WEIGHT STIGMATIZATION EXPERIENCES AND PSYCHOLOGICAL ADJUSTMENT: THE ROLE OF DYSFUNCTIONAL COGNITIONS

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ABSTRACT OF THE DISSERTATION

Weight Stigmatization Experiences and Psychological Adjustment:

The Role of Dysfunctional Cognitions

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Weight-based stigmatization experiences include negative social consequences that overweight and obese individuals endure. Although there is evidence that weight-based stigmatization places one at risk for developing internalizing symptoms and disordered eating symptoms, further research is needed to establish causality and determine what underlying processes are involved in these pathways. This dissertation research investigates the hypothesis that dysfunctional cognitions mediate the relation between weight-based stigmatization experiences and undergraduates' psychopathology and weight-biased behavior. Results indicate that weight-based stigmatization experienced through exposure to weight-biased media is associated with dysfunctional eating-related cognitions and that exposure to weight-biased media is associated with weight-biased behavior. Evidence did not support the hypothesis that dysfunctional eating-related cognitions would account for the relation between weight stigmatization experiences and disordered eating symptoms. Instead, weight-related stereotypes emerged as a moderator of this relation. This research has implications for prevention of disordered eating and weight-biased behavior and interventions with individuals who suffer weight-based stigmatization.

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Weight Stigmatization Experiences and Psychological Adjustment: The Role of Dysfunctional Cognitions

Advances in weight stigmatization research in recent years highlight the need to address obesity as a psychosocial risk factor and not simply a physical health risk factor. Weight-based stigmatization is recognized as affecting many aspects of life (Puhl & Brownell, 2001) and negative attitudes toward overweight and obese people are becoming increasingly evident (Andreyeva, Puhl, & Brownell, 2008; Latner, & Stunkard, 2003). Researchers have found evidence of weight-based stigmatization in the areas of health care, employment, education, and close relationships (Puhl & Brownell, 2006; Roehling, 1999; Schwartz, O-Neal, Brownell, Blair, & Billington, 2003). Recent survey research suggests that, in the United States, weight-based discrimination has increased by 66% over the past decade (Andreyeva et al., 2008) and that bias against overweight people is stronger than is bias against other groups (Latner, O'Brien, Durso, Brinkman, & MacDonald, 2008; Puhl, Andreyeva, & Brownell, 2008). When comparing the relative strength of different types of bias, Latner et al. found that bias against overweight people was significantly stronger than bias against both people of bisexual or homosexual orientation and people of the Muslim faith (2008). With more than half of the American population now overweight (Ogden et al., 2006), there is now an even more urgent need to understand the role that weight stigmatization plays in determining physical and psychological well being.

Weight-based Stigmatization in Mass Media

Weight bias is common in the mass media today, particularly with respect to stigmatization based on the overweight or obese status of characters in television shows

and movies (Fouts & Burggraf, 1999; 2000; Fouts &Vaughan, 2002, Himes & Thompson, 2007). Overweight characters are often teased and derogatory remarks and jokes making fun of overweight people as a group are also common. However, little research has investigated the potential for vicarious weight stigmatization through the media. Researchers have argued that media depiction of weight stigmatization could have several negative effects. First, this stigmatization might initiate negative weight attitudes and stereotypes about the overweight (Fouts &Vaughan, 2002). Second, this stigmatization might have negative effects on self-esteem and body satisfaction of those who are particularly sensitive to it (e.g., overweight people, or those who have had experience with weight stigmatization in the past; Himes & Thompson, 2007). Third, the pervasiveness of weight stigmatization in the media could lead individuals to overestimate the degree to which society as a whole endorses negative attitudes and stereotypes about the overweight and in turn increase belief in the appropriateness of expressing negative weight-related attitudes and stereotypes of their own (Puhl & Brownell, 2003).

There is evidence that increased media consumption is linked to more negative attitudes about overweight people in children and adolescents (e.g., Harrison, 2000; Latner, Rosewall, & Simmonds, 2007). Harrison surveyed elementary school students and found that, among boys, television viewing predicted increased fat stereotyping of obese girls. Latner et al. reported a significant positive association between adolescent media consumption (playing video games, watching television, reading magazines) and levels of stigmatizing attitudes toward obese youth. Sociocultural theorists suggest that the media plays a direct role in the development of eating disturbances by conveying pro-

thin and antifat messages, which promote viewers' unrealistic beliefs about weight and the importance of being thin (Stice, 1994; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999).

