2009

Examining an acute environmental trigger for dysfunctional eating: Measuring the immediate impact of fat disparagement media exposure and its effects on body dissatisfaction, negative affect, weight control practice intentions, and sub-clinical binge eating behavior in college women

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Examining an Acute Environmental Trigger for Dysfunctional Eating: Measuring the Immediate Impact of Fat Disparagement Media Exposure and its Effects on Body Dissatisfaction, Negative Affect, Weight Control Practice Intentions, and Sub-Clinical Binge Eating Behavior in College Women

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
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Date of Approval:
May 11, 2009

Keywords: eating disorders, obesity, television, movies, stigmatization

Acknowledgements

This dissertation is dedicated to my parents, David and Betty Himes, who have always supported me in pursuing my goal to become a clinical psychologist. I am very grateful to my sister, Amy Himes and my brother, Brian Himes for their love and encouragement. My dissertation would not have been possible without my major professor, J. Kevin Thompson, Ph.D., and I am grateful for his guidance and support. Finally, I would like to thank my fellow members of the Body Image Research Group for being such good colleagues.

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ABSTRACT

Binge eating is a maladaptive eating practice associated with unhealthy weight control methods (vomiting, laxative abuse) and the development of weight gain and obesity. Isolating psychological and environmental variables that trigger binge eating can prevent or potentially moderate eating disturbance. Previous research implicates media exposure as an environmental contributor to psychological and eating disturbance. The current study sought to uncover whether fat stigmatization media exposure is an acute environmental trigger for psychological disturbance and binge initiation by dismantling fat media messages and experimentally manipulating messages. Undergraduate women (N=197) were assigned to one of four media message conditions: a fat negative interaction, fat comedy, control stigmatization, or control comedy condition. Psychological functioning and weight control variables were assessed at baseline, pre-test, and post-test. Results indicated that fat message exposure resulted in significantly greater post-test perceived pressure to lose weight, negative affect, guilt, and anger than control conditions. Participants exposed to fat messages were significantly more likely to

restrict food intake. Two subjects engaged in an analogue binge. Weight control intentions were similar across conditions at post-test. BMI was found to moderate the relationship between fat message exposure and negative affect and hostility, with overweight and obese women more vulnerable to negative psychological consequences of fat media exposure. A history of weight related teasing moderated the relationship between fat message exposure and negative mood dependent variables (negative affect, guilt, sadness, fear), with those who had a history of teasing more vulnerable to negative mood induction. The primary significant mediator between fat message exposure and body dissatisfaction was appearance activation. Eating disorder theories were upheld, with suggested minor modifications specific to the context of fat media exposure. Findings are discussed in the context of weight loss and eating disorders treatment. Limitations of the study and directions for future research are discussed.

Chapter 1

Introduction

Overview

Maladaptive eating practices are prevalent in western society, and precede a number of negative psychological and health outcomes. Sustained food deprivation and starvation, and the consumption of large amounts of food in a short time span (binge eating) followed by purging behaviors, are dysfunctional eating practices associated with a chronic course (Fairburn, Cooper, Doll, Norman, & O'Conner, 2000), and high rates of mortality and morbidity (Reijonen, Pratt, Patel, & Greydanus, 2003). Furthermore, the out-of-control consumption of large amounts of food in a short time span (binge eating) without compensatory behaviors, frequently paired in sporadic occurrences with daily overeating (Franko, Wonderlich, Little, Herzog, 2004), may be associated with weight gain and the development of overweight and obesity (Grilo, 2002).

Extreme dsyfunctional eating behavior is often manifested in eating disorder and obesity diagnoses. While rates of eating disorders have remained approximately stable, obesity and overweight prevalence rates have doubled in the last 20 years (Centers for Disease Control [CDC], 2002; Flegal Carroll, Odgen, & Johnson, 1998; Thompson, 2004). Eating disorders disproportionately affect young adolescent and adult women, with a 0.5-1% prevalence rate for anorexia nervosa and a 1-3% prevalence rate for bulimia nervosa (American Psychiatric Association, 2000; Streigel-Moore & Smolak,

2001; Thompson & Smolak, 2001). A societal trend toward substantial weight gain was revealed in recent prevalence studies, indicating a 65% prevalence rate for overweight and a 31% prevalence rate for obesity (Flegal, Carroll, Ogden, & Johnson, 2002) among American adults. Obesity affects minority populations at a higher prevalence rate than majority populations, particularly African American and Hispanic women (Flegal et al., 2002). While most overweight or obese individuals do not meet criteria for a diagnosable eating disorder, a substantial minority of them do meet criteria for binge eating disorder with estimates ranging from 10-33% (Grilo, 2002; Grissett & Fitzgibbon, 1996; Yanovski, Nelson, Dubbet, & Spitzer, 1993).

Disordered eating is conceptualized on a continuum, and eating disorders and obesity represent an extreme form of broader dysfunctional eating practices. An additional 10-13% of adolescent and college females engage in sub-clinical disordered eating practices (Irving & Neumark-Sztainer, 2002). Overweight and obese adults and adolescents are more likely to engage in sub-clinical levels of binge eating (Marcus, 1993) and unhealthy weight control practices (i.e., diet pills, laxatives, diuretics) (Neumark-Sztainer, Story, Faulkner, Beuhring, & Resnick, 1999) than those who are not overweight.

One dysfunctional eating practice that underlies both eating disorders and obesity is binge eating and sub-clinical binge eating behavior. A binge is characterized by the consumption of a large amount of food in a discrete time period with a perceived loss of control; additional features include rapid consumption of food, eating until uncomfortably full, and feeling depressed or guilty afterwards (Fairburn & Wilson, 1993). A binge is defined as one particular form of overeating (American Psychiatric

Association, 2000), and both clinical and sub-clinical binge eating may lead to weight gain (Spitzer et. al, 1992). Binge eating is a central feature of bulimia nervosa and occurs among one sub-type of anorexia nervosa (Fairburn & Wilson, 1993). Furthermore, binge eating behavior may lead to the development and maintenance of overweight and obesity (Telch, Agras, & Rossiter, 1988).

Etiological factors that contribute to binge behavior include sociocultural environment, pre-existing psychological traits, chronic behavioral patterns (dieting and excessive exercise), and biological dysregulation in the appetite control system (Blundell & Hill, 1993; Polivy & Herman, 1993). A number of preconditions are associated with vulnerability to binge eating: cultural pressure to be thin (Polivy, Garner, & Garfinkel, 1986; Silverstein, Peterson, & Perdue, 1986; Striegel-Moore, Silberstein, & Rodin, 1986), body dissatisfaction and drive for thinness (Miller et al., 1980; Rosen et al., 1987), chronic dieting (Abraham & Beumont, 1982; Garner, Rockert, Olmsted, Johnson, & Coscina, 1985; Hsu, 1990; Polivy & Herman, 1985, 1987), food deprivation and restraint (Davis, Freeman, & Garner, 1988; Hawkins & Clement, 1980; Herman & Polivy, 1988), low self-esteem (Herman & Polivy, 1988; Johnson, Steinberg, & Lewis, 1988), irrational cognitive distortions (Garner & Bemis, 1985; Johnson & Connors, 1987), and a history of hostile, enmeshed family interaction patterns (Strober & Humphrey, 1987). Acute triggers for binge episodes include stress and negative affect (Davis et. al, 1988; Heatherton & Baumeister, 1991; Herman & Polivy, 1975), presence of fattening food cues (Johnson et al., 1987), hunger and food cravings (Mitchell, Hatsukami, Eckert, & Pyle, 1985; Orleans & Barnett, 1984), the consumption of forbidden foods, even in small amounts (abstinence violation effect) (Johnson et al., 1987; Polivy & Herman, 1985,

1987, 1991; Schulndt & Johnson, 1990), alcohol ingestion (Abraham & Beumont, 1982; Johnson et al., 1987), and privacy or isolation (De Castro, 1990). Polivy (1993) asserts that distal pre-conditions and immediate triggers for binge eating are both identified as binge antecedents, but that the failure to discriminate chronic preconditions from acute triggers has muddled the understanding of binge etiology.

Isolating psychological and environmental variables that trigger binge eating can prevent or potentially moderate eating disturbance. It is important to identify environmental cues that contribute to binge onset; because of the extensive relationship between media exposure and eating disturbance, dismantling media messages and experimentally manipulating such messages will illuminate whether fat stigmatization media exposure is an acute environmental trigger for binge initiation.

Therefore, the current study intends to experimentally manipulate fat stigmatization video messages and examine the immediate and short-term effects on psychological functioning (i.e., perceived pressure to be thin, body satisfaction, negative affect), intentions related to unhealthy weight control practices (i.e., dieting, use of laxatives), and eating behaviors (unrestrained/sub-clinical binge eating). The first section of this paper will discuss empirically supported etiological theories of eating disorders, with an emphasis on psychological and environmental contributing factors. The second section will discuss the role of media consumption, specifically television viewing, and its relationship to eating disturbance and obesity, followed by an overview of fat stigmatization media content. Third, results from a previous study that examined fat stigmatization video messages will be discussed. Fourth, results from a pilot study

conducted with the experimental media messages will be reviewed. Finally, hypotheses, analyses, and implications for the primary study will be offered.

Etiological Models of Eating Disturbance

Researchers concur that eating disorders develop through a complex interaction of genetic, cultural, social, behavioral, and psychological mechanisms (Brownell & Wadden, 1992; Bulik, 2004; Cope, Fernandez, & Allison, 2004; Stein, O'Byrne, Suminski, & Haddock, 2000). Many theories of eating disturbance have been proposed, but few have been consistently empirically supported. Three research supported etiological models that delineate the pathway to a binge or binge-purge behavior include the Tripartite Model, the Dual-Pathway Model, and the Restraint Model.

The Tripartite Model of eating disturbance (Thompson et al. 1999; van den Berg, Thompson, Obremski-Brandon, & Coovert, 2002; See Figure 1) posits that peers, media, and family are primary sources of cultural messages that influence eating behavior. When transmitted messages incorporate the glorification of thinness, it fosters thin-ideal internalization and heightened appearance comparison tendencies. Specifically, thin ideal internalization and appearance comparison mediate the effects of peer, family, and media influences on body dissatisfaction; body dissatisfaction directly precedes restriction and bulimic pathology. Furthermore, perfectionism influences the tendency to engage in social comparison. A cross-sectional, structural equation modeling study on undergraduate females found broad support for the Tripartite Model (van den Berg et al., 2002). Additional studies with adolescents lend further support to the Tripartite Model (Keery, van den Berg, & Thompson, 2004; Shroff & Thompson, 2006.)

The Dual-Pathway model (Stice, 2001) is a synthesis of earlier sociocultural, dietary, and affect regulation eating disorder models (See Figure 2). The Dual-Pathway model posits that cultural glorification of thinness is transmitted through messages from family, peers, and the media. Because thinness is virtually unattainable, it contributes to the development of body dissatisfaction. Body dissatisfaction fosters weight control behaviors (dieting) and negative affect, increasing the risk of developing bulimic pathology. A cross-sectional, structural equation modeling study on undergraduate females (Stice et al, 1996), and a twenty-month prospective study of adolescent girls using random regression growth curve models (Stice, 2001) have both provided support for the Dual-Pathway Model.

The Restraint Model of eating disturbance (Polivy & Herman, 1985) posits that sustained dieting produces weight loss and a state of physiological chronic hunger (See Figure 3). The ability to restrain eating when physically hungry is due to a cognitive restraint mechanism that supersedes physiological controls. When cognitive restraint remains intact, dieting and weight loss behaviors are maintained. However, when cognitive restraint is suppressed or disinhibited, usually by affective disturbance, abstinence violation, or alcohol, excessive eating and binge eating occur. A series of experimental studies (Herman & Mack, 1975; Herman, Polivy, & Silver, 1979; Hibscher & Herman, 1977; Polivy, 1976; Polivy, Herman, Hackett, & Kuleshnyk, 1983; Ruderman & Wilson, 1979; Spencer & Fremouw, 1979; Woody, Costanzo, Leifer, & Conger, 1981) support the Restraint Model. Despite early empirical support, the Restraint Model was criticized for numerous reasons: a) later studies were unable to replicate early findings of affect induced overeating or lab induced binge eating b) the original scale was a

unifactorial model of dieting, and more recent scales have superior ability to distinguish between chronic and acute dieting behavior c) overweight persons did not respond according to the model and d) some experimental studies find that weight loss diets decrease binge eating (Lowe,1993; Stice, 2005). Also, in some studies, dieters maintained restraint when given a small forced high calorie pre-load but were disinhibited by a large high calorie pre-load that led to the abstinence violation effect (Herman & Mack, 1975; Herman & Polivy, 1980; Herman, Polivy, & Silver, 1979). In contrast, some studies suggest that for those with higher levels of bulimic symptoms, a small quantity of forbidden food may suffice for inducing disinhibition (Garner & Bemis, 1985; Polivy & Herman, 1993).

Each model has unique components with research support. The Tripartite Model highlights the importance of social comparison as a mechanism that predicts body image dissatisfaction; in particular, social comparison mediates the influence of media messages on body dissatisfaction (van den Berg et. al, 2002). The Dual-Pathway Model emphasizes the role of negative affect. When induced experimentally, negative affect predicts the onset of bulimic pathology (Stice & Agras, 1998; Stice et. al., 1998a) and has triggered disinhibited eating among restrained eaters (Cools, Schotte, & McNally, 1992; Ruderman, 1985). Finally, the Restraint Model (Polivy & Herman, 1985) purports the central importance of cognitive restraint as a mechanism that maintains chronic dieting behavior. When cognitive restraint is intact, eating remains inhibited; when cognitive restraint is suppressed or disinhibited by negative affect or the abstinence violation effect, overeating and binge eating occur. Each unique component of the respective models will be tested in the primary study.

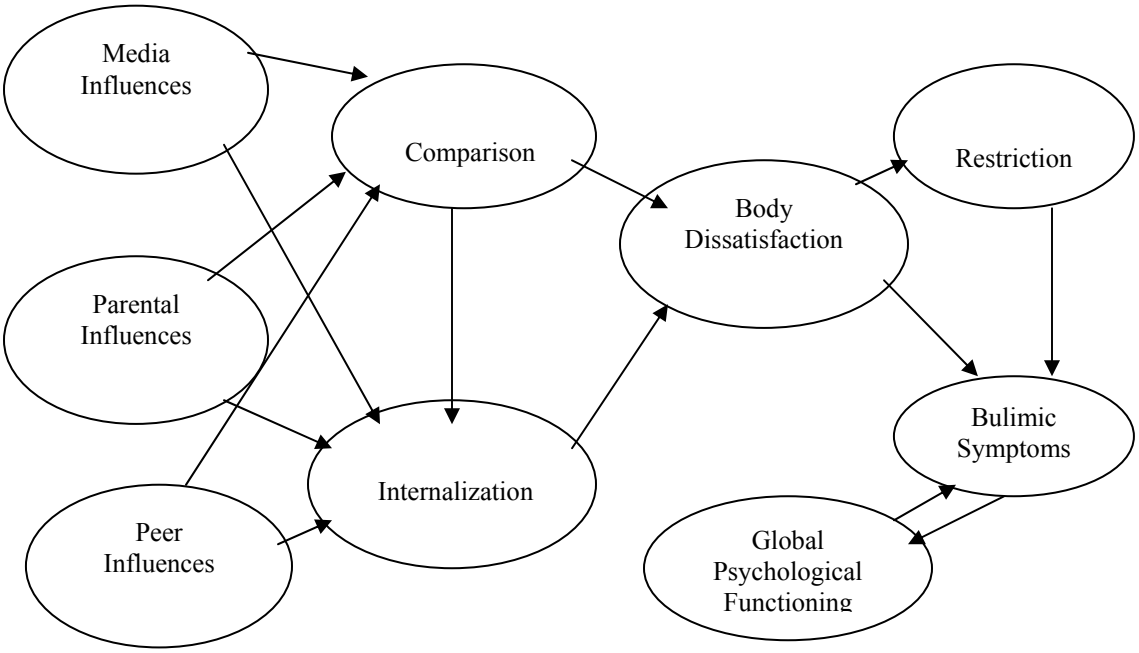


Figure 1. The Tripartite Model of Influence.

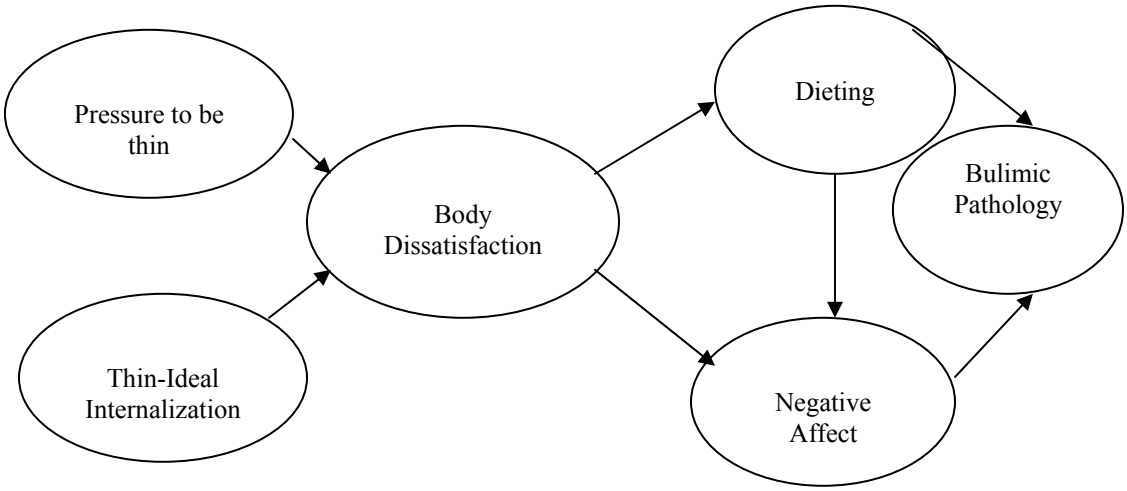


Figure 2. The Dual-Pathway Model of Bulimic Pathology.

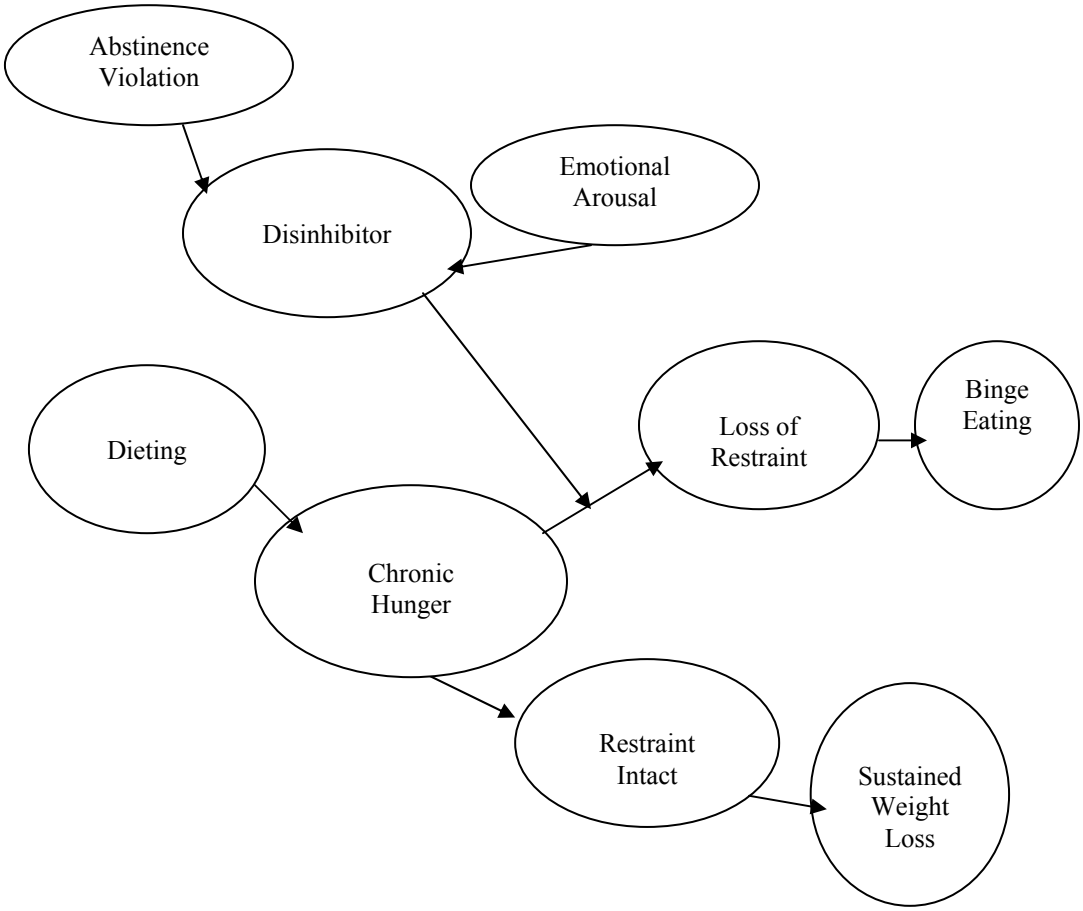


Figure 3. The Restraint Model of Binge Eating.

