEBQ-RS Inten = Dutch Eating Behavior Questionnaire-Restraint Scale Intentions; EDE-Q-B Inten = Eating Disorder Examination-Questionnaire-Bulimia subscale Intentions; MHBI-E = Multidimensional Health Behavior Inventory-Exercise subscale Intentions

\*p<.05

\*\*p<.01

Appendix HH: Standardized Beta Weights and R<sup>2</sup> Values for Moderation Analyses with Trait Thin-Ideal Internalization

	Pre-Test Variable	Ambiguous Feedback	Pre-test Trait Variable	Interaction	R <sup>2</sup>
Post-test BISS	.89**	.03	-.01	.01	.81
Post-test VAS Appear	.73**	.07	-.15	.06	.63
Post-test VAS Anger	.83**	.12*	-.08	.08	.67
Post-test VAS Self-Con	.88**	.04	-.03	-.03	.81
Post-test VAS Anxiety	.78**	-.01	.08	-.01	.63
Post-test VAS Depress	.82**	-.02	.24*	-.20*	.75
DEBQ-RS Inten	.81**	-.09*	-.00	.07	.72
EDE-Q-B Inten	.52**	-.21*	.16	-.14	.39
MHBI-E Inten	.75**	-.10	-.09	.16	.58

*Note:* Post-test BISS = Post-test Body Image States Scale; Post-test VAS Appear = Post-test Visual Analogue Scale Appearance; Post-test VAS Anger = Post-test Visual Analogue Scale Anger; Post-test VAS Self-Con = Post-test Visual Analogue Scale Self-Confidence; Post-test VAS Anxiety = Post-test Visual Analogue Scale Anxiety; PT VAS Depress = Post-test VAS Depression; DEBQ-RS Inten = Dutch Eating Behavior Questionnaire-Restraint Scale Intentions; EDE-Q-B Inten = Eating Disorder Examination-Questionnaire-Bulimia subscale Intentions; MHBI-E = Multidimensional Health Behavior Inventory-Exercise subscale Intentions

\*p<.05

\*\*p<.01

### About the Author

Sylvia Herbozo received a Bachelor of Arts degree in Psychology from the University of Central Florida in 2000, and a Masters of Arts degree in Clinical Psychology from the University of South Florida in 2004. She is currently a doctoral candidate in Clinical Psychology at the University of South Florida and recently completed a predoctoral internship at the University of Chicago Hospitals in June 2008. After graduating with her doctoral degree, Sylvia will start a postdoctoral fellowship at Yale University in September 2008. Her research focuses on interpersonal factors associated with body image, eating disorders, and obesity. She has co-authored several peer-reviewed journal articles and book chapters in this field.