Gapinski et al. (2006) recently investigated the effect of negative and stereotypical media portrayals of overweight characters on weight attitudes and judgments of overweight job applicants. They found little evidence for an effect of these media portrayals on participants' weight attitudes. In making judgments of overweight job applicants, participants who viewed negative media portrayals actually exhibited less bias toward overweight applicants. The weight-biased media viewed by participants in this study included 10-minute videos consisting of multiple clips focusing on overweight characters who were portrayed negatively. As suggested by the authors, demand characteristics may have been quite clear to participants given the structure of these videos. It is possible that a less obvious manipulation of media depiction of weight stigmatization combined with a plausible cover story would reduce demand characteristics and allow for a more valid assessment of the effects of weight-biased media.

Research has established that mass media has an influence on how people view their own bodies and plays a role in the development and maintenance of eating disorders (Thompson & Heinberg, 1999). In their meta-analysis of 25 experimental studies, Groesz, Levine and Murnen (2002) found a small but significant effect size for the negative influence of "thin ideal" media on female body image. While less work has addressed the influence of media on male body image, there is experimental evidence to support that media depiction of ideal male physiques (defined as lean and muscular) has a

similarly detrimental effect on male body image (Agliata & Tantleff-Dunn, 2004). Just as portrayals of the thin ideal may alter normative beliefs about standards for thinness, portrayals of weight stigmatization may alter beliefs about society's devaluation of overweight people as well as personal weight-related attitudes. Frequent exposure to media-portrayed weight stigmatization may contribute to poor psychological adjustment and eating disorder symptoms because it alters belief in the negative consequences of being overweight. Exposure to media-portrayed weight stigmatization may also promote weight-biased behavior through the strengthening of stereotypic associations regarding overweight people. Experimental research is needed to examine the direct effects of weight-biased media exposure on negative weight-related attitudes and stereotypes and weight-biased behavior.

Weight Stigmatization Experiences and Psychological Adjustment

Concern over weight stigmatization in the media and the intensification of weight stigmatization in general is supported by findings that link reports of weight stigmatization experiences to a range of negative consequences. In recent years, research documenting the impact of weight-based stigmatization experiences on psychological adjustment has accumulated (Puhl & Brownell, 2001; Puhl & Heuer, 2009).

Depression and self-esteem. There is an excessive focus on the need to be thin in our society (Polivy & Herman, 2002). Sociocultural indicators of this bias might repeatedly remind an overweight individual that he or she does not fit the mold of society's standards. People who are overweight face discrimination from spouses, parents, and friends (Crandall, 1995; Falkner et al., 1999), suggesting that it may even be difficult for the overweight to avoid discrimination at home or in preferred social settings.

Further, there appears to be a pervasive belief that obesity is largely under the control of the individual (DeJong, 1993). This belief, in combination with society's tendency to discriminate against those viewed as responsible for their stigma more than those not thought to be responsible for their stigma (e.g., people with physical disabilities), might account for the relative social acceptance of weight-based stigmatization (Crandall, 1994). Perceived social acceptance of weight-based stigmatization may encourage self-blame and feelings of hopelessness among the overweight. Experimental research supports this suggestion. Crocker, Cornwell, and Major (1993) observed that overweight women who experienced rejection from a male evaluator attributed this rejection to the male's concern with appearance, but still felt more depressed. Thus, unlike others who are stigmatized, some overweight people might view their stigma as a legitimate reason for rejection, which could result in low self-esteem or more serious problems with psychological adjustment. Indeed, evidence supports weight stigmatization as a predictor of both low self-esteem and depression in both clinical and non-clinical samples of overweight people. Among bariatric clinic patients, reports of weight-based stigmatization are negatively associated with self-esteem, and positively associated with depressive symptoms (Friedman, Ashmore, & Applegate, 2008; Sarwer, Fabricatore, Eisenberg, Sywulak, & Wadden, 2008). These findings are consistent with results of a non-clinical study assessing correlates of weight-based stigmatization reports in a large nationally representative sample of adults in the United States (Carr, Friedman, & Jaffe, 2007).