Media Consumption, Eating Disturbance, and Obesity

Western media exposure and the presence of eating disorder symptoms have been strongly associated. Previous studies have observed a correlational relationship between body satisfaction, eating disorder symptoms, negative affect, and mass media consumption (Botta; 1999; Cusumano & Thompson, 1997; Harrison & Cantor, 1997; Stice, Shupak-Neuberg, Shaw, & Stein, 1994). Furthermore, many experimental studies of brief exposure to thin-ideal media images indicate increased body dissatisfaction post-exposure to the images (see Groesz, Levine, & Murnen, 2002 for a meta-analytic review).

Previous research shows that a robust correlation exists between television viewing and body-perception indices (poor body image and ED symptomatology) (Botta, 1999; Harrison, 1997; Levine and Smolak, 1996; Stice & Shaw, 1994.) In addition, research evidence demonstrates that television viewing and media exposure predict body dissatisfaction (Harrison & Cantor, 1997; Tiggemann & Pickering, 1996), bulimia symptoms (Harrison, 2001), disordered eating (Stice & Shaw, 1994), and negative mood (Harrison, 2001; Heinberg & Thompson, 1995).

Research indicates that the relationship between television viewing and dysfunctional eating behaviors is not limited to those with classical eating disorder symptoms. Cross-sectional studies (Gortmaker, Must, Sobol, 1996; Utter, Neumark-Sztainer, & Jeffery, 2003) and prospective studies (Dwyer, Stone, Yang, 1998; Obarzanek, Schrediber, & Crawford, 1994) have found a positive association between television viewing and obesity. One seminal study found a dose-response relationship between hours of television viewed and obesity, indicating that as television viewing behavior increases, so does weight gain (Dietz & Gortmaker, 1985). In addition,

considerable research supports the relationship between media usage (television, video games) and weight gain (Horgen, Choate, & Brownell, 2001; Hu, Li, Colditz, et al., 2003; Robinson, 1999). School-based obesity intervention trials found that reducing television use predicted decreases in obesity prevalence and BMI (Gortmaker, Peterson, Wiecha, 1999; Robinson, 1999).

Since then, studies examining the relationship between television viewing and weight gain have found some support for three mechanisms of association: increases in sedentary behavior, increases in snacking while viewing, and food cues provided in advertisements elicit desire to eat (Gore, Foster, DiLillo, Kirk, & West, 2003; Halford et al., 2004; Henderson & Brownell, 2004; Vandewater, Shim, & Caploritz, 2004). Although the relationship between weight gain and television viewing may be accounted for by previous explanations (snacking, less activity), it is also possible that dysfunctional eating precursors may be operating.

Fat Stigmatization in Television and Movies

Fat stigmatization is often presented in the form of commentary and humor through entertainment media. Content analyses indicate that overweight characters are underrepresented on television (Fouts, 1999), and overweight female characters receive more negative comments from male characters (Fouts, 2000; Himes & Thompson, 2007) while thin female characters simultaneously receive more positive commentary. Overweight characters are often targeted for social rejection and weight-related verbal remarks (Himes & Thompson, 2007).

Fat stigmatization in media influences children as well as adults. Children's exposure to media that reinforces negative stereotypes about obesity may contribute to

the development of children's body image ideals (Herbozo, Tanteleff-Dunn, & Thompson, 2004). In a content analysis of children's popular movies, Herbozo et al. (2004) found that obesity was equated with negative traits (evil, unattractive, unfriendly, cruel) in 64% of the most popular children's videos. In a study by Harrison (2000) examining the relationship between fat stereotyping and television viewing among elementary school children, the frequency of television viewing predicted fat-girl stereotyping among males but not among females.

Preliminary Study

In a preliminary study, fat-specific material was identified and quantified. A content analysis was conducted to measure and categorize fat-specific commentary (Himes & Thompson, 2007). Fat commentary vignettes were collected using four sampling methods, and 135 media clip scenes were excised from movies and television programs. Scenes were edited using Avid Xpress Pro, and material was placed in random order. Media material was coded by trained raters. Inter-rater reliability indices were uniformly high for the seven categories (.66-.94). Results indicated that fat commentary and fat humor is often verbal, directed toward another person, and is often presented directly in the presence of the overweight target. Himes and Thompson (2007) also found that male characters were three times more likely to engage in fat commentary or fat humor than female characters.

The experimental stimuli for the dissertation investigation were selected from the media material collected and analyzed in the preliminary study (Himes & Thompson, 2007). All material was initially coded by the primary investigator, and the selected material has coding with high levels of inter-rater reliability agreement. A total of thirty

fat stigmatization media scenes were selected, with scenes from each content analysis category represented (gender of target, gender of commentator, direct vs. indirect comment, verbal vs. nonverbal communication methods). Media clips are from culturally popular and prevalent movies and television programs; clips feature characters from both genders and diverse racial backgrounds. The selected media clips represent actual commonplace fat stigmatization message exposure, and the use of the stimuli in the study enhances external validity by approximating as closely as possible real-world media experiences.

Pilot Study 1: Development of the Stimuli

The experimental stimuli material was selected from an archive of material used for a previous content analysis of fat stigmatization media (Himes & Thompson, 2006). Thirty media scenes of fat stigmatization were divided into fat humor (16 items) and fat commentary-negative interaction (14 items) categories. Fat stigmatization clips were divided into the two experimental categories because the form of message delivery (humor comedy vs. negative interaction) may impact mood state. In addition to the 2 fat stigmatization conditions, a control comedy condition (27 items) and a control stigmatization-negative interaction condition (19 items) were created using the same movie and television media. When possible, the same characters from the fat stigmatization conditions were used in the control conditions, in order to control for character likeability and show/movie familiarity. Each category has media clips that are presented in a random order, with a 6 second blank screen dividing each clip.

After the experimental stimuli were selected, they were presented to an expert panel of researchers that specialize in the study of body image and eating disturbances to

verify media audibility, to provide feedback about the ease of understanding the fat stigmatization messages, and to rate for each media clip the level of "funniness" and "offensiveness". The expert panel consisted of one licensed clinical psychologist, four doctoral students in clinical psychology, and two undergraduate research assistants. Feedback from the expert panel suggested that one stimuli item was inaudible, and 2 items lost fat-specific meaning when removed from the larger film context. In addition, it was suggested that cartoon media was less disparaging, would be less likely to engender identification with fat targets, and might induce positive affect. Based on feedback from the expert panel, all cartoon items (2) were deleted, and items that lost fat-specific meaning (2) were removed. The stimulus set was reworked to amplify sound in segments with audibility problems (2). The expert panel ratings were calculated for mean "funniness" and "offensiveness" of items, mirroring the rating system to be used in the experimental study. The control stigmatization-negative interaction condition had many items that included appearance-based material, which might overlap with weight appearance and influence body image disturbance. Therefore, all appearance based items were removed (7), and items that had ratings of funniness>1 were removed (4), leaving a total of 8 stimuli clips for the control stigmatization- negative interaction condition. Within the fat stigmatization condition, items that contained additional non-fat related stigmatizing material were removed (1), items with ratings of funniness> 1 were removed (2), and items of self-fat talk (2) were removed. The 8 items with the highest ratings of offensiveness were included in the final set of 8 fat stigmatization stimuli. Within the fat comedy condition, items with ratings of funniness>1 were included, items having roughly equal funniness and offensiveness were included (defined as funniness and offensiveness

means within a 1 point rating of each other), and items that contained material to counteract stigmatization were removed (1), leaving a total of 8 items. For the control comedy condition, items with the highest ratings of funniness and lowest ratings of offensiveness were selected, and items with a rating of funniness <1 were removed (1). The final stimulus set was pruned from 76 items to 32 items, 8 clips for each condition. Please see Appendix A to review a list of media sources, fat stigmatization and control messages, and time of exposure for each clip.

Pilot Study 2: Pilot Investigation

Prior to the primary study, a pilot study was conducted to determine whether exposure to the fat stigmatization negative interaction video messages resulted in negative affect mood induction, increases in body dissatisfaction, and sub-clinical binge behavior.

The primary investigator recruited 9 undergraduate women between the ages of 18 and 23 (M=19.89, SD=1.8). All women were assigned to the fat stigmatization negative interaction media message condition because it was hypothesized that the stimuli would have the strongest impact on mood induction and body dissatisfaction. The small sample was predominantly Caucasian (77.8%), with some minority participants (11.1% African American, 11.1% Hispanic); all participants were born in the United States. Self-reported height and weight estimates indicated that the majority of participants were normal weight (88.9%), and one participant was overweight (11.1%.) Within the sample, one participant wished to stay at her current weight; all others (88.9%) wished to lose weight ranging from 5lbs. to 40lbs. (M=14, SD=12.3). Participants were compensated with 3 extra credit points in their psychology course.

In addition to demographic measures, state body dissatisfaction and state negative affect were assessed pre-test with the Visual Analogue Scale (VAS; Heinberg & Thompson, 1995; see Appendix D) and the Positive and Negative Affect Scale-Revised (PANAS-X; Watson & Clark, 1992; see Appendix E). Following the pre-test measures, participants were asked to watch the fat stigmatization negative interaction message video and rate its "funniness" and "offensiveness" (Media Rating Form; Himes, 2007, Appendix B). After watching the video, subjects were asked to complete post-test VAS and PANAS-X measures. After completing mood and body image measures, participants completed a Modified SATAQ-3 Pressures subscale (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004; Appendix F.) Following the completion of the scales, participants were given a "taste test" in which they were instructed to eat as many mini-chocolate chip cookies as they needed to in order to determine the quality and desirability of the cookies. After the taste test, participants filled out a Cookie Rating Form (Himes, 2007; see Appendix Q). Participants were then debriefed. After the debriefing, subjects were asked to complete the 5-item modified Message Rating Form (Sperry, Thompson, Roehrig, & Vandello, 2005; see Appendix G). Subjects were thanked for their participation and awarded their extra credit points.

To identify any problems with video audibility, video message understanding, or study cover-story credibility, the Message Rating Form was examined with each item analyzed separately. Mean scores were obtained, and results indicated that the consumer cover story was convincing (M=4.11), that the video messages were easy to hear (M=4.67), and that the video messages were easy to understand (M=4.67). If any of the above items exhibited a mean score of less than 4 (agree), it would have warranted

further subsequent action (deletion of media clip item, changes to the consumer study cover story.) However, no participants had difficulty with the stimuli or with the cover story concept of a consumer study. Rating differences in the perceived media message applicability (*M*=3.11) and influence (*M*=3.33) were expected, and varied according to subjects. Descriptive statistics were conducted to examine frequency and range of responses. Overall, the Media Message Form indicated that the cover story was convincing and that the video messages were accessible (easy to understand and easy to hear); see Table 1 for mean scores and standard deviations.

The SATAQ-3 Modified Pressures Subscale was analyzed to assess whether subjects perceived pressure from the video to diet, to exercise, to lose weight, to change their appearance, or to be thin. Descriptive statistics were conducted to examine mean responses, frequencies, and response range. Results indicated that about half of the participants perceived no video message pressure, and about half did perceive video message pressure to engage in various activities to be thin or to maintain an image of thinness/health (dieting, exercising, losing weight, changing appearance). Mean responses on the SATAQ-3 Modified Pressures Subscale range from 2.67-3.11, obscuring the diverging nature of the responses (see Table 1 for means and standard deviations.)

Pre-post test analyses were conducted to assess for state changes in body dissatisfaction and negative affect. Six dependent t-tests were computed. A significant main effect for time was found, with significant increases in PANAS-X negative emotional states hostility $t(8)= -3.26$, $p<0.011$ and guilt $t(8)=-2.44$, $p<0.04$, and significant increases in VAS state anger $t(8)=-2.31$, $p<05$. Furthermore, mean levels of

overall PANAS-X negative affect increased from Time 1 (*M*=12.1) to Time 2 (*M*=13.0), though not meeting criteria for significance. After conducting dependent t-tests with an overall body dissatisfaction VAS index, as well as individual items related to weight and shape, results revealed no notable changes in body image disturbance. When examining pilot data, more than half of the sample experienced increases in state negative affect, and more than half of the sample reported slight increases in state body dissatisfaction. Based on the data indicating that a subset of the sample experienced increases in negative affect and increases in body dissatisfaction, with some negative emotional state changes meeting criteria for statistical significance, the rationale for the primary study hypotheses were supported.

Correlations were conducted between the Fat Stigmatization Media Messages Rating Form Overall Offensiveness scores and changes in the state measures (affect, body dissatisfaction) to determine if ratings of offensiveness of the vignettes was related to mood and body image changes. None of the mood or body image difference variables were significantly correlated with the media offensiveness scores. However, the relationship between anger and clip offensiveness ratings $r=.58$, $p<.09$ and between guilt and clip offensiveness ratings $r= -.61$, $p<.07$ approach significance. Implications from the pilot findings suggest that interpretations of the media messages as offensive is not related to body image changes. However, some subjects that interpreted the media messages as offensive have corresponding increases in anger; other subjects who experienced increases in guilt after seeing the messages were more likely to interpret the media as non-offensive.

As subjects completed the taste test, there was an opportunity to examine whether an analogue binge behavior occurred (large amount of cookies consumed within a 3 minute time frame). Instead of binge eating, those with eating disorder compensatory symptoms (including BN) restricted the amount of cookies consumed instead of binge eating. The only overweight subject also restricted food intake (consuming 1 cookie.) Additionally, some subjects reported high levels of hunger prior to the experiment, accounting for some noise variance in cookies consumed.

Overall, findings from the pilot study supported the hypothesis that some subset of the undergraduate female population experiences increases in negative affect, negative emotional states (anger, hostility, guilt), and experiences perceived pressure to lose weight and to diet following exposure to media messages of fat stigmatization in the context of a negative interaction. There was not statistical support for increased body dissatisfaction following media exposure; ratings indicated that some women experienced slight increases in body dissatisfaction and others felt better about their bodies after comparison with obese/overweight targets. Media stimuli exposure was followed by some externalizing responses (anger) and by some internalizing responses (guilt); these differing responses were associated with perceptions of media offensiveness. However, media exposure did not affect all subjects, and the relationship between media exposure and perceptions of offensiveness was not statistically significant. Instead of serving as a possible acute trigger for a binge episode, participants with eating disorder compensatory behaviors increased their restriction of cookie intake, with various others engaged in unrestrained eating; this outcome directly contradicted earlier hypotheses. Finally, the consumer cover story, the media message accessibility (audibility and ability to

understand) were highly rated, with no subjects experiencing difficulty with the media or the credibility of the cover story.

Table 1

Mean Scores and Standard Deviations for Pilot Study

Measure	*Fat Stigmatization Negative Interaction Media Video* (N=9)
Pre-VAS BD	10.03 (5.14)
Post-VAS BD	10.15 (5.41)
Pre-VAS Shape Dissatisfaction	4.98 (2.76)
Post-VAS Shape Dissatisfaction	5.06 (2.76)
Pre-VAS Anger	0.81 (1.46)
Post-VAS Anger	2.34 (2.94)
MRF-Cover Story Credible	4.11 (.33)
MRF-Easy to Hear	4.67 (.70)
MRF-Easy to Understand	4.67 (.50)
MRF-Influential	3.33 (1.00)
MRF-Applicable	3.11 (1.26)
Pre-PANAS-X Negative Affect	12.11 (2.47)
Post-PANAS-X Negative Affect	13.00 (3.00)
Pre-PANAS-X Hostility	6.33 (0.70)
Post-PANAS-X Hostility	7.66 (1.80)
Pre-PANAS-X Guilt	8.00 (1.93)
Post-PANAS-X Guilt	9.11 (2.71)
SATAQ-3 Perceived Pressure to Lose Weight	2.67 (1.41)
SATAQ-3 Perceived Pressure to be Thin	3.00 (1.5)
SATAQ-3 Perceived Pressure to Diet	2.67 (1.58)

(Table Continues)

Table 1 (Continued)

SATAQ-3 Perceived Pressure to Exercise	3.11 (1.45)
SATAQ-3 Perceived Pressure to Change My Appearance	2.89 (1.45)

Note. VAS BD: Visual Analogue Scale-Body Dissatisfaction; MRF: Message Rating Form; PANAS-X: Positive and Negative Affect Scale-Revised; SATAQ-3: Sociocultural Attitudes Towards Appearance Scale-3

Primary Study

In the primary study, media video messages were experimentally manipulated to directly examine the immediate and short-term effects of fat stigmatization media exposure on psychological functioning, weight control intentions, and subclinical binge eating behaviors in collegiate undergraduate women. Based on findings from the pilot study, the primary study was altered. First, an additional measure assessing state levels of hunger was added to control for variance in cookie consumption. Second, the pilot study results indicated that some subjects with eating disorder psychopathology and current binge behaviors increased or maintained levels of eating restraint following exposure to the media messages; these participants ate the fewest number of cookies when compared to the total sample. Therefore, decreases in cookie consumption (restraint), as well as possible binge induction, became the newly predicted set of possible outcomes.

The rationale supporting the primary study is fourfold. First, it is important to examine whether fat stigmatization media exposure is a component of the larger sociocultural pressure to be thin. Content analyses of weight-related material in media

found that overweight characters were underrepresented on television, and received more negative feedback from other characters (Fouts, 1999; Fouts, 2000; Himes & Thompson, 2007). Fouts proposed the use of Bandura's social learning model to conceptualize weight-related media messages and their effects: a simultaneous modeling of thinness and vicarious reinforcement of positive feedback to thin characters, and modeling fat disparagement and negative feedback to overweight characters (Fouts, 1999). Whether these dismantled messages are both associated with sociocultural pressure to be thin has not been addressed.

Second, it is important to consider whether fat stigmatization media exposure, as a possible separate component of thin-ideal sociocultural pressure, has psychological and behavioral consequences. In previous research, western media exposure and the presence of eating disorder symptoms have been strongly associated; television viewing and media exposure have predicted body dissatisfaction and bulimia symptoms (Harrison & Cantor, 1997; Harrison, 2001; Stice & Shaw, 1994). Furthermore, experimental studies of brief exposure to thin-ideal media images indicates that media exposure is a risk factor for eating pathology (Groesz, Levine, & Murnen, 2002; Stice, 2002). Although much previous research, both correlational and experimental, has examined the role of thin-ideal media exposure on eating disorder development, only one study has examined the impact of viewing fat stigmatization media messages. Fat stigmatization video content within the experimental study consisted of one scene in which an obese adolescent girl was teased and rejected, and negative affect was induced among the viewers (Harrison, 2001). Limitations from that study include the absence of studying the direct effects of fat stigmatization media exposure on eating disturbance and body dissatisfaction

measures, the use of one indirectly conveyed fat stigmatization message, and the lack of clarity regarding whether the negative affect induction was a result of empathy or self-comparison. Within the proposed study, the role of fat stigmatization media exposure as an acute trigger for mood disturbance, body image disturbance, and dysfunctional eating will be tested.