Body image disturbance. Body image is a complex and multifaceted construct that involves a variety of cognitive, emotional, behavioral, and perceptual components

(Banfield & McCabe, 2002; Cash & Pruzinsky, 2002). Body dissatisfaction can be defined as subjective negative evaluation of body size, shape, and muscularity/tone. Typically this involves a discrepancy between one's evaluation of their own body and what they perceive as their ideal body (Cash & Szymanski, 1995). A substantial body of literature has found that elevated body dissatisfaction is related to disordered eating (anorectic and bulimic symptomatology) in both females and males (e.g., Gardner, Stark, Friedman, & Jackson, 2002; Johnson & Wardle, 2005; Leon, Fulkerson, Perry, Early-Zald, 1995; Stice, Presnell, & Spangler, 2002; Thompson & Smolak, 2001). A recent survey of adolescent girls implicated body dissatisfaction as a significant cross-sectional and longitudinal predictor of emotional eating, even after the effect of dietary restraint, a documented predictor of binge eating (e.g., Stice, Akutagawa, Gaggar, & Agras, 2000), was partialled out (Johnson & Wardle, 2005). This supports cognitive behavioral theorists' conceptualization of body dissatisfaction as one of the core maintaining processes which underlie the clinical features of eating disorders (e.g., Fairburn, Cooper, & Shafran, 2003). According to this theory, most of the deleterious behaviors and attitudes that are characteristic of eating disorders (e.g., dietary restraint, unhealthy compensatory behaviors, and rigid attitudes and preoccupation regarding food and body shape and size) stem from a core over-evaluation of or over-concern with eating, shape, and weight and one's ability to control each.

In one of the first longitudinal studies of weight teasing, Thompson, Coovert, Richards, Johnson, and Cattarin (1995) found that adolescent girls' reports of teasing about weight, size, and overall appearance predicted body dissatisfaction at 3-year follow up. Undergraduate women's reports of weight teasing are also associated with higher

levels of body dissatisfaction (e.g., Benas & Gibb, 2008). Similarly, studies with both clinical samples of obese adults (e g., Friedman et al., 2005) and non-clinical adult samples (e.g., Vartanian & Shaprow, 2008) have documented positive associations between reports of weight stigmatization experiences and body dissatisfaction. Findings have been inconsistent with regard to the relation between childhood teasing and body satisfaction in adulthood. While Grilo, Wilfley, Brownell, and Rodin (1994) found that reports of more frequent weight stigmatization experiences in childhood and adolescence predicted higher levels of body satisfaction in a clinical sample of obese women, more recent research with obese patients has not replicated this result (Maltz, Foster, Faith, & Wadden, 2002; Wardle, Waller, & Fox, 2002).

Body dissatisfaction has been postulated as a mediator in the relation between weight stigmatization experiences and disordered eating. Cross-sectional survey research has provided some support for this suggestion (Benas & Gibb, 2008; Reddy & Crowther, 2007). Benas and Gibb found that undergraduate women's reports of weight-related teasing were more strongly associated with disordered eating cognitions (body dissatisfaction, perceived consequences of appearance) than depressive cognitions, supporting a disorder-specific pathway. Internalized weight bias has similarly been hypothesized as a mediator of the relation between weight stigmatization experiences and disordered eating (Carels et al., 2009; Durso & Latner, 2008). Carels et al. proposed that negative weight attitudes and stereotypes, potentially shaped by stigmatizing experiences, may undermine healthy eating and exercise habits by increasing negative affect and decreasing the motivation and self-efficacy necessary to maintain these habits. Cross sectional research has shown that internalized weight bias predicts binge eating (Durso &

Latner, 2008) and that negative weight attitudes predict poorer weight-maintenance related outcomes in weight loss treatment-seeking adults (e.g., lower levels of exercise and self-monitoring, higher levels of caloric intake; Carels et al., 2009). These findings suggest that weight-based stigmatization, body dissatisfaction, and negative weight attitudes may be key factors in the development and maintenance of disordered eating.

Disordered eating symptoms. Cross-sectional studies have implicated weight-based stigmatization as a risk factor for disordered eating in adolescence (e.g., Libbey, Story, Neumark-Sztainer, & Boutelle, 2008; Neumark-Sztainer et al., 2002) and adulthood (Ashmore, Friedman, Reichmann, & Musante, 2008). Retrospective studies suggest that having a history of weight-based stigmatization might also place one at risk for disordered eating later in life (Benas & Gibb, 2008; Lunner et al., 2000). Benas and Gibb reported positive associations between undergraduates' histories of weight-related teasing and disordered eating symptoms including binge eating, bulimic symptoms, and emotional eating. Several studies have examined the longitudinal relation between weight-based stigmatization and disordered eating behavior. Unfortunately, results of these studies have been somewhat inconsistent and have not led to a clear understanding of the nature of the relation between teasing and changes in eating behavior. Wertheim, Koerner, and Paxton (2001) reported evidence of a longitudinal relation between weight-related teasing and increased bulimic tendencies among seventh and tenth grade girls at 8-month follow up. Haines, Neumark-Sztainer, Eisenberg, and Hannan (2006) followed a sample of middle school and high school students for five years, and observed that weight-related teasing predicted reports of binge eating and unhealthy weight control behaviors among males, and frequent dieting among females. Other research suggests