Third, competing mechanisms may be responsible for the relationship between fat stigmatization media exposure and psychological outcomes. Ideal discrepancies often result in negative affect, and many of the participants had weight-ideal discrepancies that may have been activated by fat commentary exposure. Furthermore, social comparison tendencies to video characters may lead to negative affect and body image disturbance if making an upward comparison, but if the target is perceived as less fortunate, downward comparisons made to unfortunate obese video characters may enhance participants own body image (Festinger, 1954; Tiggemann & Slater, 2003). The mechanism of thinking about one's own appearance and social comparison to other targets is highly correlated, complicating whether one mechanism is predominant over the other or whether both are operating simultaneously (Tiggeman & Slater, 2003). The role of social comparison and the role of activation of self-appearance schema with the presence of a weight ideal discrepancy will be examined as possible mediators associated with psychological outcomes. Fourth, a number of empirically supported eating disorder models will be tested, as components of each model will be analyzed (affective disturbance, social comparison, chronic restraint) in conjunction with psychological and behavioral study outcomes.

Specifically, the goals of the primary study are fourfold. First, it is designed to experimentally manipulate fat stigmatization video messages and determine its immediate effects on (a) psychological functioning, including body dissatisfaction, negative affect, and perceived pressure to be thin, (b) dieting and weight control intentions, including unhealthy strategies for weight management and (c) eating behavior, specifically binge eating, subclinical binge eating, and restrained or unrestrained eating. Second, the study will examine the relationship between fat stigmatization media message exposure and perceived pressure to be thin. Third, the study will evaluate the possible mediational role of social comparison and ideal-weight discrepancy on negative affect and body image disturbance, and the meditational role of negative affect on cookie consumption. Finally, the investigation will test whether the effects are consistent with components of prior eating pathology models (e.g., affective, social comparison, and restraint.)

Based on findings from the previous literature, the following hypotheses are proposed: (1) Subjects in the fat stigmatization and fat comedy media exposure conditions in comparison with the control conditions (a) will report higher levels of state negative affect and state body dissatisfaction, (b) will feel more pressure to lose weight, and (c) will eat significantly more or significantly less mini-chocolate chip cookies (engage in restraint or binge eating). Additionally, subjects in the fat comedy condition will report slightly less negative affect than subjects in the fat negative interaction condition, due to the mediating effects of humor exposure on mood. (2) Participants with bulimic symptoms, above average BMIs, a discrepancy between current and ideal weight, and a history of weight-related teasing will report higher levels of state body

dissatisfaction and state negative affect, experience more pressure to lose weight, and will eat more mini-chocolate chip cookies (engage in unrestrained eating). Subjects with high trait levels of restraint and low levels of bulimia symptoms will report similar psychological outcomes, but will be less likely to engage in unrestrained eating. (3) The findings will support the relationship between media fat stigmatization exposure and perceived pressure to be thin, such that fat stigmatization exposure will lead to increased perceived pressure to be thin when compared with subjects in the control conditions. (4) The results will indicate that pressure to be thin, activation of a self-appearance schema and a weight ideal discrepancy, and social appearance comparison to characters in the videos will be mediators of the relationship between fat stigmatization media exposure and body image disturbance and negative affect; negative affect will serve as a mediational link between exposure to the fat stigmatization video messages and cookie consumption. (5) Components of eating disorder models indicating increased negative affect (Stice's Dual-Pathway Model), social comparison (Thompson's Tripartite Model), and chronic trait restraint violation (Polivy's Restraint Model) preceding binge and subclinical binge eating will be supported.

Chapter 2

Method

Participants

The participants were 197 undergraduate women recruited from the University of South Florida's Department of Psychology subject pool. Participants were primarily young adults, and ranged in age from 18 to 52 years (*M*=21.6, *SD*=4.73). The sample was ethnically diverse with 13.3% African American (*N*=26), 15.3% Hispanic American (*N*=30), 65.8% Caucasian (*N*=129), 3.6% Asian American (*N*=7), and 2% Other (*N*=4). The majority of the sample (86.8%) was from the United States (*N*=169), with a notable number of international participants (14.2%; *N*=28) from more than 20 foreign countries. Participants completed self-report measures of weight and height, which revealed that the average body mass index (BMI) was in the normal range (*M*=24.01, *SD*=5.35), with BMI scores ranging from 15 to 46. The sample exhibited a wide range of weight status, with 5.8% underweight (*N*=11; BMI 18.5 or lower), 61.6% average weight (*N*=117; BMI 18.6-24.9), 20% overweight (*N*=38; BMI 25-29.9), and 12.6% obese (*N*=24; BMI over 30). When asked about the difference between their current weight and ideal weight, the majority of women reported a desire to lose anywhere from 5 to 15 pounds (*M*=15.74, *SD*=21.22). Some participants reported eating disturbance symptoms; 2% reported symptoms of AN (*N*=4; weight below 18.5 and feelings of fat/fear of weight gain), 7.1% reported symptoms of BED (*N*=14; objective binge with no compensatory behaviors), and 6.6% reported symptoms of BN (*N*=13; objective binge with some compensatory

behaviors.) Participants were compensated with extra credit points in their psychology course(s).

Measures

Fat stigmatization and control media stimuli items.

Study participants were exposed to one of four media videos; two of the videos contained fat messages (see Appendix A). The stimuli (as previously described, see above) were selected from material collected for a content analysis of media fat commentary (Himes & Thompson, 2007). Condition one video contains fat stigmatization commentary, exchanged during a negative interaction (fat stigmatization); the condition two video contains fat humor, often utilized in the comedy genre (fat humor). Condition three video contains control stigmatization commentary, with similar characters from the condition one video engaging in non-weight related and non-appearance related negative interactions (control, non-fat, stigmatization). Condition four video contains neutral, non-weight related and non-appearance related control comedy interactions with the same characters from the fat humor video (control, non-fat humor)(see Appendix A). Each of the 8 media clips per condition (32 total) were extracted from popular movies and television shows. Fat stigmatization materials were selected in order to ensure representation of both male and female targets, indirect and direct methods of negative weight-related feedback, a range of ages and ethnicities, and both verbal and nonverbal communication methods. In compliance with copyright law, no media clips from any movie or television show exceeded 3 minutes, and all materials were used for research purposes.

Media rating form: Revised version of the 3WD Humor Test.

Participants were asked to evaluate media stimuli. An adaptation of Form K of the 3WD Humour Test (Ruch, 1983) was administered to assess appreciation of humor containing fat commentary; it also assessed perceived offensiveness of the stimuli (see Appendix B). The original 3WD-K contains 50 jokes and cartoons, which are rated on "funniness" and "aversiveness" using two 7 point scales ranging from "not at all funny"=0 to "very funny"=6 and "not at all aversive"=0 to "very aversive"=6. The 2 factors (aversiveness and funniness) emerged from a factor analysis of humor appreciation, and can be applied to both comedic and dramatic commentary. In the adapted version of the Humor and Commentary Ratings Scale, original jokes were removed and replaced by media clip segments. After each clip was displayed, the participant circled how "funny" and "offensive" the clip was to the corresponding item on the Media Rating Form.

Demographic information.

Participants were asked to provide demographic information including age, race, height, weight, ideal weight, year in school, country of origin, and number of years spent living in the United States (see Appendix C). Self-reported height in inches and weight in pounds were used to calculate Body Mass Index (BMI) [(weight in pounds/height in inches)^2] x 703.

Body dissatisfaction.

Two measures of body dissatisfaction were administered: one trait measure and one state measure. The Eating Disorder Inventory - Body Dissatisfaction subscale (EDI-BD, see Appendix H) (Garner, Olmsted, & Polivy, 1983) was employed as the trait

measure of body dissatisfaction. The EDI-BD is a 9-item scale that assesses overall satisfaction with various weight related body sites. It has demonstrated good reliability (alphas above .80) across a variety of samples (Garner, 1991; Thompson, 1992). The EDI-BD was administered at baseline (a) to ensure equal distribution of body dissatisfaction across conditions before the experimental manipulation and (b) to serve as a co-variate in analyses. Cronbach's alpha was calculated for the EDI-BD within the current sample; results revealed that internal consistency was high at .92.

The Visual Analogue Scales (VAS, see Appendix D) was utilized to assess state dissatisfaction with body weight and shape (Heinberg & Thompson, 1995). Participants were asked to indicate their level of dissatisfaction on a 100 mm line, with the left-most point being "no weight/size dissatisfaction" ("no overall appearance dissatisfaction") and the right-most point being that of "extreme weight/size dissatisfaction" ("extreme overall appearance dissatisfaction"). The distance from the left-most point on the line (0) measured in millimeters indicates the level of distress (Thompson et al., 1999). The VAS has been found to correlate highly with the Eating Disorder Inventory-Body Dissatisfaction subscale (e.g., Heinberg & Thompson, 1995) and has been widely-used because it is brief and can be repeated within a short time period without participants remembering their previous responses (Thompson, 2004). The VAS was used to assess state weight dissatisfaction, shape dissatisfaction, and overall body dissatisfaction before and after exposure to the experimental manipulation of the video messages.

Thin-Ideal internalization.

The Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3, see Appendix I)-Internalization subscales were used to measure trait levels of thin-ideal

internalization (Thompson et al., 2004). This measure focuses specifically on internalization of media messages regarding the thin-ideal, and ratings are made on a five-point Likert scale ranging from "Definitely Agree" to "Definitely Disagree." The SATAQ-3 has two internalization subscales with excellent reliability: Internalization-General (Cronbach's alpha = .96) and Internalization-Athlete (Cronbach's alpha = .95) (Thompson et al., 2004). Within this sample, Cronbach's alpha was .95 for Internalization-General and .86 for Internalization-Athlete.

Sociocultural pressure.

A modified version of the Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3; Thompson et al., 2004) Pressures subscale was used to assess the extent to which the experimental stimuli apply pressure to lose weight and/or maintain a low body weight (see Appendix F). The original Pressures subscale has been found to have excellent reliability (Cronbach's alpha=.94) and has demonstrated convergent validity with a "gold standard" measure of drive for thinness (Thompson et al., 2004). Items modified for this study retained the SATAQ-3 stems but changed the cited source of perceived pressure from TV, movies, and magazines to the fat stigmatization video message. For example, an original item on the Pressures subscale was modified from, "I've felt pressure from TV or magazines to lose weight," to "I've felt pressure from this video to lose weight." Items were summed to obtain a composite pressures score. The modified Pressures subscale was utilized in the primary study to assess perceived pressure from the video stimuli, and the standard SATAQ-3 Pressures subscale was administered as a trait measure at pre-test (see Appendix I). Within the

study sample, internal consistency for both the trait Pressures subscale (Cronbach's alpha=.94.) and for the modified pressures subscale (Cronbach's alpha=.93) was high.

Drive for thinness.

The Eating Disorder Inventory-Drive for Thinness (EDI-DT; See Appendix H, Garner et al., 1983) was used to assess drive for thinness. This scale measures restricting tendencies, desire to lose weight, and fear of weight gain. It has an internal consistency of .83 for a combined sample of eating disordered individuals and .81-.91 for four samples of nonpatient female controls (Garner, 1991). Directions were modified to assess usual drive for thinness, and the scale was administered at baseline to ensure equal distribution of eating disturbance across groups and as a co-variate in analyses. Reliability was excellent with an alpha of .92 in this sample.

Dieting.

The Dutch Eating Behavior Questionnaire-Restraint Scale (DEBQ-RS; see Appendix J, van Strien, Frijters, Bergers, & Defares, 1986) was used to measure current dieting behavior and intentions. This scale consists of ten-items that measure the frequency of dieting behaviors using a 5-point Likert scale, which ranges from "never" to "always." The DEBQ has been shown to have good internal consistency (Cronbach's alpha=.95) and test-retest reliability (r=.92) (Allison, Kalinsky, & Gorman, 1992). Directions were modified to assess usual dieting behavior at baseline and intended dieting behavior as an outcome variable. Reliability of the DEBQ at baseline (Cronbach's alpha=.94) and as an outcome intentions measure (Cronbach's alpha=.91) was excellent.

Negative affect.

The Positive Affect and Negative Affect Scale-Revised (PANAS-X; see Appendix E, Watson & Clark, 1992) was used to assess both state and trait negative affect and positive affect. In this scale, participants rate 30 negative emotional states (e.g., sadness, guilt, and fear/anxiety) and 20 positive emotional states (e.g., joyful, alert, cheerful) currently or usually. A 5-point Likert scale, which ranges from "very slightly or not at all" to "extremely," is used. This scale has been found to have adequate internal consistency, test-retest reliability, convergent and divergent validity, and predictive validity (Stice & Agras, 1998; Watson & Clark, 1992). Reliability in this sample was high for trait negative affect (Cronbach's alpha=.96), for trait positive affect (Cronbach's alpha=.95), for state negative affect at time 1 (Cronbach's alpha=.93), for state positive affect at time 1 (Cronbach's alpha=.96), for state negative affect at time 2 (Cronbach's alpha=.93), and for state positive affect at time 2 (Cronbach's alpha=.97).

Visual Analogue Scales (VAS) related to affect were used primarily as filler questions to disguise the main purpose of the VAS scales—to assess state body dissatisfaction (see Appendix D). However, previous research indicates that VAS variables anger and anxiety were highly correlated with the tension/anxiety and anger/hostility scales from the Profile of Mood States measure (Heinberg & Thompson, 1995.) Therefore, VAS anger and anxiety were analyzed as state mood dependent variables. Following the same procedure described above for the measurement of state weight and shape dissatisfaction, participants were asked to rate the extent of their current affect on several dimensions, including happiness, anxiety, energy level, disappointment in self, anger, calmness, and irritability.

Bulimic symptoms.

The Eating Disorder Examination-Questionnaire (EDE-Q; see Appendix K, Fairburn & Beglin, 1994) Bulimia Subscale was used to measure bulimic symptoms. The EDE-Q is derived from the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993), which is a widely used and validated semistructured interview. The EDE-Q Bulimia Subscale consists of twelve items that assess the frequency of binge eating and purging (i.e, vomiting, laxative and diuretic use, excessive exercising). The frequency is measured in terms of the number of days that binging and/or purging occurred as opposed to the number of individual episodes. The internal consistency of the EDE-Q has been found to be adequate (Cronbach's alpha=.84) (Fairburn & Beglin, 1994). In addition, the EDE-Q demonstrates acceptable criterion validity and convergent validity (Black & Wilson, 1996). Because the Bulimia subscale of the EDE was discontinued due to its overlap with other EDE scales, the EDE was not calculated as a total Bulimia score (scoring criteria were unavailable after the scale was discontinued). The EDE within this sample was used to categorically divide some participants into eating disturbance cluster behaviors (AN, BN, BED) and to ensure that such disturbances were equal across conditions at baseline.

A modified version of the EDE-Q was utilized to assess unhealthy weight control intentions (see Appendix L, Roehrig, 2006). EDE-Bulimia Items 10-12, which assess compensatory behavior frequency, were adapted to measure intentions to vomit, use laxatives/diuretics, and excessive exercise to control weight on a five-point Likert scale. Additionally, items related to intentions to use diet pills, smoke, and employ meal skipping as weight control practices were added to the scale. Reliability of the modified

scale was adequate (Cronbach's alpha=.72) but lower than the internal consistency of the original scale.

Healthy eating.

The Multidimensional Health Behavior Inventory (MHBI; Kulbok, Carter, Baldwin, Gilmartin, & Kirkwood, 1999; see Appendix N) Diet subscale was used to measure healthy eating intentions and behaviors. The MHBI is a psychometrically sound instrument that was developed for use in adolescent and college-aged samples. The MHBI-Diet subscale consists of 13 items assessing frequency of healthy nutritional behaviors such as eating whole grain foods and limiting sugar intake on a 5-point Likert scale ranging from "Never" to "Always." Internal consistency of the Diet subscale is very good (Cronbach's alpha=.88) (Kulbok et al., 1999). Directions will ask participants, "How often do you…." to assess usual healthy eating habits, while participants will be asked "How often do you intend to…." to measure intentions during the post-test. In addition to the original MHBI items, two questions regarding fruit and vegetable consumption were added using the MHBI stems. Cronbach's alpha was found to be .84 for the MHBI-Nutrition at baseline, and the alpha level was .83 for MHBI-Nutrition Intentions.

Exercise.

The Multidimensional Health Behavior Inventory (MHBI; Kulbok et al., 1999; see Appendix N) Exercise subscale was utilized to assess exercise intentions and behaviors. The MHBI-Exercise subscale consists of four items on the same five-point Likert scale described above for the MHBI-Diet subscale. Items assess frequency of physical activity such as vigorous exercise for at least 20 minutes a day, three times a

week. Kulbok et al. (1999) demonstrated the scale has acceptable internal consistency (Cronbach's alpha=.80) and content and convergent validity. Test-retest reliability was not assessed. Directions were changed as illustrated above to assess usual and intended exercise behavior. Cronbach's alpha was .89 in this sample for usual exercise behavior, and alpha was .85 for intended exercise behavior, indicating that both measures had good reliability.

Study credibility and video message rating form.

A modified version of the Message Rating Form (Sperry et al., 2004; see Appendix G) was created to assess the extent to which the video messages were heard, easy to understand, applicable, and influential. A general question about the credibility of the consumer study cover story was included. All items were rated on a five-point Likert scale ranging from "Definitely Disagree" to "Definitely Agree." The Study Credibility and Video Message Rating Form was used during pilot testing, and results indicated that all subjects endorsed the credibility of the cover story and felt that media messages were easily heard and comprehended. Within the primary study sample, a very low alpha was obtained for the Video Message Rating Form (Cronbach's alpha=.50). The items on the form addressed very different concerns (credibility of cover story, understanding messages, hearing messages, influence and application of messages to the participant's life) and therefore, did not correlate highly with each other. Upon closer inspection of mean responses to each item, subjects found the cover story credible (M=4.15, SD=.83), the video easy to understand (M=4.69, SD=5.72), and the video easy to hear (M=4.85, SD=.47).

State Appearance Comparison Scale.

The State Appearance Comparison Scale (see Appendix O) is a 3-item scale designed to index comparison prompted by exposure to the experimental manipulation. The scale 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). The scale consists of three items, and it assesses two constructs: 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. In 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 following exposure to fat stigmatization commentary). 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 fat commentary target in the video. They were also asked to indicate the extent to which they compared specific body parts to the fat commentary targets' 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). The state measure of appearance schema activation and social

comparison (SACS) was administered after the post-test mood and body image measures. Cronbach's alpha for the measure in this sample was .80, indicating good reliability; however, social comparison items were more highly correlated to each other than either social comparison item was to the appearance schema activation item.

Appearance-Related teasing.

The Physical Appearance-Related Teasing Scale (PARTS; see Appendix P, Thompson, Fabian, Moulton, Dunn, & Altabe, 1991) 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). Within the sample, the PARTS-Weight/Size Teasing subscale demonstrated excellent internal consistency (Cronbach's alpha=.92).

Cookie taste test rating form.

A modified version of the Message Rating Form (Sperry et al., 2004; see Appendix Q) with questions about cookie evaluation was created to promote the face validity of the consumer study. All items were rated on a five-point Likert scale ranging from "Definitely Disagree" to "Definitely Agree." In one sample item from the scale, participants were asked to rate their agreement with the statement, "The cookies were fresh, without any staleness." Internal consistency of the cookie evaluation scale was rather poor (Cronbach's alpha=.67).

Interpersonal Reactivity Index.

The Interpersonal Reactivity Index (IRI; see Appendix R, Davis, 1980) is a 28-item measure that assesses dispositional empathy. The IRI assesses both cognitive and affective components of empathy, and consists of Perspective Taking, Empathic Concern, Personal Distress, and Fantasy subscales. Subjects report degree of agreement using a 5 point agreement/disagreement Likert scale. The IRI has demonstrated sound internal consistency (Cronbach's alpha = .70-.78 for each subscale). The IRI has also demonstrated test-retest reliability (.62-.81 across subscales) with college student samples, and findings demonstrate convergent validity with the emotional empathy research literature. Within the current sample, the Empathic Concern subscale was utilized to ensure trait empathy was evenly distributed across groups at baseline; Cronbach's alpha was .74, indicating adequate reliability.