that the association between teasing and later disordered eating is no longer significant when taking other risk factors into account (e.g., body dissatisfaction, media influence; Cattarin & Thompson, 1994; Field, Camargo, Taylor, Berkey, Colditz, 1999; Thompson et al., 1995). If there is a causal pathway which links weight stigmatization experiences to increased binge eating in particular, this could indicate a dangerous cycle in which weight stigmatization leads to binge eating, which in turn leads to continued or worsened struggle with weight gain, which then has the potential to increase one's risk for weight stigmatization.

Experimental research or short term longitudinal work evaluating proximal processes is needed to determine how weight teasing and other weight-based stigmatization experiences might influence eating behavior.

Cognitive Mediators of Weight-Biased Behavior and Psychological Adjustment

If weight stigmatization makes a unique contribution to the prediction of psychological adjustment, there is a need for further research on the specific cognitions and beliefs that underlie weight-biased behavior and mediate the relation between weight stigmatization experiences and psychological adjustment. Weight stigmatization experiences such as exposure to weight-related teasing or viewing weight-biased media may engender new ideas or reinforce existing beliefs and cognitions that uphold ill-treatment of overweight people. Exposure to stereotypical or negative characterization of overweight people via witness of weight-based stigmatization or viewing weight-biased media may create or activate stereotypic associations regarding weight (e.g., associating 'overweight' with 'lazy'), or negative associations regarding weight (e.g., associating

'overweight' with 'bad'). They may also communicate negative self-related messages that place people at risk for developing symptoms of disordered eating or depression.

Research examining how different types of victimization differentially relate to adjustment suggests that verbal and relational victimization may be more strongly related to internalizing symptoms (e.g., depressive symptoms, anxiety) than to externalizing behaviors. Ladd and Ladd (2001) argue that this may be because of the negative messages that are transmitted to victims through these acts. For example, negative evaluations by peers or society as a whole can be made very clear through verbal victimization (e.g., being called ugly, stupid, or fat), and that this can lead to poor self-concept and self-blame (Graham & Juvonen, 2001; Hawker & Boulton, 2001). Self-blame has been noted as an important factor related to internalizing symptoms that can occur with victimization (e.g., Graham & Juvonen, 1998). Relational victimization can transmit messages of social status or sense of belonging (Hawker & Boulton, 2001). Both relational and verbal victimization may relate to more serious problems with depression and anxiety because they less ambiguously imply that aspects of a victim's character cause victimization and negative peer evaluation. There are some types of weight stigmatization experiences that can be conceptualized as forms of victimization (e.g., weight-related teasing, weight-based social exclusion). These, as well as other types of weight stigmatization experiences may draw one's attention to the idea that, in our society, overweight people are devalued and perceived as blameworthy. People who experience weight stigmatization first hand and identify as overweight may internalize these beliefs and attitudes and may even feel that they deserve to be mistreated and disrespected by others.

Durso and Latner, who recently developed a new measure of weight bias internalization, emphasize a distinction between internalized weight bias and antifat attitudes (2008). They argue that internalized weight bias entails negative attributions about the self that are related to negative stereotypes and attitudes about weight and shape, whereas antifat attitudes entail negative attributions about overweight people. Thus, one might hold negative attitudes about weight but not hold negative attitudes toward oneself because of their weight. One way that weight stigmatization experiences might support weight bias internalization is that they may lead a person to view their weight as a devalued and defining element of their character. For example, being made fun of for being overweight or encouraged to lose weight by a family member might be initial indications that one is perceived as overweight by others. Initial or reoccurring weight stigmatization experiences might encourage preoccupation with weight and ruminations revolving around feared ramifications of being perceived by others as overweight. In addition, as weight stigmatization begins to make a noticeable difference in one's quality of life, this may be when one first begins to experience their weight and their ability to control their weight as a problem. Thus, weight stigmatization experiences might promote the self-stigma element of weight bias internalization as well as an intense fear of gaining weight.

Previous work has investigated the relation between weight teasing and cognitive mediators of psychopathology. Benas and Gibb (2008) reported that dysfunctional eating cognitions mediated the relation between weight-related teasing and disordered eating symptoms and that weight-related teasing was significantly more strongly related to dysfunctional eating cognitions than depressive cognitions. These dysfunctional eating

cognitions included body dissatisfaction and perceived consequences of appearance for relationships, feelings, self-view, and achievement. Laboratory and survey research supports a link between weight stigmatization experiences and both negative mood and low self-esteem (e.g., Crocker et al., 1993; Friedman et al., 2008; Myers & Rosen, 1999). These findings support the need for further work investigating these and other dysfunctional beliefs. Research on implicit and explicit weight bias has shown that overweight people hold explicit and implicit antifat attitudes (Crandall, & Reser, 2005; Schwartz, Vartanian, Nosek, & Brownell, 2006), and that internalization of weight-related stereotypes and negative beliefs about being overweight predict binge eating, drive for thinness, and negative mood (Durso & Latner, 2008; Puhl, Moss-Racusin, Schwartz, 2007). One possibility that remains untested is that internalized negative weight attitudes and stereotypes mediate the relation between weight stigmatization experiences and psychopathology.

Preliminary Research

This preliminary dissertation research described below was completed to support the development of dissertation study 1 and 2. This work entails two laboratory based investigations of weight-biased media exosure as a predictor of negative weight attitudes, negative self-evaluation, and weight-biased behavior.

Preliminary Study 1

Overview

The purpose of study 1 was to examine experimentally the influence of media depictions of weight stigmatization on weight attitudes, behavior toward the overweight, self-esteem, and body satisfaction. Dependent measures were implicit measures of

attitudes about weight and the self, an explicit measure of body satisfaction, and a behavioral measure of weight bias. I tested the hypotheses that exposure to weight-biased media would be associated with negative implicit weight attitude and that exposure to weight-biased media would be associated with negatively biased behavior toward the overweight. I also tested the hypothesis that exposure to weight-biased media would be associated with negative self-evaluation, specifically, negative self-attitude and low body satisfaction. I expected that each would be especially the case for those who self-identified as overweight because weight stigmatization experiences, which could potentially have led to their viewing themselves as overweight, could also increase sensitivity to the priming effects of the weight-biased media. Weight-based stigmatization experiences might lead to the development of more accessible cognitive knowledge structures linking excess weight with negative evaluation. Thus, I expected an interaction between weight status and media condition such that in the weight-biased media condition, the participants who identified as overweight would exhibit higher levels of negative weight attitude, weight-biased behavior, negative self-evaluation, and body dissatisfaction compared to the non-overweight participants. Although this hypothesis pertained specifically to expected effects for weight identity, I also investigated the effects of weight status (assessed by researcher measured weight and height) to allow for a comparison of the role of perceived vs. actual weight status.

Method

Participants

Participants (N = 101) in this study were recruited from the introductory psychology subject pool at Rutgers University in Newark. Participants earned 2 research

point credits in exchange for their participation. The sample was racially/ethnically diverse (23.8% White/Caucasian, 12.9% Black/African American, 20.8% Asian, 14.9% Latino/a/Hispanic, 11.9% Middle Eastern/Arabic/Persian, 10.9% Other). The sample consisted of 60% females and 40% males. Participants ranged in age from 18 to 49 years (*M* = 19.6 years, *SD* = 3.11). Body Mass Index (BMI) computed from researcher measured height and weight indicated that the participants' mean BMI was 24.6 (*SD* = 5.06; range = 16.9-49.1). About 41% of participants were classified as overweight (BMI between 25.0 and 29.9) or obese (BMI of 30 or greater) according to recommendations of the National Institutes of Health (NIH; 1998).

Measures

Prescreening. For the purpose of this study, four questions were included in a prescreening survey that students completed at the beginning of the semester. Participants were asked to report their height and weight. Participants indicated the degree to which they were satisfied with the current shape and size of their body as an indicator of body satisfaction (Brown, Cash, & Mikulka, 1990). Responses were made on a 5-point scale (-2 = very dissatisfied, -1 = dissatisfied, 0 = neither satisfied nor dissatisfied, 1 = satisfied, 2 = very satisfied). Participants also reported how they described their weight as an indicator of weight identity (i.e., "too thin", "just right", "overweight", "very overweight"). Using these self-classifications, I determined whether participants identified as non-overweight (i.e., too thin or just right) or overweight (i.e., overweight or very overweight). Self-reported height and weight were used to compute BMI values, which yield classification criteria for identifying underweight, healthy weight, overweight, and obese people. Using the criteria recommended by the NIH, I