State Hunger Scale.

The State Hunger Scale (SHS; see Appendix M, Himes, 2008) is a 7-item measure that assesses which meals were consumed for the day, whether less food than usual has been consumed for the day, and includes 2 10-point scales that assess clinical ratings of hunger before and after the experiment. Cronbach's alpha was poor (alpha=.47); however, items assessing meals consumed decreased the alpha level of the scale, with the 2 clinical hunger ratings highly correlated, and items assessing skipped meals and eating less than usual were somewhat correlated with hunger levels. A clinical rating of hunger level pre-experiment was used as a co-variate for the dependent variable cookie consumption.

Procedure

Participants enrolled in the primary study through the USF Experiment Trak system. Eligible participants completed demographic information and trait measures (SATAQ-3, EDI-BD, PANAS-X, EDI-DT, PARTS, Dutch Restraint Scale, EDE-Q, IRI) online. Participants then enrolled in a complementary laboratory study, and were assigned to one of four conditions: fat stigmatization-negative interaction experimental condition, fat stigmatization-comedy experimental condition, control stigmatization-negative interaction condition, and control comedy condition. Although the experimenter was blind to subject characteristics prior to condition assignment, assignment to conditions was not numerically randomized. Each day, subjects that arrived were assigned to a condition based on a pre-assigned order (ex. 1,2,3,4 day one; 3,4,1,2 day two) so that all four conditions would be presented each day. Each of the 4 conditions were run daily in different orders to ensure that cells had equal numbers of participants and that condition would not be confounded with time.

Participants were individually tested in a clinic observation room. The testing room was located in the USF Psychological Services Center, and the primary investigator was able to observe subject responses and food consumption behaviors through a two-way mirror. After greeting research subjects, participants were told that the primary study was a consumer behavior study examining "the relationship between mood, personality characteristics, health behaviors, and the evaluation of media and food products." The participants first completed full informed consent procedures**.** Afterwards, the subjects completed pre-test state assessment measures (VAS, PANAS-X.) Immediately after completion of the pre-test measures, participants watched the experimental or control

stimuli videos and filled out media evaluation ratings (Media Rating Form) during the viewing process. Subjects then completed the post-test measures (VAS, PANAS-X.) After measuring state body dissatisfaction and state negative affect, mediational measures were administered (Modified SATAQ-3 Media Pressures Scale, State Appearance Comparison Scale.) Subjects were then informed that their "ratings of media material provide feedback about their likely media consumption." Then subjects were told, "The second product we'll need you to test is a brand of mini-chocolate chip cookies. Take your time and taste as many as you need to make a decision about the desirability and quality of the cookies." During the taste test, the primary investigator viewed participants through a two-way mirror. The investigator a) recorded latency of time before initial tasting b) noted whether participants complied (actually tasted the cookies) and c) noted whether participants absconded with cookies for future eating (as opposed to lab room tasting.) After the taste test, a Cookie Taste Test Rating Form was administered for study face validity. Following completion of the taste test and cookie ratings, participants handed in their completed rating form. Participants were told that "people who like to do certain health activities seem to like some foods more than other types of foods" and therefore, participants were asked to complete questionnaires that asked them about their future health behaviors. At that time, measures assessing dieting and health-related intentions were administered (EDE-Q Unhealthy Weight Control Method Intentions, Dutch Restraint Scale-Intentions to Diet, and MHBI Intentions Scale.) Afterwards, participants were told that "sometimes, hunger can affect whether you like certain foods or how much you like certain foods;" they were then given the State Hunger Scale to complete. Subjects were debriefed, and then completed a short Study Credibility

and Video Message Rating Form to assess the extent to which media was clear, understood, influential, and whether the cover story of the consumer study was credible. After completing the form, participants were asked whether they had guessed the study hypotheses, and were asked about food allergies and other conditions that could have affected food consumption (religious fasting, dislike of sweets, new braces/tongue ring.) Once participants left the room, the total number of cookies consumed were calculated and recorded. Participants were automatically credited with points for completing online trait measures, and were awarded additional points following completion of the experimental lab study.

Design and Analyses

Preliminary analyses were conducted to test for any initial differences among the conditions on demographic variables and baseline trait levels of body dissatisfaction (EDI-BD), thin-ideal internalization (SATAQ-3), perceived pressure to be thin (SATAQ-3), drive for thinness (EDI-DT), healthy eating behaviors (MHBI), exercise behaviors (MHBI), negative affect (PANAS-X), history of teasing (PARTS), dispositional empathy (IRI), dieting (Dutch Restraint Scale), eating disturbance symptoms (EDE-Q), and pre-test state body dissatisfaction (VAS) and negative affect (PANAS-X). 1 x 4 ANOVAs were conducted for each continuous variable, and χ^2 was used to compare categorical variables. If groups were found to differ on any variable, the trait measure from that variable was used in subsequent tests as a covariate. Differences among ratings in the cover story credibility and accessibility of the video message (MRF) were analyzed in separate one-way ANOVAs.

Hypothesis 1 stated that individuals in the fat stigmatization media exposure conditions would have higher levels of state negative affect (PANAS-X), higher levels of state body dissatisfaction (VAS), would feel more pressure to lose weight (SATAQ-3 Modified Pressures subscale), and would eat more mini-chocolate chip cookies (engage in unrestrained eating) or less mini-chocolate chip cookies (restraint) than participants in the control conditions. A series of 2 x 2 MANCOVAs (fat condition: fat stigmatization media, no fat media) X (comedy condition: comedy, no comedy) procedures were performed for mood measures and body image measures separately to examine differences between group centroids and mean vectors, with baseline and pre-test state mood and body image scores entered as co-variates to control for pre-test levels of state body dissatisfaction and negative affect. Since some dependent measures of mood and body image were uncorrelated, ANCOVAs were employed for dependent variables administered pre-test and post-test (VAS and PANAS-X variables), with BMI, trait baseline, and pre-test state mood or pre-test state body image entered as co-variates.

2 x 2 ANCOVAs (fat condition: fat stigmatization media, no fat media) X (comedy condition: comedy, no comedy) were computed for the dependent variables administered at post-test only (modified SATAQ-3 perceived pressure to be thin subscale, intentions measures, and the number/amount of cookies consumed.) SATAQ-3 Trait Perceived Pressure and BMI were entered into the video state SATAQ-3 perceived pressure ANCOVA as co-variates, and hunger level at the beginning of the study, shape and weight concerns, compensatory behaviors, negative affect at post-test, BMI, ideal weight discrepancy, and history of weight teasing were entered as covariates into the ANCOVA for cookie consumption. Unhealthy weight control intentions (EDE-Q-

Intentions), dieting intentions (Dutch Restraint Scale-Intentions), and intentions to eat healthy and engage in healthy exercise (MHBI) were evaluated in a series of 2 x2 ANCOVAs, with baseline levels of each and BMI entered as co-variates. When ANCOVAs were computed, a modified Bonferoni correction was employed to control for familywise Type 1 error.

To examine moderator effects, ANCOVAs were used. Hypothesis 2 stated that level of bulimic symptoms, BMI, discrepancy between current and ideal weight, and a history of weight-related teasing would moderate changes in state body dissatisfaction (VAS) and state negative affect (PANAS-X). Additionally, these trait measures could moderate perceived pressure to lose weight (SATAQ-3 Modified Pressures subscale), and mini-chocolate chip cookie consumption. In order to establish moderator effects, there must be a significant interaction between the moderator and the independent variable (fat message exposure). Therefore, each potential moderator was entered into an ANCOVA to assess whether there were interaction effects.

Hypothesis 3 stated that exposure to media messages in the fat stigmatization experimental conditions would lead to significant post-test differences in perceived pressure to lose weight; the experimental conditions would elicit greater pressure to lose weight than the control conditions. To test Hypothesis 3, a 2 x 2 ANCOVA was computed on the modified SATAQ-3 pressures scale with the baseline SATAQ-3 Pressures scale and BMI used as covariates.

To examine mediator effects, the Preacher bootstrap method was used. Hypothesis 4 stated that pressure to be thin specific to the video (Modified SATAQ-3-Pressures Subscale), an ideal-weight discrepancy (Wtdiscrep), activation of thinking

about one's appearance (SACS question 1), and state appearance comparison (State Appearance Comparison Scale) would mediate the relationship between fat media exposure and affective/body shape outcome variables (body dissatisfaction (VAS) and state negative affect (PANAS-X).) Furthermore, negative affect would serve as a mediator between fat message exposure and number of cookies consumed, with higher negative affect associated with higher cookie consumption. Mediators were analyzed by using bootstrap macros in SPSS.

Hypothesis 5 was tested by examining whether negative affect elicited binge behaviors and preceded increased cookie consumption (tested in the mediational analysis of Hypothesis 4), and examining whether social comparison mediated body image disturbance and negative affect (tested in the mediational analysis of Hypothesis 4). There was a planned examination of whether high DRS trait restraint was violated by affective disturbance and was associated with higher cookie consumption. If abstinence violation had occurred and a binge ensued with a sizeable sample, the cognitive restraint model would have been tested with a planned regression analysis for restraint and negative affect at time 2 predicting binge.

Skewness and kurtosis values were examined for all outcome variables. Box-plots were created to examine the presence of outliers. Pearson product Moment correlations were computed for all dependent variables. The modified Bonferroni procedure was used on all comparisons to control for Type 1 error, while having a higher degree of statistical power than the traditional very conservative Bonferroni correction (Kromrey & Dickinson, 1995; Simes, 1986). All analyses were performed using SPSS 15.0, SPSS 16.0, and SPSS 17.0.

Chapter 3

Results

Preliminary Analyses

A total of 197 participants were included in the final analyses for all dependent variables with the exception of number of cookies consumed. Cookie consumption was affected by some extraneous subject variables (religious fasting, allergy to nuts or gluten, new tongue ring, etc.). Extraneous variables were identified in interviews after the study, and were recorded in participant records and within the electronic data set. A total of 17 participants had extraneous variables that were identified; therefore, a sample of 181 participants was used to calculate cookie consumption. Participants with extraneous variables were distributed across all conditions, and no condition had significant differences in the proportion of participants with extraneous variables χ^2 (24, N=197) =19.99, p>.05.

Chi-square tests were utilized to examine demographic differences across conditions at pre-test. No significant differences were found among conditions for race, χ^2 (21, N=196) =22.86, p>.05, year in school χ^2 (12, N=197) =9.10, p>.05, or national origin χ^2 (63, N=197) =60.24, p>.05. Although participants with eating disturbances were spread throughout the conditions, a disproportionate number of individuals with AN symptoms were located in both control conditions χ^2 (3, N=197) =5.99, p<.05, and individuals with BED were disproportionately located in the Fat Comedy and Control Comedy conditions χ^2 (3, N=197) =11.51, p<.01. Participants with BN were distributed

almost equally across conditions χ^2 (3, *N*=197) =.92, p>.05. Even though no significant differences were found among conditions for weight status χ^2 (9, *N*=190) =11.84, p>.05, more overweight subjects were located in Fat Stigmatization and Control Comedy conditions, and more obese subjects were located in Fat Comedy and Control Stigmatization conditions.

A series of one-way ANOVAs confirmed there were no significant differences among conditions on age, *F*(3,193)=.91, p>.05 or BMI, *F*(3,192)=.77, p>.05. Separate one-way ANOVAs on each pre-test trait and state variable indicated no significant differences among the conditions on body image or eating disorder measures. However, significant differences for state pre-test negative affect were found, both on the PANAS-X Negative Affect Time 1 *F*(3,193)=4.51, p<.01, and on a series of other state pre-test VAS negative mood variables (anxiety, anger.) Follow-up post-hoc Tukey HSD tests revealed a significant difference between the Fat Stigmatization-Negative Interaction and the Fat Stigmatization-Comedy conditions, with the negative interaction condition having high levels of pre-manipulation negative affect and the fat comedy condition exhibiting lower levels of pre-manipulation negative affect. Baseline negative affect scores, pre-test negative affect scores, and pre-test specific negative mood variable scores were used as covariates throughout the mood analyses.

The Modified Study Credibility and Message Rating Form items were analyzed separately in one-way ANOVAs to explore a) whether the quality of the message and the study cover story were endorsed by the sample and b) to assess differences in message perception and study credibility among conditions. The MRF items assessed whether the consumer cover story was credible, and whether video messages were easy to understand,

easy to hear, influential, and applicable. A significant difference was found between 2 conditions for cover story credibility, $F(3,193)=4.32$, $p<.02$, with the Tukey HSD post-hoc test revealing that the Fat Stigmatization-Negative Interaction condition (M=3.9) perceived the credibility of the cover story significantly lower than the Control-Stigmatization condition (M=4.4). However, a correlation between cookie consumption and study credibility indicated there was no significant relationship between perceived study credibility and amount of cookies consumed (r=.009, p=.897). Subsequent analyses in which subjects with a mean score of 2 or below for study credibility were removed from the data and analyses re-run revealed that perceptions of study credibility had no effect on significant results. Aside from study credibility, examination of the mean values for each item by condition (see Table 2) indicated similar responses across conditions for the media messages items. Overall mean responses indicated that the majority of the sample found the consumer cover story credible (M=4.15), the media messages easy to understand (M=4.69) and easy to hear (M=4.85), though they did not perceive the media messages to be influential (M=2.43) nor applicable (M=2.82) to them.

Table 2

Means and Standard Deviations for Message Rating Form Items by Condition

	Fat Stigmatization-Negative Interaction	*Fat Stigmatization-Comedy Condition*	*Control Stigmatization Condition*	*Control Comedy Condition*
Study Credible	3.90 (.89)$_a$	4.00 (.93)	4.40 (.63)$_a$	4.31 (.74)
Easy to Understand	4.80 (.49)	4.67 (.62)	4.52 (.64)	4.78 (.46)
Easy to Hear	4.94 (.24)	4.82 (.52)	4.78 (.64)	4.86 (.35)
Applicable	2.76 (1.21)	2.90 (1.19)	2.64 (1.19)	2.98 (1.14)
Influential	2.69 (1.15)	2.49 (1.06)	2.20 (1.06)	2.35 (1.09)

Note. Letter subscripts indicate significant differences across conditions.

Correlations among the baseline trait variables completed online and the pre-test state measures were examined. The correlation between trait negative affect and state negative affect was high (r=.40), and the correlations among measures of eating disturbance, body dissatisfaction, and internalization was very high (r's ranging from .39 to .82). The correlations between measures of mood and body dissatisfaction and eating disturbance were inconsistent; correlations between trait negative affect and eating disturbance indices were modest. Correlations between state negative affect and eating disturbance were not statistically supported, with the exception of a small correlation for perceived pressure to be thin (r=.17). Findings are consistent with previous research, which suggest that the mood and eating disturbance variables often co-occur, but are modestly correlated.

The correlations between the baseline trait variables completed online and the post-test variables (body dissatisfaction, pressure to be thin, negative affect) were

reviewed for each dependent variable. All of the correlations were statistically significant with an alpha level of $p<.01$. The relationships between trait body dissatisfaction and post-test state body dissatisfaction ($r=.70$), between trait pressure to be thin and state pressure to be thin ($r=.42$), and between trait negative affect and post-test negative affect ($r=.42$) were fairly robust. The correlation between trait negative affect and other PANAS negative mood scales assessed during post-test (Hostility subscale, Fear subscale, Guilt subscale, Sadness subscale) was also considerable, ranging from .32-.39. Furthermore, the correlations between VAS state measures of negative mood (Anxiety, Anger) and trait negative affect were modest (ranging from .24-.34). Because of the robust correlations between baseline and post-test scores, and because some conditions had significantly higher levels of negative affect present at pre-test, the baseline scores were included as co-variates in analyses. The primary purpose of using these co-variates is to reduce within-group error variance and increase the power to detect the effect of the independent variable, as well as to equalize the conditions on pre-existing trait variables.

Finally, all of the dependent variables were correlated with one another to examine the strength of the relationships among them. Body dissatisfaction measures were highly correlated with one another (r's ranging from .90-.97), and mood measures were highly correlated with one another (r's ranging from .33-.80). However, some mood variables were significantly and robustly correlated with body image and perceived pressure to be thin measures, while other mood indicators displayed no significant correlations. Because correlations were robust and consistent within construct (mood vs. body dissatisfaction), but inconsistent in strength between constructs, 2 separate MANCOVAs (one for mood, and one for body dissatisfaction) were conducted. Since

some dependent variables were uncorrelated, separate ANCOVAs were performed as a follow-up after MANCOVA analyses.

Before conducting analyses, the data were analyzed for violations of normality. Each dependent variable was examined for outliers, skewness, and kurtosis. Boxplots were created to visually inspect outliers for each dependent variable. Frequency distributions, skewness and kurtosis values, standard error of skewness and kurtosis values, and bar graphs were created to examine whether the data violated normality assumptions. Outliers were present for mood dependent variables, state pressure to be thin, and cookie consumption. There were no outliers for body dissatisfaction dependent variables. Outliers that were more than 3 standard deviations above the mean were identified; an average of 5-6 outliers was present for each DV (N=197.) Analyses were conducted with and without the outliers present. Skewness and kurtosis were calculated with a formula (skewness value/stand. error of skewness ≤ 3.33; kurtosis value/stand. error of kurtosis ≤ 3.33). All DVs had skewness and kurtosis, with the exception of the body image dependent variables. To address the significant skewness and kurtosis, log transformations were used. Because data in a log transformation must remain above 1 (or the data will be undefined), a constant of 1 was added to all variables that included a response of zero or less than 1 (VAS anxiety, anger, cookie consumption.) Analyses were conducted with raw data for body image dependent variables; analyses were conducted with both raw data and transformed data for all other dependent variables.

Planned MANCOVA and ANCOVA analyses

2 x 2 MANCOVAs.

Two separate sets of MANCOVAs were computed to examine post-test differences in mood and body image disturbance, with baseline covariates and BMI entered into the equation to control for pre-test differences. Because body image disturbance data contained no outliers, no skewness, and no kurtosis, body image data was computed with one raw data MANCOVA. Within the MANCOVA, trait body dissatisfaction, weight dissatisfaction and shape dissatisfaction at pre-test, and BMI were entered as covariates. However, mood data had significant outliers, skewness, and kurtosis; therefore, mood data MANCOVAs were computed with outliers raw, without outliers raw, with outliers transformed, and without outliers transformed. Within the MANCOVA, trait negative affect, state negative affect at pre-test, and BMI were entered as covariates. All MANCOVA covariate adjusted means and significance test results are displayed in Table 3.

There were no significant main effects found for differences in state body dissatisfaction, although there was a directional trend toward increased dissatisfaction for participants exposed to fat messages (Λ=.97, F=2.616[a], p<.07). Follow-up contrast results indicated that the trend toward significance was driven by dissatisfaction with body shape (F=2.9, p<.09). Covariate adjusted means indicate that dissatisfaction with body shape (M=3.6 [a]) is higher for those exposed to fat messages than for those exposed to the control conditions (M=3.3 [a]). Both Boxes M test of covariance matrices and Levene's test of error variances were not significant, indicating that error was not significantly different across matrices or groups.

Four mood MANCOVAs were computed (raw, raw with outliers removed, log transformed, log transformed with outliers removed), with similar results. Raw results are reported. There were no significant fat exposure main effects found for differences in overall mood across conditions (Λ=.94, F=1.606[a], p=.136). However, specific subtypes of negative mood (guilt, negative affect) were significantly different across groups. Covariate adjusted means indicate that guilt (M=7.9 [a]) is significantly higher for those exposed to fat media messages than for those exposed to control conditions (M=7.2 [a]). Covariate adjusted means indicate that negative affect (M=12.0[a]) is significantly higher for those exposed to fat media messages than for those exposed to control conditions (M=11.5 [a]). There was a significant main effect found for exposure to comedy, with comedy conditions eliciting lower negative mood (Λ=.92, F=2.42, p=.02). There were no significant interaction effects. Both Boxes M test of covariance matrices and Levene's test of error variances were significant, indicating that error was significantly different across matrices and groups.

Table 3

Covariate adjusted means, standard deviations, Λ, F, P, and partial n² values for planned MANCOVAs

MANCOVAs	*Fat Negative Adjusted M SE*	*Fat Comedy Adjusted M SE*	*Control Negative Adjusted M SE*	*Control Comedy Adjusted M SE*	*Λ, p, partial n²*
Body Image					
Body Shape Dissatisfaction	3.6 (.21)	3.7 (.21)	3.3 (.21)	3.2 (.21)	
Body Weight Dissatisfaction	3.4 (.19)	3.5 (.19)	3.5 (.19)	3.5 (.19)	
Body Dissatisfaction					Fat Expo Λ=.97, F=2.6, p<.07, partial n²=.027 Comedy Λ=.99, F=.13, p=.87, partial n²=.001 Fat E x C Λ=.99, F=.29, p=.74, partial n²=.003
Mood					
Negative Affect	12.2 (.24)	11.8 (.24)	11.7 (.24)	11.4 (.24)	
Fear	6.8 (.17)	6.8 (.17)	6.8 (.16)	6.8 (.16)	
Hostility	7.6 (.20)	6.8 20)	7.0 (.20)	6.6 (.20)	
Guilt	8.2 (.30)	7.5 (.30)	7.4 (.29)	7.0 (.29)	
Sadness	6.7 (.27)	6.2 (.27)	6.3 (.26)	6.0 (.26)	
Anxiety	2.8 (.25)	2.5 (.25)	2.9 (.24)	2.5 (.24)	
Anger	2.6 (.19)	1.9 (.18)	2.1 (.18)	1.7 (.18)	
Overall Negative Mood					Fat Expo Λ=.94, F=1.606, p=.136, partial n²=.06 Comedy Λ=.92, F=2.42, p=.02, partial n²=.09* Fat E x C Λ=.98, F=.41, p=.89, partial n²=.02

Note. Fat Expo: Fat Message Exposure Main Effect; Comedy: Comedy Exposure Main Effect; Fat E X C: Fat Exposure x Comedy Exposure Interaction Effect
*p<.05
**p<.01

2 x 2 ANCOVAs.

Because MANCOVAs were not significant for fat exposure main effects, but demonstrated significant findings for particular dependent variables, all dependent variables were subjected to additional individual analyses. 2 x 2 ANCOVAs were computed for each variable, controlling for baseline, pre-test, and BMI variables. ANCOVAs for body dissatisfaction were analyzed with raw data, since the data had no outliers, no skewness, and no kurtosis. Since all other variables demonstrated outliers, skewness, and kurtosis, the data was analyzed using ANCOVA with four data sets (raw data, raw data without outliers, transformed data, transformed data without outliers.) See Table 4 for all ANCOVAs.

The 2 x 2 ANCOVA for body shape dissatisfaction had BMI, body shape dissatisfaction pre-test, and trait body dissatisfaction entered into the equation as covariates. There were no significant main effects or interactions. There was a slight trend toward increased body shape dissatisfaction for those participants exposed to fat messages (M=3.66 [a]) versus non-fat messages (M=3.32 [a]). For the body weight dissatisfaction ANCOVA, BMI, body weight dissatisfaction pre-test, and trait body dissatisfaction were included as covariates. Again, there were no significant main effects or interactions.

For the mood variable of negative affect, covariates were BMI, trait negative affect, and negative affect at pre-test. There was a significant main effect found for fat message exposure, $F(1,197)=3.78$, $p=.05$, partial $n^2=.02$; the fat message conditions had a higher level of negative affect (M=12 [a]) than the two control conditions (M=11.55 [a]). When the results are re-run with outliers removed, with log transformations, and with log

transformations with outliers removed, the above results remain robust. The dependent variable guilt was entered into a 2 x 2 ANCOVA, with co-variates BMI, trait negative affect, pre-test negative affect, and pre-test guilt. There was a significant main effect found for fat message exposure, $F(1,197)=8.9$, $p=.003$, partial $n^2=.05$; this effect was robust across methods of ANCOVA computation (outliers, log transformed, log transformed minus outliers.) A 2 x 2 ANCOVA was computed for the dependent variable anger, with BMI, trait negative affect, pre-test negative affect, and pre-test anger as co-variates. There was a significant main effect for fat message exposure $F(1,197)=4.11$, $p=.04$, partial $n^2=.02$; this finding was supported using all other methods of ANCOVA computation (outliers removed, log transformed, log transformed with outliers removed). Both guilt and anger were higher for participants exposed to fat messages. There were significant main effects found for comedy exposure on the dependent variables hostility $F(1,197)=10.2$, $p=.002$, partial $n^2=.05$, sadness $F(1,197)=10.1$, $p=.002$, partial $n^2=.05$, guilt $F(1,197)=3.8$, $p=.05$, partial $n^2=.02$, and anger $F(1,197)=15.9$, $p=.000$, partial $n^2=.08$. These negative mood variables were lower for participants exposed to comedy conditions as opposed to the negative interaction conditions. No other mood variables were significant.

A 2 x 2 ANCOVA was computed for the dependent variable perceived video pressure to lose weight. Co-variates entered into the ANCOVA equation were trait SATAQ pressure (perceived pressure to lose weight) and BMI. There was a significant main effect found for fat message exposure, $F(1,197)=34.14$, $p=.000$, partial $n^2=.152$, and a significant main effect for the co-variate BMI $F(1,197)=7.17$, $p=.008$, partial $n^2=.036$. There was also a significant interaction effect for fat comedy message exposure,

$F(1,197)=4.72$, $p=.03$, partial $n^2=.024$. Participants exposed to fat stigmatization messages or fat comedy messages experienced more perceived pressure to lose weight. The results were robust across computation methods.

A 2 x 2 ANCOVA was computed for the dependent variable number of cookies consumed. Compromised data due to subject error was removed (subjects acknowledged allergies to chocolate or gluten, fasting for religious reasons, new braces or tongue rings that made eating painful), with a slightly smaller sample remaining (N=181). Co-variates entered into the equation include BMI, ideal weight discrepancy, state negative affect post-test, eating concerns about body shape and body weight, eating compensatory behaviors, history of weight teasing, and state hunger levels. There was a significant main effect found for fat message exposure, $F(1,181)=4.58$, $p=.03$, partial $n^2=.026$. Participants exposed to fat messages consumed significantly fewer cookies. There were also significant main effects for 3 co-variates: eating weight and shape concerns, $F(1,181)=7.40$, $p=.007$, partial $n^2=.042$, negative affect at post-test after the video, $F(1,181)=4.43$, $p=.037$, partial $n^2=.026$, and state levels of hunger, $F(1,181)=16.71$, $p=.000$, partial $n^2=.09$. Additional ANCOVA computation methods solidified support for the significant main effect of fat exposure, and for significant main effects for co-variates eating and shape concerns and state hunger.

Some measures that assessed future intentions rather than current behaviors were examined using 2 x 2 ANCOVAs; none were significant (see Table 4 continued). A 2 x 2 ANCOVA was computed for the dependent variable intentions to engage in healthy nutrition behaviors. Co-variates entered into the ANCOVA equation were trait MHBI Healthy Nutrition, EDESW and EDE Comp (eating disorder shape and weight concerns

and compensatory behaviors), and BMI. There were no significant main effects found for fat message exposure, $F(1,197)=0.0$, $p=.945$, partial $n^2=.000$, though there was a significant main effect for the co-variate BMI $F(1,197)=5.09$, $p=.02$, partial $n^2=.026$. A 2 x 2 ANCOVA was computed for the dependent variable intentions to engage in exercise behaviors. Co-variates entered into the ANCOVA equation were trait MHBI Healthy Exercise Behaviors, EDESW and EDE Comp (eating disorder shape and weight concerns and compensatory behaviors), and BMI. There were no significant main effects found for fat message exposure $F(1,197)=0.897$, $p=.345$, partial $n^2=.005$. A 2 x 2 ANCOVA was computed for the dependent variable restraint intentions (DRS-QI). Co-variates entered into the equation were DRS-Q Trait, EDESW and EDE Comp (eating disorder shape and weight concerns and compensatory behaviors), and BMI. There were no significant main effects for fat message exposure $F(1,197)=0.202$, $p=.653$, partial $n^2=.001$. Finally, a 2 x 2 ANCOVA was computed for the dependent variable eating disorder compensatory behavior intentions (EDE-Q Intentions). Co-variates entered into the equation include EDESW and EDE Comp (eating disorder shape and weight concerns and compensatory behaviors), and BMI. There were no significant main effects for fat message exposure $F(1,197)=0.004$, $p=.952$, partial $n^2=.000$.

There was some concern that ANCOVAs may be significant due to the clinically eating disordered sample subset within the larger undergraduate sample. All individuals meeting criteria for an eating disorder (N=31) (based on the EDE-Q) were removed and analyses were re-run with the raw data. There were two discrepancies that occurred when examining the non-clinical sub-sample. First, there was a significant main effect found for fat message exposure on body shape dissatisfaction in the non-clinical sub-

sample, F (1,166)=4.03, p=.046, partial n^2=.025. Second, the main effect that had been found for fat message exposure on negative affect evaporated F (1, 166) = 1.31, p=.25, partial n^2=.008. Similar to original findings, there was a significant main effect for Fat Message Exposure on Guilt F(1, 166) = 3.86, p=.05, partial n^2=.024 and a significant interaction effect for the Fat x Comedy exposure on Guilt F (1, 166) = 3.81, p=.05, partial n^2=.023. Consistent with original findings, there was a significant main effect for Fat Message Exposure on Anger F(1, 166) = 3.8, p=.05, partial n^2=.023. All other mood variables and body dissatisfaction variables were not significant. In terms of perceived video pressure to lose weight, both fat message exposure F (1, 166) = 28.98, p=.000, partial n^2=.153. and fat x comedy message exposure F (1, 166) = 7.4, p=.007, partial n^2=.044 were significant main and interaction effects, which matched findings in the primary sample. For cookie consumption, primary findings were upheld in that there was a significant main effect for fat message exposure F (1, 166) = 6.56, p=.011, partial n^2=.043. These findings suggest that the clinical eating disorder subgroups are not entirely responsible for significant findings in the study data.

Due to the large number of ANCOVA analyses conducted, a modified Bonferroni correction procedure was utilized to reduce the likelihood of a Type I error while maintaining a higher degree of statistical power than the traditional, more conservative Bonferroni correction (Kromrey & Dickinson, 1995; Simes, 1986). The application of the approach is .10/ total number of ANCOVA analyses conducted (15), which resulted in a new significance level of .006. Using this more conservative criteria, most of the ANCOVA results would not be considered significant. However, main effects for fat message exposure on guilt and pressure and to be thin would remain supported.

Table 4

Covariate adjusted means, standard deviations, F, P, and partial n² values for planned ANCOVAs

ANCOVAs	*Fat Negative Adjusted M SE*	*Fat Comedy Adjusted M SE*	*Control Negative Adjusted M SE*	*Control Comedy Adjusted M SE* *F , p, partial n²*
Body Image				
Body Shape Dissatisfaction	3.6 (.23)	3.7 (.23)	3.3 (.22)	3.3 (.22) FE F(1, 197)=2.25, p=.13, partial n²=.012 C F(1, 197)=.001, p=.97, partial n=.012 FxC F(1, 197)=.01, p=.89, partial n=.000
Body Weight Dissatisfaction	3.5 (.20)	3.6 (.20)	3.5 (.20)	3.5 (.20) FE F (1, 197)= .002, p=.96, partial n²=.00 C F(1, 197)=.136, p=.71, partial n=.001 FxC F(1, 197)=.07, p=.79, partial n=.000
Mood				
Negative Affect	12.2 (.24)	11.8 (.24)	11.7 (.24)	11.4 (.24) FE F(1, 197)= 3.78, p=.05, partial n²=.02***** C F(1, 197)=3.03, p=.08, partial n=.016 FxC F(1, 197)=.01, p=.91, partial n=.000
Fear	6.8 (.15)	6.8 (.15)	6.7 (.15)	6.8 (.15) FE F(1, 197)= 0.15, p=.69, partial n²=.001 C F(1, 197)=0.08, p=.77, partial n=.000 FxC F(1, 197)=0.01, p=.89, partial n=.000
Hostility	7.4 (.16)	6.8 (.16)	7.1 (.16)	6.7 (.16) FE F(1, 197)= 1.9, p=.17, partial n²=.01 C F(1, 197)=10.2, p=.002,partial n=.05****** FxC F(1, 197)=.02, p=.88, partial n=.000
Guilt	7.9 (.19)	7.7 (.19)	7.5 (.18)	7.0 (.18) FE F(1, 197)= 8.9, p=.003, partial n²=.05****** C F(1, 197)=3.8, p=.05, partial n=.02***** FxC F(1, 197)=.48, p=.480, partial n=.003
Sadness	6.7 (.18)	6.1 (.18)	6.4 (.17)	5.9 (.18) FE F(1, 197)= 2.39, p=.12, partial n²=.013 C F(1, 197)=10.1, p=.002, partial n=.05****** FxC F(1, 197)=.08, p=.77, partial n=.000

(Table Continues)

Table 4 (Continued)

Covariate adjusted means, standard deviations, F, P, and partial n² values for planned ANCOVAs

ANCOVAs	*Fat Negative Adjusted M SE*	*Fat Comedy Adjusted M SE*	*Control Negative Adjusted M SE*	*Control Comedy Adjusted M SE*	*F , p, partial n²*
Anxiety	2.7 (.19)	2.7 (.19)	2.8 (.19)	2.4 (.19)	FE F(1, 197)= 0.29, p=.59, partial n²=.002 C F(1, 197)=0.95, p=.33, partial n=.005 FxC F(1, 197)=.69, p=.40, partial n=.004
Anger	2.6 (.17)	1.9 (.17)	2.3 (.16)	1.6 (.17)	FE F(1, 197)= 4.11, p=.04, partial n²=.02* C F(1, 197)=15.9, p=.00, partial n=.08** FxC F(1, 197)=.05, p=.81, partial n=.000
Video Induced Pressure to be Thin					
Video Pressure To be Thin	12.2 (.60)	10.0 (.60)	7.3 (.60)	7.8 (.60)	FE F(1, 197)= 34.1, p=.00, partial n²=.15** C F(1, 197)=1.93, p=.165, partial n=.010 FxC F(1, 197)=4.72, p=.03, partial n=.02*
Number of Cookies Consumed					
# of Cookies	2.3 (.31)	2.4 (.30)	2.9 (.30)	3.1 (.30)	FE F(1, 181)= 4.5, p=.034, partial n²=.026* C F(1, 181)=.27, p=.602, partial n=.002 FxC F(1, 181)=.000, p=.98, partial n=.000

(Table Continues)

Table 4 (Continued)

Covariate adjusted means, standard deviations, F, P, and partial n² values for planned ANCOVAs

ANCOVAs	*Fat Negative Adjusted M SE*	*Fat Comedy Adjusted M SE*	*Control Negative Adjusted M SE*	*Control Comedy Adjusted M SE*	*F , p, partial n²*
Intentions					
Healthy Nutrition	41.3 (.72)	39.5 (.72)	40.0 (.71)	40.6 (.72)	FE F(1, 197)=0.0, p=.945, partial n²=.000 C F(1, 197)=.68, p=.40, partial n=.004 FxC F(1, 197)=2.6, p=.108, partial n=.014
Healthy Exercise	13.7 (.43)	14.1 (.43)	13.5 (.42)	13.6 (.43)	FE F(1, 197)= 0.89, p=.345, partial n²=.005 C F(1, 197)=.352, p=.554, partial n=.002 FxC F(1, 197)=.109, p=.74, partial n=.001
Restriction	27.7 (.89)	29.2 (.88)	28.4 (.86)	29.2 (.88)	FE F(1, 197)= 0.20, p=.653, partial n²=.001 C F(1, 197)=1.65, p=.20, partial n=.009 FxC F(1, 197)=.18, p=.67, partial n=.001
Compensatory Behaviors	8.6 (.41)	8.7 (.40)	9.1 (.40)	8.2 (.40)	FE F(1, 197)= 0.00, p=.95, partial n²=.000 C F(1, 197)=1.26, p=.26, partial n=.007 FxC F(1, 197)=1.3, p=.23, partial n=.007

Note. FE: Fat Message Exposure Main Effect; C: Comedy Exposure Main Effect; F X C: Fat Exposure x Comedy Exposure Interaction Effect
*p<.05
**p<.01

Moderator Analyses

To assess whether exposure to fat media messages results in greater negative affect, body dissatisfaction, higher perceived pressure to be thin, and binge behavior among a sub-population of those with current binge behaviors, high BMIs, discrepancy between ideal and current weight, and history of teasing, a series of moderation analyses were computed. All dependent variables were separately entered into 2 x 2 ANCOVA SPSS Custom-Models to see if there were interaction effects between the moderator variable and the factor fat message exposure (see Table 5).

For the dependent variables body weight dissatisfaction, body shape dissatisfaction, and overall body dissatisfaction, there were no significant moderators for fat message exposure. A history of binge eating behavior, a discrepancy between current and ideal weight, and a history of teasing all significantly impacted an individual's body shape satisfaction scores; furthermore, a discrepancy between current and ideal weight, and a history of teasing were significant main effect co-variates that impacted an individual's body weight and overall body dissatisfaction scores.

For the dependent variable perceived video pressure to lose weight, there were no significant interaction effects. However, a discrepancy between current and ideal weight, and a history of teasing both significantly impacted an individual's perceived pressure to lose weight.

For the dependent variable number of cookies consumed, there were no significant interaction effects. However, a discrepancy between current and ideal weight significantly impacted food intake.

Significant moderation effects occurred within the domain of mood dependent variables. There was a significant interaction effect for fat message exposure and the moderator BMI on Negative Affect at post-test Time 2, $F(1, 197) = 3.77$, $p = .05$, partial $n^2 = .021$. Additionally, there was a significant interaction effect for fat message exposure and the moderator history of weight teasing on Negative Affect at post-test Time 2, $F(1, 197) = 4.56$, $p = .03$, partial $n^2 = .025$. There was a significant interaction effect for fat message exposure and the moderator BMI on Hostility at post-test Time 2 , $F(1, 197) = 6.71$, $p = .01$, partial $n^2 = .03$. For the dependent variable Guilt, there was a significant interaction effect for fat message exposure and the moderator history of weight teasing, $F(1, 197) = 7.6$, $p = .006$, partial $n^2 = .042$. With regard to the dependent variable Sadness, there was a significant interaction effect for fat message exposure and the moderator history of weight teasing, $F(1, 197) = 4.2$, $p = .04$, partial $n^2 = .023$. There was a significant interaction effect for fat message exposure and the moderator history of weight teasing for the dependent variable Fear $F(1, 197) = 4.5$, $p = .03$. All mood variable interactions were plotted in graphs. Mood dependent variables and co-variates were consistent; fat message exposure yielded higher scores of distressed mood as BMI increased and as a history of weight related teasing experiences increased.

Table 5

F, P, and partial n² values for
Moderaters between Fat Message Exposure and Dependent Variables

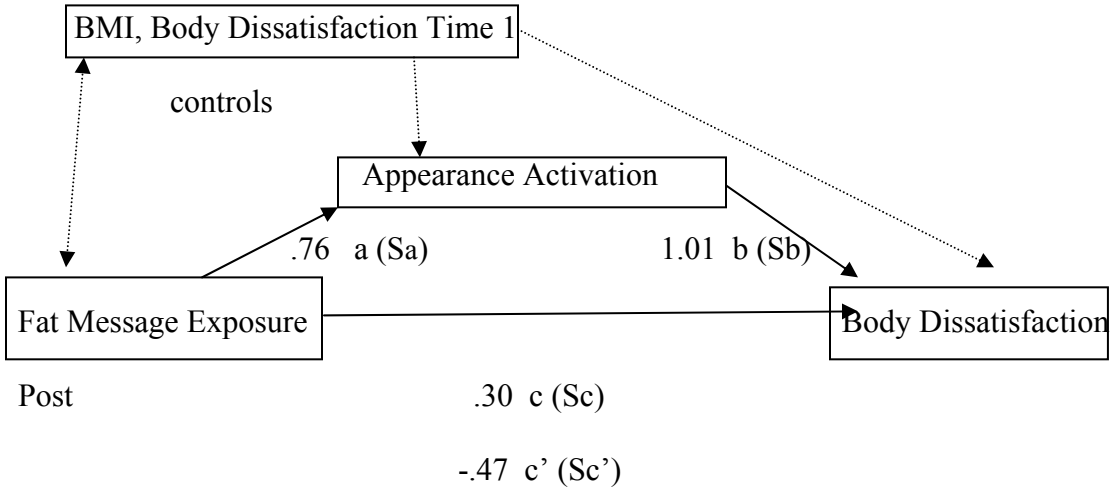
ANCOVAs	*F , p, partial n² values*
Dependent Variables	
Body Shape Dissatisfaction	NONE SIGNIFICANT
Body Weight Dissatisfaction	NONE SIGNIFICANT
Overall Body Dissatisfaction	NONE SIGNIFICANT
Negative Affect	
FAT x BMI	F(1, 197)= 3.77, p=.05, partial n²=.021*
FAT x PARTS	F(1, 197)= 4.56, p=.03, partial n²=.025*
Hostility	
FAT x BMI	F(1, 197)= 6.71, p=.01, partial n²=.03**
Guilt	
FAT x PARTS	F(1, 197)= 7.6, p=.006, partial n²=.042**
Sadness	
FAT x PARTS	F(1, 197)= 4.2, p=.04, partial n²=.023*
Fear	
FAT x PARTS	F(1, 197)= 4.5, p=.03, partial n²=.026*
Pressure to be Thin	NONE SIGNIFICANT
# of Cookies	NONE SIGNFICANT

Note. Fat: Fat Message Exposure; BMI: Body Mass Index; PARTS: History of Weight Teasing
*p<.05
**p<.01

Mediation Analyses

To test empirically supported eating disorder models within the context of the fat media message exposure, a series of mediation models were created and tested. The two primary types of media message exposure (fat media exposure vs. control exposure) were directly compared in the mediation analyses; fat media exposure was coded as "1" and control media exposure was coded as "0". For each mediation test, the covariate BMI and a pre-test covariate were included in the model. To assess the presence of mediation, significance tests were based on a bootstrapped estimate of the indirect effects (product of a and b). This approach was selected because it does not require data normality, has higher power for smaller samples, and has shown reasonable control over the Type 1 error rate. An SPSS Macro was used to create bootstrap estimates based on 5,000 samples with 95% two-tailed bias corrected confidence intervals to control the family-wise error rate for each of the mediator models tested (Preacher & Hayes, 2004; Preacher & Hayes, 2008).

Figure 4 depicts the significant mediation models assessed based on bootstrapped bias corrected confidence intervals of the indirect effects that did not include zero. When examining the effects of various state social appearance comparison mediators on body dissatisfaction and negative affect, it becomes clear that the activation of thinking about self appearance has a significant mediation effect on body dissatisfaction, and total social appearance comparison has a significant mediation effect on body dissatisfaction. Although components and relationships of other eating disorder models were supported, additional mediation effects within the context of exposure to fat media messages were not supported (see Table 6).



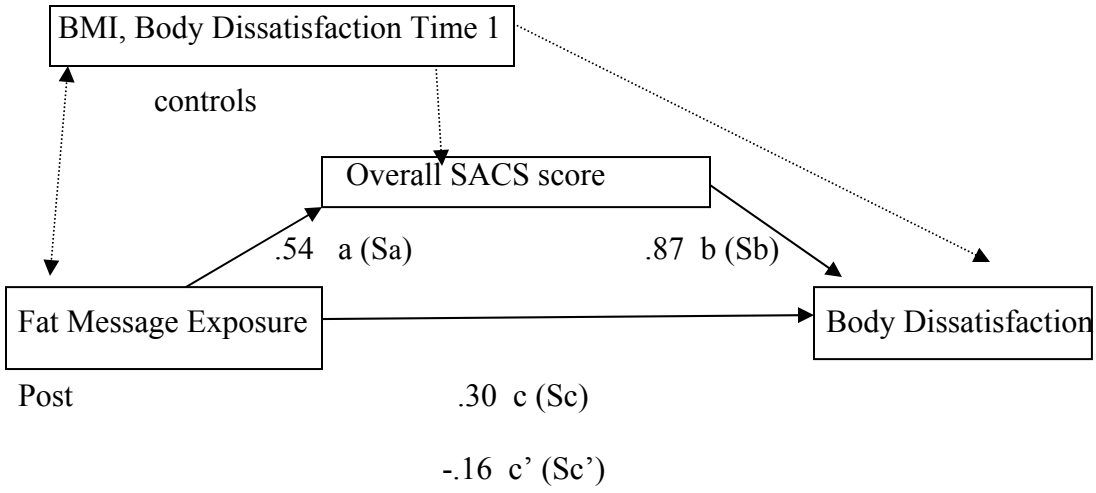


Figure 4. Significant Mediation Models for the Tripartite Model.

Table 6

Mediation Tests between Fat Message Exposure and Dependent Variables

Path Coef. (SE)	*Negative Affect*	*Body Dissatisfaction*
Tripartite Model-Appearance Activation (SACSQ1) as Mediator		
$a(S_a)$	.76 (.22)*	.76 (.22)*
$b(S_b)$	.14 (.14)	1.01 (.23)*
$c(S_c)$	.49 (.43)	.30 (.74)
$c'(S_{c'})$	.38 (.45)	-.47(.73)
ab	.11	.77*
CI(lower, upper)	[-.08,.39]	[.31,1.49]
Tripartite Model-Appearance Comparison (AC) as Mediator		
$a(S_a)$	.42 (.19)*	.42 (.19)*
$b(S_b)$	.12 (.15)	.39 (.27)
$c(S_c)$	.49 (.43)	.30 (.74)
$c'(S_{c'})$	.44 (.44)	.13 (.75)
ab	.05	.16
CI(lower, upper)	[-.03,.25]	[-.04,.63]
Tripartite Model-Total Comparison (SACS) as Mediator		
$a(S_a)$	.54 (.17)*	.54 (.17)*
$b(S_b)$	.18 (.17)	.87 (.30)*
$c(S_c)$	.49 (.43)	.30 (.74)
$c'(S_{c'})$	.39 (.44)	-.16 (.75)
ab	.09	.47*
CI(lower, upper)	[-.03,.32]	[.15,1.06]
Tripartite Model-State Video Pressure as a Mediator		
$a(S_a)$	3.49 (.59)*	3.5 (.60)*
$b(S_b)$	.07 (.02)*	.04 (.04)
$c(S_c)$	.40 (.24)	.31 (.36)
$c'(S_{c'})$	.13 (.25)	.15 (.40)
ab	.27	.16
CI(lower, upper)	[.06,.53]	[-.06,.46]

(Table Continues)

Table 6 (Continued)

Mediation Tests between Fat Message Exposure and Dependent Variables

Path Coef. (SE)	*Negative Affect*	*Body Dissatisfaction*
Exploratory Analyses-Ideal Weight Discrepancy as a Mediator		
$a(S_a)$	1.7 (2.9)	1.7 (2.9)
$b(S_b)$	.00 (.00)	.16 (.01)*
$c(S_c)$	.39 (.24)	.93 (.92)
$c'(S_{c'})$	.39 (.24)	.64 (.78)
ab	.00	.29
CI(lower, upper)	[-.02,.06]	[-.62,1.29]

Path Coef. (SE)	*# Cookies Consumed*
Dual Pathway Model-Negative Affect as Mediator	
$a(S_a)$	.42 (.26)
$b(S_b)$	.23 (.08)*
$c(S_c)$	-.59 (.30)*
$c'(S_{c'})$	-.69 (.30)*
ab	.09
CI(lower, upper)	[-.00,.37]

Note:
*p<.05

Chapter 4

Discussion

The purpose of the primary study was to examine the immediate and short-term effects of fat stigmatization video message exposure on psychological functioning, dieting and weight control intentions, perceived pressure to be thin, and eating behaviors. It was hypothesized that subjects in the fat stigmatization media exposure conditions in comparison with the control conditions would report higher levels of state negative affect and state body dissatisfaction, would feel more pressure to lose weight, and would eat significantly more or significantly less mini-chocolate chip cookies (engage in restraint or binge eating).

Several of the body image hypotheses were partially supported. Upon examining whether there were significant differences in the dependent variable body image dissatisfaction for those participants exposed to fat messages, there were no statistically significant main factor effects found in the MANCOVA or follow-up ANCOVA analyses. Within MANCOVA and ANCOVA analyses, a trend was found for higher levels of body shape dissatisfaction, but not body weight dissatisfaction, for those exposed to fat video messages. Upon examination of meditational data, there was support for appearance activation as a mediator of fat exposure effects on body dissatisfaction, but not social comparison as a mediator. Within the context of comparing appearance to a thin target, social comparison is a powerful mediator; however, when exposed to fat media messages, appearance activation, but not social comparison, plays a dominant role

in inducing body dissatisfaction. Therefore, depending on the type of media exposure, it is likely that 2 correlated but separate constructs may be activated in a similar direction or in opposite directions, with the dominant construct effecting body image dissatisfaction.

Hypotheses that negative mood would be higher for participants in the fat media exposure conditions were partially supported. A MANCOVA examining negative mood state levels for those exposed to fat media messages vs. control messages indicated no significant differences between groups. Follow up ANCOVAs did indicate significantly higher levels of negative affect, feelings of guilt, and feeling angry at post-test in the experimental conditions, despite controlling for BMI, trait negative affect, pre-test negative affect, and a pre-test baseline of the specific negative mood variable. There were interaction effects found in the negative affect ANCOVA, with those who report high BMIs or a history of weight teasing more likely to experience negative affect when exposed to fat media messages.

Dieting and weight control intention hypotheses were completely unsupported in the analyses. Hypotheses that exposure to negative fat media messages would result in higher levels of intentions to engage in healthy eating behaviors, healthy exercise behaviors, food restriction, and compensatory behaviors were not significant. While this may be due to no true effects of media message exposure on future behavioral intentions, it is also possible that test sensitization occurred. Participants were given intentions measures after consuming cookies, and this cookie consumption may have had stronger effects on future eating intentions than media exposure. Although the decision to provide intentions measures post-cookie consumption was undesirable from a design perspective, the investigators based the decision to measure actual eating behavior as a primary

outcome more important than future intentions, since data suggests that intentions do not always correlate well with behavior.

Perceived pressure to be thin hypotheses were supported by study analyses. Pressure to be thin at post-test was found to be significantly higher for those participants in the fat media message exposure conditions. These results are consistent with findings from previous studies examining the impact of media messages on pressure to be thin, which indicates though it is not a causal risk factor for eating disorder psychopathology, it is a mediator for disordered eating (Roehrig, Thompson, & Cafri, 2008).

With regard to dysfunctional eating, the primary analyses indicated a significant food restriction effect for those subjects in the experimental fat media exposure conditions. In addition, 3 co-variates that were controlled for in the analyses significantly affected cookie consumption: eating and weight/shape concerns, negative affect at post-test, and state levels of hunger. Only two participants met criteria for an analogous binge; binge behavior was defined as 1) eating consumption amount above the 3rd percentile of the bell curve, and 2) quick consumption of food. One participant had a BED diagnosis, and was an obese female distressed by the fat media message material. She consumed 14 of 30 cookies. The other participant was a thin underweight college freshman with no eating and shape concerns; however, she had active binge eating and compensatory exercise behaviors. The participant was randomly assigned to the control comedy condition. The participant was upset by a clip that she felt was a sexual slur against women; she consumed 18 of 30 cookies. Both participants during debriefing reported state hunger (neither had eaten any meals for the day), and negative affect increases, hostility increases, and anger increases associated with the clips. Food

consumption for these two participants was qualitatively distinct (quick initiation) from the eating behavior of other participants. Overall, both eating disordered and non-eating disordered individuals exposed to fat media messages tended to slightly restrict food intake when compared to those individuals in the control conditions; the 2 subjects who engaged in an analogue binge are exceptions.

It was also hypothesized that the presence of particular moderaters (bulimic symptoms, above average BMIs, a discrepancy between current and ideal weight, and a history of weight-related teasing) would result in higher levels of state body dissatisfaction and state negative affect, increased pressure to lose weight, and consumption of more mini-chocolate chip cookies (engage in unrestrained eating) than subjects placed in control conditions. It was hypothesized that subjects with AN symptoms (high trait levels of restraint and low levels of bulimia symptoms) would report similar psychological outcomes, but would be less likely to engage in unrestrained eating.

Moderators were examined by entering each as a co-variate interaction with fat message exposure into ANCOVAs with dependent variables. There were no interaction effects between fat media message exposure and the moderators on food intake, body dissatisfaction, or perceived pressure to lose weight. However, there were significant interaction effects for fat media message exposure and BMI on negative affect and hostility. There were significant interaction effects for fat media message exposure and a history of weight teasing on negative affect, guilt, sadness, and fear. Moderator analyses revealed that although each potential moderator affected psychological and eating behaviors, only some of them were important as moderators of mood (BMI, history of

weight teasing) in the context of exposure to fat media messages. Results indicate that overweight and obese individuals, and women with histories of weight related teasing, are more vulnerable to negative psychological consequences of fat media message exposure.

Finally, the purpose of the study was to test the mediation effects of unique components of empirically supported eating disorder models. Regarding the social comparison component of the Tripartite model, it was hypothesized that activation of a self-appearance schema and a weight ideal discrepancy, and social appearance comparison to characters in the videos would be mediators of the relationship between fat stigmatization media exposure and body image disturbance and negative affect. To test the negative affect component of the Dual-Pathway Model, it was hypothesized that negative affect would serve as a mediational link between exposure to the fat stigmatization video messages and cookie consumption. Finally, with regard to the Polivy and Herman restraint theory, it was hypothesized that cognitive dietary restraint would be violated in the presence of mood disturbance and fattening foods, and that these factors (high trait restraint, abstinence violation) would precede binge and subclinical binge eating.

A series of mediation analyses were employed using the Preacher bootstrap method to test models 1 and 2. A regression was planned to examine whether high trait dietary restraint and negative affect at time 2 predicted binge eating in the study.

Mediation analyses examining the social comparison component of the Tripartite model were deconstructed into a series of 6 analyses. First, the SACS measure was dismantled into appearance activation (Question1) and was used as a mediator of

negative affect and body dissatisfaction, and social comparison behavior (Questions 2 and 3) as a mediator of negative affect and body dissatisfaction. Second, the overall questionnaire SACS total score was used as a mediator of negative affect and body dissatisfaction. Analyses revealed that exposure to negative fat media messages was significantly associated with appearance activation, social comparison behavior, and total SACS. However, appearance activation was the primary driver of significant increases in body dissatisfaction, with the total SACS score less significantly associated with body dissatisfaction, and social comparison not associated with body dissatisfaction. Appearance activation may be activating fear of weight gain or negative body self-evaluation in the context of exposure to negative fat messages, and may be the primary process driver within the specific situation. Therefore, it is possible that there are 2 separate processes that affect body dissatisfaction induction: social comparison and an unspecified mediator that occurs during appearance activation. The dominant process mediates improvements or increased dissatisfaction situationally.

Mediation analyses testing the role of ideal weight discrepancies as a mediator between fat message exposure and body image dissatisfaction and negative mood were not supported. Additional analyses reviewing the role of pressure to be thin from the video messages as a mediator between fat message exposure and body image dissatisfaction and negative mood were also not supported.

Mediation analyses examining the impact of negative affect as a mediator on cookie consumption yielded insignificant results. Negative fat message exposure was not significantly associated with negative affect, although message exposure was associated with significant decreases in cookie consumption. The relationship between negative

mood and cookie consumption was also positively significant. This indicates that negative mood is associated with greater food intake, but that the relationship was competing with a negative media message about overweight that resulted in decreased food intake for the majority of participants. Therefore, negative affect is not the primary driver for food restriction behaviors. This is however not inconsistent with Stice's Dual-Pathway model, as it suggests that negative affect predicts bulimic behaviors instead of restriction.

Finally, the regression analysis for the components high cognitive restraint and negative affect at time 2 predicting abstinence violation in Polivy and Herman's theory could not be completed due to the lack of binge eating in the sample (N=2).

Overall, study findings support and expand the Tripartite Model, which suggests that social comparison is an important trigger for negative mood and body dissatisfaction when exposed to thin models, but is not a mediator for negative psychological consequences when exposed to fat stigmatization media material. Appearance activation, which may induce fears of weight gain or trigger negative body self-evaluation, is activated among a subset of the women exposed to fat messages, resulting in greater body dissatisfaction. With regard to Stice's Dual Pathway Model, the relationship between negative mood and increased food intake was supported by the mediation analyses. However, since only 2 subjects engaged in an analogue binge episode, there was not sufficient evidence to test the Dual-Pathway Model or the Restraint Model adequately.

Although study results have interesting implications for existing eating disorder theories, there are important study limitations to consider.

One important limitation of the study is the presence of possible test sensitization as a threat to internal validity. By administering social comparison and pressure to be thin measures prior to food taste-testing, and by administering the food taste-test prior to eating behavior intentions measures, there is a chance that the presence of earlier tests impact the measurement of the following tests. Measurement error due to test sensitization cannot be eliminated. However, it was determined that measuring mediators of the relationship between mood, body image, and eating behavior, and therefore, testing eating disorder models, was important enough to introduce threats to internal validity. Furthermore, it was decided that measuring actual eating behavior was more important than measuring dieting intentions, which was worth the risk of increased measurement error.

Another study limitation is the generalizability of the findings. Although the study was designed to maximize external validity, by incorporating popular real-world media clips, other important factors affect food consumption. First, the presence of the mirror and concerns about being watched were identified by a sub-set of the experimental sample. It is likely that participants would increase restriction if they felt they were being watched. Second, in their home environments, subjects may be surrounded by family and friends, which alters eating patterns; subjects in the study were measured alone. Third, the sample consisted of female college students, limiting generalizability to young adult females. Future research should replicate study findings with older individuals, males, and non-college students.

A third limitation of the study is the presence of statistical significance, but possibly not clinically significant restriction effects. Findings indicate that in the

negative interaction fat media exposure condition, participants consumed a mean of 2.3 cookies, while participants in the control comedy condition consumed a mean of 3.0 cookies. The difference between 2 and 3 mini-cookies could be viewed as minimal and not clinically significant in importance. However, it could be evaluated as though those participants in the experimental conditions consumed 23% fewer cookies than those in control media conditions. Interpretations about implications for future restriction should be cautious, and findings should be replicated.

Study results have implications for eating disorder treatment. The presence of competing social comparison and appearance activation processes could impact body image disturbance in young women. Addressing each construct separately in treatment would allow clinicians to target which process is driving body dissatisfaction. Furthermore, women with particular demographic characteristics (high BMI, history of weight related teasing) are more vulnerable to mood disturbance following negative fat media message exposure. Because these women are more likely to seek treatment in weight management settings than traditional eating disorder settings, media literacy material and coping response (CBT, reduced media consumption) approaches may be more usefully disseminated in weight loss programs. Finally, women without eating disorders also engaged in food restriction following negative fat media message exposure. This indicates a continuum of responses to media messages that may lead to eating disturbance or sub-clinical eating disturbance. Without directly addressing the internalization of media messages about weight, and offering internal and external competing societal messages, women may remain at greater risk for eating disorders.

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Appendices

Appendix A: Fat Stigmatization-Negative Interaction Media Stimuli Items

Item #	**Program**	**Comment**	**Time**	**Demographics**
Item 1	Victor Vargas	"That's my sister, but she's fat now."	24 sec	Male About Female
Item 2	On Edge	"Fat girls have no place in figure skating."	49 sec	Male About Female
Item 3	Heavyweights	"I'm not going to camp with a bunch of fat loads."	18 sec	Male Child About Kids
Item 4	She Devil	"No wonder you're upset."	26 sec	Male to Female
Item 5	Major Payne	"Stop eating candy you fat pig."	30 sec	Male Adol to Male Adol
Item 6	Camp	"Rolls jiggling."	46 sec	Female Adol to Female Adol
Item 7	Monsters Ball	"Look at all this fat."	1 min 10sec	Female to Male Child
Item 8	Bridget Jones	"I thought you said she was thin."	52 sec	Female to Female

Appendix A (Continued): Fat Stigmatization-Fat Comedy Media Stimuli Items

Item #	**Program**	**Comment**	**Time**	**Demographics**
Item 1	Shallow Hal	"I looked the other way while you banged a few fatties."	27 sec	Male about female targets
Item 2	Summer Catch	"Fat chicks are like mopeds."	19 sec	Males about female targets
Item 3	Manhattan	"Tote all that fat around."	25 sec	Male About Female
Item 4	Dodge Ball	Indirect face grimace	45 sec	Male Adol to Female Adol
Item 5	Friends	Indirect sits on hand	8 sec	Male to Female
Item 6	Austin Powers	"Take that you fatty."	24 sec	Female to Male
Item 7	Nutty Professor	"You fat tub of goo."	28 sec	Male to Male
Item 8	King of Queens	"You could stand to lose a few lbs."	14 sec	Male to Male

Appendix A (Continued): Control Stigmatization-Negative Interaction Media Stimuli Items

Item #	**Program**	**Comment**	**Time**	**Demographics**
Item 1	She Devil	"Ruth, you idiot!"	13 sec	Male to Female
Item 2	She Devil	"You're a bad mother."	35 sec	Male to Female
Item 3	Tao of Steve	"Asshole!"	17 sec	Female to Male
Item 4	Victor Vargas	"You're so stupid."	33 sec	Female Adol to Male Adol
Item 5	Monsters Ball	"You're just like a woman."	42 sec	Male to Male
Item 6	On Edge	"She's a complete b-i-t-c."	12 sec	Female Adol to Female Adol
Item 7	On Edge	"Stench of trailer trash."	5 sec	Female Adol to Female Adol
Item 8	Camp	"Get away from me you freak."	1 min 27 sec	Female Adol to Female Adol

Appendix A (Continued): Control Comedy Media Stimuli Items

Item #	**Program**	**Comment**	**Time**	**Demographics**
Item 1	Austin Powers	"You're not missing anything in the 70s and 80s."	37 sec	Male to Female
Item 2	Dodge Ball	"Joanie loves Chacie."	13 sec	Male to Male
Item 3	Friends	"His legs flail about as if independent from his body!"	27 sec	Male to Male
Item 4	Friends	Turkey on head, dancing around and scaring Joey	1 min 14 sec	Female to Males
Item 5	King of Queens	"Stop! I'll come around to other side of the car and let you in."	32 sec	Male to Male
Item 6	Nutty Professor	"I requested a Hugo but this is all they had."	57 sec	Male to Male
Item 7	Summer Catch	"I'm still wearing your underwear so I can't give it back."	1 min 6 sec	Male to Female
Item 8	Shallow Hal	"If you mess up, I'll be on you like a tiger on a deer."	54 sec	Male to Male

Appendix B: Media Rating Form: Revised Version of the 3 WD Humor Test

1. **Media Clip 1**

How funny was this segment?

0 1 2 3 4 5 6

Not funny at all Very funny

How offensive was this segment?

0 1 2 3 4 5 6

Not offensive at all Very offensive

2. **Media Clip 2**

How funny was this segment?

0 1 2 3 4 5 6

Not funny at all Very funny

How offensive was this segment?

0 1 2 3 4 5 6

Not offensive at all Very offensive

3. **Media Clip 3**

How funny was this segment?

0 1 2 3 4 5 6

Not funny at all Very funny

How offensive was this segment?

0 1 2 3 4 5 6

Not offensive at all Very offensive

4. **Media Clip 4**

How funny was this segment?

0 1 2 3 4 5 6

Not funny at all Very funny

How offensive was this segment?

0 1 2 3 4 5 6

Not offensive at all Very offensive

5. **Media Clip 5**

How funny was this segment?

0 1 2 3 4 5 6

Not funny at all Very funny

How offensive was this segment?

0 1 2 3 4 5 6

Not offensive at all Very offensive

6. Media Clip 6

How funny was this segment?

0 1 2 3 4 5 6
Not funny at all Very funny

How offensive was this segment?

0 1 2 3 4 5 6
Not offensive at all Very offensive

7. Media Clip 7

How funny was this segment?

0 1 2 3 4 5 6
Not funny at all Very funny

How offensive was this segment?

0 1 2 3 4 5 6
Not offensive at all Very offensive

8. Media Clip 8

How funny was this segment?

0 1 2 3 4 5 6
Not funny at all Very funny

How offensive was this segment?

0 1 2 3 4 5 6
Not offensive at all Very offensive

OVERALL:

After viewing the eight clips above, how funny were the clips overall?

0 1 2 3 4 5 6
Not funny at all Very funny

After viewing the eight clips above, how offensive were the clips overall?

0 1 2 3 4 5 6
Not offensive at all Very offensive

Appendix C: 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: _____ Ideal 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 _____

Country of Origin: (please circle one)
- United States
- Jamaica
- Canada
- Mexico
- Puerto Rico
- Cuba
- Other: Please specify_____

If not a U.S. resident, the number of years spent living/studying in the United States:
- One
- Two
- Three
- Four
- Five
- Six
- Seven
- Eight
- Nine
- Other: Please specify_____

Appendix D: Visual Analog Scales

Instructions: Place a mark through the area of the line that matches your feelings *right now.*

1. Happiness

None ——————————————————— **Extreme**

2. Anxiety

None ——————————————————— **Extreme**

3. Energetic

None ——————————————————— **Extreme**

4. Disappointed in Self

None ——————————————————— **Extreme**

5. Anger

None ——————————————————— **Extreme**

6. Calmness

None ——————————————————— **Extreme**

7. Dissatisfied with Weight/Size

None ——————————————————— **Extreme**

8. Healthy

None ——————————————————— **Extreme**

9. Irritability

None ——————————————————— **Extreme**

10. Dissatisfied with Body Shape

None ——————————————————— **Extreme**

Appendix E: Positive and Negative Affect Scale-Revised

Please circle the response that indicates how you feel <u>currently/generally.</u>

	not at all	a little	moderately	a lot	extremely
1. Disgusted with self	1	2	3	4	5
2. Sad.	1	2	3	4	5
3. Afraid	1	2	3	4	5
4. Shaky.	1	2	3	4	5
5. Alone.	1	2	3	4	5
6. Blue.	1	2	3	4	5
7. Guilty	1	2	3	4	5
8. Nervous.	1	2	3	4	5
9. Lonely.	1	2	3	4	5
10. Jittery.	1	2	3	4	5
11. Ashamed	1	2	3	4	5
12. Scared	1	2	3	4	5
13. Angry at self	1	2	3	4	5
14. Downhearted.	1	2	3	4	5
15. Blameworthy.	1	2	3	4	5
16. Frightened	1	2	3	4	5
17. Dissatisfied with self. .	1	2	3	4	5
18. Anxious.	1	2	3	4	5
19. Depressed	1	2	3	4	5
20. Worried	1	2	3	4	5
21. Angry	1	2	3	4	5
22. Upset…….. .	1	2	3	4	5
23. Scornful.	1	2	3	4	5
24. Distressed	1	2	3	4	5
25. Irritable	1	2	3	4	5
26. Hostile.	1	2	3	4	5
27. Disgusted……	1	2	3	4	5
28. Loathing.	1	2	3	4	5
29. Happy…..	1	2	3	4	5
30. Proud…	1	2	3	4	5
31. Attentive	1	2	3	4	5
32. Inspired……	1	2	3	4	5
33. Determined.	1	2	3	4	5
34. Joyful…..	1	2	3	4	5
35. Strong	1	2	3	4	5

Please circle the response that indicates how you feel <u>currently/generally.</u>

	not at all	a little	moderately	a lot	extremely
36. Alert……..... . . .	1	2	3	4	5
37. Excited.	1	2	3	4	5
38. Bold….	1	2	3	4	5
39. Concentrating.	1	2	3	4	5
40. Delighted	1	2	3	4	5
41. Active	1	2	3	4	5
42. Cheerful.	1	2	3	4	5
43. Fearless.	1	2	3	4	5
44. Lively.	1	2	3	4	5
45. Daring	1	2	3	4	5
46. Enthusiastic	1	2	3	4	5
47. Confident 1		2	3	4	5
48. Energetic…..	1	2	3	4	5
49. Interested……...1		2	3	4	5

Appendix F: Modified SATAQ-3

You will be asked to rate your agreement with many statements about the video you just viewed. Some of the questions will seem more relevant to the video you viewed than others. Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement to the best of your ability.

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

Pressures subscale	
1. I've felt pressure from this video to lose weight.	
2. I've felt pressure from this video to be thin.	
3. I've felt pressure from this video to diet.	
4. I've felt pressure from this video to exercise.	
5. I've felt pressure from this video to change my appearance.	

Appendix G: Video Message and Study Credibility Rating Form

You will be asked to rate your agreement with many statements about the study you just completed. Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement to the best of your ability

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

Statement	Level of Agreement
The cover story of studying consumer behavior was convincing.	
The video was easy to understand.	
The video was easy to hear.	
The video messages were applicable to me.	
The video messages were influential to me.	

Appendix H: Eating Disorder Inventory-2

Body Dissatisfaction subscale:

1	**2**	**3**	**4**	**5**	**6**
Always	Usually	Often	Sometimes	Rarely	Never

Always…….Never

1. I think that my stomach is too big.	1 2 3 4 5 6
2. I think that my thighs are too large.	1 2 3 4 5 6
3. I think that my stomach is just the right size.	1 2 3 4 5 6
4. I feel satisfied with the shape of my body.	1 2 3 4 5 6
5. I like the shape of my buttocks.	1 2 3 4 5 6
6. I think my hips are too big.	1 2 3 4 5 6
7. I think that my thighs are just the right size.	1 2 3 4 5 6
8. I think that my buttocks are too large.	1 2 3 4 5 6
9. I think that my hips are just the right size.	1 2 3 4 5 6

Drive For Thinness subscale:

1. I eat sweets and carbohydrates without feeling nervous.	1 2 3 4 5 6
2. I think about dieting.	1 2 3 4 5 6
3. I feel extremely guilty after overeating.	1 2 3 4 5 6
4. I am terrified of gaining weight.	1 2 3 4 5 6
5. I am preoccupied with a desire to be thin.	1 2 3 4 5 6
6. If I gain a pound, I worry I will keep gaining.	1 2 3 4 5 6

Appendix I: Sociocultural Attitudes Towards Appearance Questionnaire-3

1. _____ I've felt pressure from TV or magazines to lose weight.
2. _____ I would like my body to look like the people who are on TV.
3. _____ I compare my body to the bodies of TV and movie stars.
4. _____ TV commercials are an important source of information about fashion and "being attractive".
5. _____ I've felt pressure from TV or magazines to look pretty.
6. _____ I would like my body to look like the models who appear in magazines.
7. _____ I compare my appearance to the appearance of TV and movie stars.
8. _____ I've felt pressure from TV or magazines to be thin.
9. _____ I would like my body to look like the people who are in movies.
10. _____ I compare my body to the bodies of people who appear in magazines.
11. _____ I've felt pressure from TV or magazines to have a perfect body
12. _____ I wish I looked like the models in music videos.
13. _____ I compare my appearance to the appearance of people in magazines.
14. _____ I've felt pressure from TV or magazines to diet.
15. _____ I wish I looked as athletic as the people in magazines.
16. _____ I compare my body to that of people in "good shape".
17. _____ I've felt pressure from TV or magazines to exercise.
18. _____ I wish I looked as athletic as sports stars.
19. _____ I compare my body to that of people who are athletic.

20. _____ I've felt pressure from TV or magazines to change my appearance.

21. _____ I try to look like the people on TV.

22. _____ I try to look like the people in music videos.

23. _____ I try to look like sports athletes.

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 mealtimes 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

Intentions

	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
8. Do you plan to try to not eat between meals because you plan on watching your weight?	1	2	3	4	5
9. Do you plan to eat less in the evenings to control your weight?	1	2	3	4	5
10. Do you plan to take your weight into account when deciding what to eat?	1	2	3	4	5

Appendix K: Eating Disorder Examination-Questionnaire

Please circle the response that describes your behavior over the past <u>week</u>:

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

Over the past <u>week</u>...	Not at all	Slightly		Moderately			Extremely
3. Has your weight influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
4. Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6

1. During the past **week** have there been times when you felt you have eaten what other people would regard as an unusually <u>large</u> amount of food given the circumstances? YES NO

6. During the times when you ate an unusually large amount of food, did you experience a <u>loss of control</u>, i.e. feel you couldn't stop eating or control what or how much you were eating? YES NO

7. How many **times during the past week** have you eaten an unusually <u>large</u> amount of food and experienced a <u>loss of control</u>?_____ (please write in number or indicate zero)

8. During the past **week** have you had other times where you <u>felt</u> you <u>uncontrollably</u> ate a <u>large</u> amount of food, but the amount eaten would <u>not</u> have been considered large by most people? YES NO

9. How many **times during the past week** have you have uncontrollably eaten a large amount of food that others might not consider large?_____ (please write in number or indicate zero)

10. How many **times during the past week** have you made yourself sick in order to prevent weight gain or counteract the effects of eating?_____ (write in number or indicate zero)

11. How many **times during the past week** have you used laxatives or diuretics in order to prevent weight gain or counteract the effects of eating?_____ (write in number or indicate zero)

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 L: Modified Eating Disorder Examination-Questionnaire

Intentions

	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 M: State Hunger Scale

SHS

You will be asked some questions about the food you have eaten today and about your current levels of hunger. Please respond as accurately as possible.

1. Did you eat breakfast today? YES NO
2. Did you eat lunch today? YES NO
3. Did you eat dinner today? YES NO

4. Have you missed meals today? YES NO
5. Have you eaten less than usual today? YES NO

On a scale of 1-10, please indicate how hungry you were <u>at the beginning of today's lab study</u> by making an "X" through the correct place in the line below.

Not at all Hungry Very Hungry
1 2 3 4 5 6 7 8 9 10

On a scale of 1-10, please indicate how hungry you are <u>right now</u> by making an "X" through the correct place in the line below.

Not at all Hungry Very Hungry
1 2 3 4 5 6 7 8 9 10

Appendix N: Multidimensional Health Behavior Inventory

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/plan to:**

	NEVER	**RARELY**	**SOMETIMES**	**OFTEN**	**ALWAYS**
1. Limit red meat in your diet every day.	1	2	3	4	5
2. Limit fat in your diet every day.	1	2	3	4	5
3. Eat red meat more than two times a week.	1	2	3	4	5
4. Eat fewer calories to lose weight.	1	2	3	4	5
5. Eat at least one serving or more of red meat on most days (include beef, pork, ham, bacon, lamb, liver, and lunch meat not made from poultry).	1	2	3	4	5
6. Limit sugar in your diet every day.	1	2	3	4	5
7. Eat non-fat or low-fat dairy products.	1	2	3	4	5
8. Choose foods with whole grains every day, for example, whole wheat bread instead of white, brown rice instead of white, etc.	1	2	3	4	5
9. Participate in recreational physical activities as walking, biking, dancing or sports regularly at least twice a week.	1	2	3	4	5

10. Limit salt in your diet every day.	1	2	3	4	5
11. Limit intake of "sweets" in your diet.	1	2	3	4	5
12. Do stretching exercises every day.	1	2	3	4	5
13. Eat 2-3 servings of vegetables daily.	1	2	3	4	5
14. Exercise vigorously for at least 20 minutes 3 times a week.	1	2	3	4	5
15. Increase your physical activity to lose weight.	1	2	3	4	5
16. Run, jog, or swim for exercise at least 3 times per week.	1	2	3	4	5
17. Eat 2-3 servings of fruit per day.	1	2	3	4	5
18. Eat at least one or more servings of the following items every day: chips, candy bars, cake, doughnuts, pastries, muffins, cookies, ice cream, pudding, chocolate.	1	2	3	4	5

Appendix O: State Appearance Comparison Scale

In the <u>past fifteen minutes</u>, 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 people in the video?

No comparison……A lot of comparison

1 2 3 4 5 6 7

3. Compare your specific body parts to those of the people in the video?

No comparison……A lot of comparison

1 2 3 4 5 6 7

Appendix P: 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

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 Q: Cookie Taste Test Rating Form

You will be asked to rate your agreement with the statements below. Please read each of the following items carefully and indicate the number that best reflects your agreement with the statement to the best of your ability.

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

Statement	Level of Agreement
1. The cookies were soft and chewy.	
2. The cookies melted in my mouth.	
3. The cookies had enough chocolate chips.	
4. The cookies were fresh, without any staleness.	
5. I would buy this brand of cookies at the grocery store.	

Appendix R: Interpersonal Reactivity Index

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can. Thank you.

A **B** **C** **D** **E**
Does not describe me well Describes me very well

Disagreement…….Agreement

1. I daydream and fantasize, with some regularity, about things that might happen to me.

A B C D E

2. I often have tender, concerned feelings for people less fortunate than me.

A B C D E

3. I sometimes find it difficult to see things from the "other guy's" point of view.

A B C D E

4. Sometimes I don't feel very sorry for other people when they are having problems.

A B C D E

5. I get really involved with the feelings of the characters in a novel.

A B C D E

6. In emergency situations, I feel apprehensive and ill-at-ease.

A B C D E

7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.

A B C D E

8. I try to look at everybody's side of a disagreement before I make a decision.

A B C D E

9. When I see someone being taken advantage of, I feel kind of protective towards them.
A B C D E

10. I sometimes feel helpless when I am in the middle of a very emotional situation.
A B C D E

11. I sometimes try to understand my friends better by imagining how things look from their perspective.
A B C D E

12. Becoming extremely involved in a good book or movie is somewhat rare for me.
A B C D E

13. When I see someone get hurt, I tend to remain calm.
A B C D E

14. Other people's misfortunes do not usually disturb me a great deal.
A B C D E

15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.
A B C D E

16. After seeing a play or movie, I have felt as though I were one of the characters.
A B C D E

17. Being in a tense emotional situation scares me.
A B C D E

18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.
A B C D E

19. I am usually pretty effective in dealing with emergencies.
A B C D E

20. I am quite often touched by things that I see happen.
A B C D E

21. I believe that there are two sides to every question and try to look at them both.

A B C D E

22. I would describe myself as a pretty soft-hearted person.

A B C D E

23. When I watch a good movie, I can very easily put myself in the place of a leading character.

A B C D E

24. I tend to lose control during emergencies.

A B C D E

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

A B C D E

26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.

A B C D E

27. When I see someone who badly needs help in an emergency, I go to pieces.

A B C D E

28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

A B C D E

Appendix S: Script for the Fat Stigmatization Media Exposure

Hello. I'm _____, and I'm a research assistant in the psychology department. Today, we're conducting a consumer study to evaluate how you perceive certain products. We are particularly interested in how your personality traits and your mood state effect your evaluation of media and food products. First, you'll be asked to complete some questionnaires, then you'll watch a video and rate media clips, you'll complete more questionnaires, and later you'll be asked to taste test a food product. We are interested in your honest feedback about all the products.

There are different types of media that will be shown to research participants. Sometimes, the media will be from a certain genre (i.e., comedy or drama), and sometimes the media will have a theme.

I'll be sure to prompt you when it is time for you to complete each questionnaire or consumer evaluation task. Let's go ahead and get started.

I know that you have already completed some questionnaires and an informed consent online. Remember that informed consent means that you are agreeing to participate in research in exchange for extra credit points; if at any time feel you cannot continue with the study, you are free to leave and will be given points equal to the amount of time spent completing the experiment. Thank you again for coming. Please begin by filling out these questionnaires.

Ok, now it is time to watch and rate media clips. I've given you a rating sheet to complete after you watch each media clip. For the first clip, clip 1, you'll watch a short clip from a TV show or movie. Afterward, we'd like you to rate how funny it is and how offensive it is. Note that sometimes, media can be funny and at other times, it can be offensive. Also, it can be both funny and offensive or neither funny nor offensive. You'll rate each clip as we go along, in order. I will leave the room while you complete your media rating task, and I'll return when you're finished.

I see that you've finished the media rating task. Your ratings of media material provide feedback about your likely media consumption. Please complete these questionnaires, and let me know when you are finished.

The second product we'll need you to test is a brand of mini-chocolate chip cookies. Take your time and taste as many as you need to make a decision about the desirability and quality of the cookies. The goal is for you to evaluate the cookies, and you'll be given a rating form to complete after you finish tasting them. I will leave the room while you complete your taste test, and I'll be back in a while to give you the rating form.

Now that I've given you a chance to taste test the cookies, please complete this rating sheet to let me know how you feel about the cookies.

At this time, I'd like you to complete some questionnaires about your health behaviors; these behaviors interact with food product consumption and choices.

Thank you again for your participation. At this time, I'd like to provide a debriefing.

Appendix T: Script for Control Media Exposure

Hello. I'm _____, and I'm a research assistant in the psychology department. Today, we're conducting a consumer study to evaluate how you perceive certain products. We are particularly interested in how your personality traits and your mood state effect your evaluation of media and food products. First, you'll be asked to complete some questionnaires, then you'll watch a video and rate media clips, you'll complete more questionnaires, and later you'll be asked to taste test a food product. We are interested in your honest feedback about all the products.

There are different types of media that will be shown to research participants. Sometimes, the media will be from a certain genre (i.e., comedy or drama), and sometimes the media will have a theme.

I'll be sure to prompt you when it is time for you to complete each questionnaire or consumer evaluation task. Let's go ahead and get started.

I know that you have already completed some questionnaires and an informed consent online. Remember that informed consent means that you are agreeing to participate in research in exchange for extra credit points; if at any time feel you cannot continue with the study, you are free to leave and will be given points equal to the amount of time spent completing the experiment. Thank you again for coming. Please begin by filling out these questionnaires.

Ok, now it is time to watch and rate media clips. I've given you a rating sheet to complete after you watch each media clip. For the first clip, clip 1, you'll watch a short clip from a TV show or movie. Afterward, we'd like you to rate how funny it is and how offensive it is. Note that sometimes, media can be funny and at other times, it can be offensive. Also, it can be both funny and offensive or neither funny nor offensive. You'll rate each clip as we go along, in order. I will leave the room while you complete your media rating task, and I'll return when you're finished.

I see that you've finished the media rating task. Your ratings of media material provide feedback about your likely media consumption. Please complete these questionnaires, and let me know when you are finished.

The second product we'll need you to test is a brand of mini-chocolate chip cookies. Take your time and taste as many as you need to make a decision about the desirability and quality of the cookies. The goal is for you to evaluate the cookies, and you'll be given a rating form to complete after you finish tasting them. I will leave the room while you complete your taste test, and I'll be back in a while to give you the rating form.

Now that I've given you a chance to taste test the cookies, please complete this rating sheet to let me know how you feel about the cookies.

At this time, I'd like you to complete some questionnaires about your health behaviors; these behaviors interact with food product consumption and choices.

Thank you again for your participation. At this time, I'd like to provide a debriefing.

Appendix U: Debriefing Form

Previous research has demonstrated that television viewing and media exposure predict body dissatisfaction and bulimia symptoms (Harrison & Cantor, 1997; Harrison, 2001; Stice, 1994). Most studies in this area have primarily focused on the impact of viewing thin model images. Considerable evidence supports the findings that these thin-ideal media messages contribute to the sociocultural pressure to be thin, which in turn predicts body dissatisfaction and eating disturbance (Cattarin & Thompson,1994; Stice, 2001; Stice and Agras, 1998). However, very little is known about the impact of fat commentary presented in media. Specifically, there are still many unanswered questions regarding the interaction of mood, personality traits, and the viewing of fat weight-related media messages. The purpose of the present study is to examine the influence of various factors on how weight-related fat commentary in the media is processed and leads to later food evaluation and eating behaviors. It is important that you are aware that deception was used in this study; the study was not actually designed to analyze products and consumer behavior. Instead, the consumer evaluation portions of the study were designed for you to focus on the content of the media and the food product, and to help examine our hypotheses about the impact of fat weight-related media commentary. Everyone who participated in the study was exposed to media and completed the consumer ratings; all participants were treated similarly. The findings of this study are likely to provide a better understanding of the manner in which weight-related fat commentary in media may contribute to body image and eating disturbances.

Your participation in this study on the impact of viewing media fat commentary is greatly appreciated. Sometimes, watching fat comments in media or completing questionnaires about your physical appearance and eating history 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:

Brownell, K.D., Puhl, R.M, Schwartz, M.B., & Rudd, L. (2005). *Weight Bias: Nature, Consequences, and Remedies.* Guilford Press: New York.

Groesz, L.M., Levine, M.P., & Murnen, S.K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders, 31*, 1-16.

Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin,* 128 (5), 825-848.

Appendix V: Eating Disorder Descriptive Analyses

Eating Disorder Analyses: Descriptives and Means

To assess psychological and eating behavior outcomes for the clinical eating disorder sub-set within the larger sample, means and standard deviations were calculated for those with AN (N=4), BN (N=13), and BED (N=14).

Results (see Table) suggest that the AN subgroup, which was divided into the 2 control conditions, exhibited higher levels of mean Negative Affect (M=14.0, SD=4.5), Guilt (M=11.25, SD=7.5), perceived pressure from the video to lose weight (M=12.5, SD=7.5), State Body Dissatisfaction (M=12.2, SD=8.5), and consumed less chocolate chip cookies (M=1.5, .57) than overall subjects in the control conditions.

The BN subgroup exhibited higher levels of mean Negative Affect in the Fat Stigmatization Negative Interaction (M=14.7, SD=4.9) and Control Negative Interaction Conditions (N=15.0, SD=5), higher levels of Guilt in the Fat Stigmatization Negative Interaction (M=11.25, SD=4.3), Fat Comedy (M=9.2, SD=2.5), and Control Negative Interaction Conditions (M=13.3, SD=7.7), greater perceived pressure from the video to lose weight in the Fat Stigmatization Negative Interaction Condition (M=15.2, SD=5.6), Fat Comedy Condition (M=14.5, SD=6.8), and Control Negative Interaction Condition (M=11.0, SD=10.3), reported higher State Body Dissatisfaction in the Fat Stigmatization Negative Interaction Condition (M=12.7, SD=5.1), Fat Comedy Condition (M=14.1, SD=5.5), and Control Negative Interaction Condition (M=18.1, SD=1.3), and consumed similar mean levels of chocolate chip cookies when compared to the rest of the sample for Fat Stigmatization Negative Interaction (M=2.2, SD=1.5), Fat Comedy (M=2.5,

SD=1.7), and Control Comedy (M=2.5, SD=2.1) conditions.

The BED subgroup reported more variable psychological outcomes. One subject with BED was located in the Fat Stigmatization Negative Interaction Condition; she reported exceptionally high levels of Negative Affect (M=29), Hostility (M=23), Guilt (M=16), Sadness (M=11), perceived pressure to lose weight (M=19), Body Dissatisfaction similar to other eating disorder levels (M=14.1), and qualitatively experienced a binge episode with an exceptional number of cookies consumed (M=14). For BED subjects in the Control Comedy condition, similar levels of psychological variables were found (negative affect, guilt, perceived pressure to lose weight) when compared to the averages of the whole sample. BED subjects in the Control Comedy condition did express greater levels of body dissatisfaction (M=10.7, SD=6.2), and consumed less cookies (M=2.0, SD=1.3) than the overall sample. BED subjects in the Fat Comedy sample experienced similar levels of negative affect when compare to whole sample, but reported slightly higher Guilt (M=8.3, SD=2.5) and perceived pressure to be thin (M=12.0, SD=7.7). BED subjects in the Fat Comedy condition consumed less cookies than the rest of the sample (M=1.7, SD=.8).

Overall, AN subjects were placed within both control conditions, and had high levels of psychological disturbance associated with eating disorders, and restricted their food intake when compared to the total sample. The BN subjects were spread across conditions, had high levels of psychological disturbance associated with eating disorders, and consumed food in similar amounts the total sample. Finally, the BED subjects

were disproportionately assigned to the Fat Comedy and Control Comedy conditions. They had higher levels of guilt and perceived pressure to lose weight when exposed to Fat Comedy media, but similar levels of psychological disturbance to the total sample in the Control Comedy condition. The BED sample differed in 2 primary ways: they had much higher levels of body dissatisfaction than the total sample, and either binged or restricted food intake when compared to the total sample.

Appendix W: Overweight and Obesity Descriptive Analyses

Overweight and Obese Analyses: Descriptives and Means

To assess psychological and eating behavior outcomes for the overweight and obese sub-set within the larger sample, means and standard deviations were calculated for those with BMIs between 25-29.9 (overweight) (N=39) and with BMIs above 30 (obese) (N=24). Approximately 32% of the total undergraduate sample tested was overweight or obese, and subjects were spread across all 4 conditions.

Results suggest that the overweight subgroup exhibited higher levels of mean Negative Affect (M=12.8, SD=3.6), Guilt (M=9.2, SD=3.9), and Hostility (M=8.0, SD=2.9) than the rest of the sample in the Fat Stigmatization-Negative Interaction condition. Overweight subjects reported much greater levels of Body Weight Dissatisfaction, Body Shape Dissatisfaction, and Overall Body Dissatisfaction than the total sample, and this effect occurred across all conditions. Overweight subjects reported much higher levels of perceived pressure from the video to lose weight (M=12.5, SD=7.5) in the Fat Stigmatization-Negative Interaction condition; levels of perceived pressure to lose weight due to media messages was similar to the mean or below the mean for all other conditions. Overweight subjects consumption of chocolate chip cookies was highly variable. Consumption was similar to the mean of the total sample (M=2.3, SD=1.1) in the Fat Stigmatization-Negative Interaction condition, somewhat higher than the mean in the Fat Comedy condition (M=3.0, SD=1.8), and less than the mean in the control conditions (M=2.8, SD=1.5) (M=1.9, SD=1.0). This indicates that overweight subjects had considerable range in their cookie consumption responses, with

some subjects restricting and others eating double the mean amount.

The obese subgroup exhibited higher levels of mean Negative Affect (M=16.7, SD=8.9), Fear (M=8.2, SD=2.8), Hostility (M=11, SD=8.12), Guilt (M=11.5, SD=6.4), Sadness (M=7, SD=2.8), Anxiety (M=3.2, SD=2.9), Irritability (M=3.8, 4.2), and feeling Disappointed in Self (M=4, SD=4.6) in the Fat Stigmatization Negative Interaction condition than the overall sample. Levels of Guilt were higher across all conditions for the obese participants, and levels of Body Shape Dissatisfaction, Body Weight Dissatisfaction, and Overall Body Dissatisfaction were significantly higher across all conditions when compared to the total sample. Perceived pressure from the video to lose weight in the Fat Stigmatization Negative Interaction Condition (M=17.2, SD=2.3), Fat Comedy Condition (M=14.12, SD=7.1), and Control Negative Interaction Condition (M=10.8, SD=5.1), were substantially higher for obese participants than for the those participants in the overall sample. Chocolate chip cookie consumption, when compared to the rest of the sample, was restricted (M=1.3, SD=1.0) or was a binge (M=14) for the obese subjects in the Fat Stigmatization Negative Interaction condition. Similarly, restriction tendencies when compared to the rest of the sample occurred in all conditions. However, slightly more restriction occurred in the fat message experimental conditions with Fat Comedy (M=1.3, SD=.75), Negative Control (M=2.2, SD=1.3) and Control Comedy (M=2.2, SD=.95).

Overall, overweight and obese subjects were placed within all conditions. Both overweight and obese subjects had higher levels of body image dissatisfaction than the

overall sample across all conditions. The overweight subjects experienced greater negative affect, guilt, and hostility, as well as greater perceived pressure to lose weight, in the Fat Stigmatization-Negative Interaction condition only. Obese subjects experienced similar affective disturbance for the Fat Stigmatization-Negative Interaction condition, but also experienced perceived pressure to lose weight across the 2 fat message experimental conditions and the negative interaction control condition. One possible explanation for this finding is that overweight media characters in this control condition received negative comments for non-fat specific reasons, yet may have been perceived as still stigmatized negatively due to weight. Obese subjects reported much higher levels of guilt across all conditions. Overweight subjects had greater fluctuation in their cookie intake, with a larger range across conditions. Obese subjects, however, tended to restrict across all conditions, with greater restriction present in the experimental fat media message conditions. However, one individual in the Fat Stigmatization-Negative Interaction condition did engage in an analogue binge.

Appendix X: Repeated Measures ANOVAs

Repeated Measures ANOVAs

To assess psychological changes occurring within subjects, variables state negative affect and state body dissatisfaction were evaluated at pre-video exposure and post-video exposure. A repeated measures 2 (Time: Pre-test, Post-test) x 4 (Media Condition) ANOVA was computed for each psychological variable, with trait levels of the variable (trait negative affect, trait body dissatisfaction) entered into each respective model as a co-variate.

For the variable state negative affect, there was no significant time by condition interaction $F(3, 197) = 1.42$, $p = .236$, partial $n^2 = .022$. Within subjects, negative affect decreased slightly in every media condition; however, negative affect remained significantly higher in the fat negative interaction media exposure condition when compared to all other experimental and control conditions $F(3, 197) = 5.35$, $p < .001$, partial $n^2 = .077$ (see Table X).

Repeated measures ANOVAs for body dissatisfaction revealed no significant time $F(1, 197) = .012$, $p = .913$, partial $n^2 = .000$, condition $F(3, 197) = .306$, $p = .821$, partial $n^2 = .005$, or time x condition interactions $F(3, 197) = .231$, $p = .875$, partial $n^2 = .004$. Mean body dissatisfaction slightly decreased across all conditions. Similar to between subjects ANCOVAs that discovered no body dissatisfaction differences between media conditions, there were no significant findings for body image changes within subject.

Table X

Means, standard deviations, F, P, and partial n² values for planned Repeated Measures ANOVAs

Repeated Measures ANOVAs	**Fat Negative** Adjusted M SE	**Fat Comedy** Adjusted M SE	**Control Negative** Adjusted M SE	**Control Comedy** Adjusted M SE	**F , p, partial n² values**
Negative Affect Time 1	13.45 (.43)	11.35 (.43)	11.78 (.42)	12.30 (.43)	
Negative Affect Time 2	13.24 (.40)	11.17 (.40)	11.46 (.39)	11.44 (.40)	
					Time: F(1, 197)= 1.27, p=.260, partial n²=.007
					Condition: F(3, 197)= 5.35, p=.001, partial n²=.077
					Time x Condition: F(3, 197)= 1.42, p=.236, partial n²=.022
Body Dissatisfaction Time 1	7.58 (.59)	8.15 (.59)	7.51 (.58)	7.91 (.59)	
Body Dissatisfaction Time 2	7.03 (.66)	7.61 (.66)	6.69 (.65)	7.03 (.66)	
					Time: F(1, 197)= .012, p=.913, partial n²=.000
					Condition: F(3, 197)= .306, p=.821, partial n²=.005
					Time x Condition: F(3, 197)= .231, p=.875, partial n²=.004

Appendix Y: Correlation Among Pre-test Measures

Table Y

Correlations Among Pre-test Measures

	BMI	State BD	State NA	Trait NA	EDI-BD	EDI-DT	DEBQ	SATAQ-General	SATAQ-Trait	SATAQ-Athlete	WT-Teasing	Empathy
BMI	1											
StateBD	.54**	1										
StateNA	.03	.12	1									
TraitNA	.11	.29*	.40**	1								
EDIBD	.59**	.76**	.08	.31*	1							
EDI-DT	.44**	.65**	.13	.31*	.69**	1						
DEBQ	.42*	.55*	.05	.22*	.58**	.80**	1					
SATAQ-General	.03	.42**	.13	.24**	.48**	.63**	.51**	1				
SATAQ-Trait Pressure	.24**	.46**	.17*	.26**	.53**	.68**	.61**	.82**	1			
SATAQ-Athlete	.15*	.39**	.06	.18*	.39**	.51**	.43**	.68**	.66**	1		
WT-Teasing	.40**	.40**	.07	.36**	.46**	.45**	.42**	.30**	.41**	.21**	1	
Empathy	.02	.06	.05	-.03	-.03	.01	-.00	.08	.14*	.04	.08	1

Note: BMI: Body Mass Index; StateBD: VAS Body Dissatisfaction Index; StateNA: PANAS-X State Negative Affect Scale; TraitNA: PANAS-X Trait Negative Affect Scale; EDI-BD: Eating Disorder Inventory-Body Dissatisfaction subscale; EDI-DT: Eating Disorder Inventory-Drive for Thinness subscale; DEBQ: Dutch Eating Behavior Questionnaire-Restraint subscale; SATAQ-General: Sociocultural Attitudes Towards Appearance Scale-General subscale; SATAQ-Trait Pressure: Sociocultural Attitudes Towards Appearance Scale-Pressure subscale; SATAQ-Athlete: Sociocultural Attitudes Towards Appearance Scale-Athlete subscale; WT Teasing: Physical Appearance Related Teasing-Weight subscale; Empathy: Interpersonal Reactivity Index-Empathetic Concern subscale

*p<.05

**p<.01

Appendix Z: Correlation Among Post-test Measures

Table Z

Correlations Among Post-test Dependent Variables

	VAS-BD	VAS-S	VAS-W	PAN-NA	PAN-H	PAN-G	PAN-S	VAS-Dis	VAS-Ang	VAS-Irrit	Video P	# Cookies
VAS-BD	1											
VAS-Shape	.97**	1										
VAS-Weight	.97**	.90**	1									
PANAS-NA	.14*	.11	.16*	1								
PANAS-Hostility	.14*	.10	.16*	.80**	1							
PANAS-Guilt	.52**	.51**	.52**	.67**	.54**	1						
PANAS-Sadness	.19**	.17*	.19**	.47**	.54**	.40**	1					
VAS-Dissapointed with Self	.54**	.51**	.55**	.43**	.40**	.76**	.33**	1				
VAS-Anger	.08	.07	.09	.58**	.39**	.38**	.47**	.42**	1			
VAS-Irritability	.15*	.12	.17*	.61**	.68**	.40**	.42**	.40**	.68**	1		
Video Pressure	.41**	.42**	.38**	.34**	.29**	.55**	.17*	.46**	.29**	.18**	1	
# Cookies	-.10	-.11	-.09	.17*	.20**	.06	.05	-.03	.10	.11	.00	1

Note: VAS-BD: Visual Analogue Scale-Body Dissatisfaction Index; VAS-Shape: Visual Analogue Scale-shape dissatisfaction item; VAS-Weight: Visual Analogue Scale-weight dissatisfaction item; PANAS-NA: Positive and Negative Affect Scale- Negative Affect subscale; PANAS-Hostility: Positive and Negative Affect Scale-Hostility subscale; PANAS-Guilt: Positive and Negative Affect Scale-Guilt subscale; PANAS Sadness: Positive and Negative Affect Scale-Sadness subscale; VAS-Disappointed in Self: Visual Analogue Scale-disappointed in self item; VAS-Anger: Visual Analogue Scale-anger item; VAS Irritability: Visual Analogue Scale-irritability item; Video Pressure: Sociocultural Attitudes Towards Appearance Scale-modified Pressures subscale; # Cookies Consumed

*p<.05

**p<.01

About the Author

Susan Himes received a Bachelor of Arts degree in Psychology from Oklahoma State University in 1997, and a Masters of Arts degree in Clinical Psychology from the University of South Florida in 2005. She is currently a doctoral candidate at the University of South Florida and a pre-doctoral intern in clinical psychology at Temple Health Sciences Center in July 2009. She will be a postdoctoral resident in the Obesity program at the Mayo Clinic from August 2009-August 2011. Her research is focused on measuring and testing factors that affect binge eating and obesity, and developing treatments to enhance bariatric surgery and weight loss outcomes. She has co-authored several peer-reviewed journal articles and book chapters in this field.