determined whether perceived height and weight classified participants as non-overweight (i.e., underweight or healthy weight; BMI of 24.9 or below) or overweight (i.e., overweight or obese; BMI of 25 or greater). Self-reported height, weight were used to selectively recruit an adequate amount of participants from each of these weight groups. This information was also used to allot participants equally to experiment conditions. Over the course of the semester, several rounds of e-mails were sent to select participants (approximately an equal amount of participants from each weight group). This e-mail included an invitation code that participants could use to sign up for the study on the psychology subject pool website. I stratified the random assignment to ensure approximately equal representation by non-overweight and overweight participants. Approximately half of the participants were assigned to each of two experimental conditions, a weight-biased media condition and a neutral media condition.

Implicit weight attitude and implicit self-attitude. Participants completed two implicit association tests (IATs; Greenwald, McGhee, & Schwartz, 1998). The IAT is considered an indirect measure of attitudes free from potential cognitive biases typically provoked by explicit survey questions. As an indicator of attitudes toward weight, the weight IAT required participants to discriminate between two target concepts, thin and fat, and two valenced attributes, good and bad, and then sort words and pictures that fell into these categories. After a series of practice trials, participant reaction times were measured while they sorted four concept words and pictures (2 exemplars of the thin concept, e.g., the word slim, the word underweight, pictures of slim people; and 2 exemplars of the fat concept, e.g., the word chubby, the word obese, pictures of overweight people) and sorted four attribute words (2 exemplars of the good attribute,

e.g., joy, terrific; and 2 exemplars of the bad attribute, e.g., agony, poison). By subtracting the average speed with which participants categorized exemplars under the fat-bad/thin-good parings from the average speed with which participants categorized exemplars under the thin-bad/fat-good pairings I calculated a weight IAT score. Higher positive weight IAT scores reflected a stronger pro-thin/antifat bias (negative weight attitude).

Participants also completed an IAT to indicate their strength of association between the concepts self and other and the attributes good and bad (implicit self-attitude). This test was identical to the weight attitude measure described above, except that participants sorted four different concept words (2 exemplars of the self-concept, e.g., me, self; and 2 exemplars of the other concept, e.g., them, other). The self IAT scores were calculated such that higher positive scores reflected stronger pro-self/anti-other bias (positive self-attitude).

Weight-biased behavior. In a computer-based ball tossing game, Cyberball (Williams, Cheung, & Choi, 2000; Williams & Jarvis, 2006), participants used keyboard keys to control an animated hand that tossed a ball to three other players who in turn tossed the ball to each other or the participant. The other players were actually "virtual confederates" and their behavior during the game was pre-programmed. However, the participants were told that they were playing the game with the other players via the Internet. Pictures of the other "players" were displayed on the computer screen. One of the players was overweight. The picture of the overweight player was digitally constructed to depict an overweight body and the face of a non-overweight player. Previous work with these stimuli has shown that the perceived weight of the overweight

bodies are rated as overweight but that the attractiveness ratings of the overweight faces are not significantly different from those of the non-overweight faces (Graziano, Bruce, Sheese, Tobin, 2007). As an indication of negative behavior toward the overweight, the number of times the participant tossed the ball to the overweight player was recorded by the computer.

Body satisfaction. Participants reported the degree to which they were satisfied with the shape and size of their body (same item used in prescreening; Brown et al., 1990).

Demographic information. Participants completed self-report items that assessed age, gender, and ethnicity.

Actual weight status. To obtain a more objective measure of weight status, a researcher measured participants' weight and height using a standard scale and measuring tape. Researcher-measured height and weight were used to compute body mass index (BMI) values. As with the self-reported height and weight, these values provided classification criteria for identifying underweight, healthy weight, overweight, and obese people. Using these criteria, I determined whether actual weight and height classified participants as non-overweight (i.e., underweight or healthy weight) or overweight (i.e., overweight or obese).

Discrepancy and accuracy coding. A perceived weight status discrepancy score was calculated for each participant by subtracting their actual weight status (0=non–overweight, 1=overweight) from their perceived weight status (0=non-overweight, 1=overweight). Participants with scores of zero were considered to be accurate estimators. Thus, if there was an overestimation of weight status, this score would be

positive, and if there was an underestimation of weight status, this score would be negative. Using this score, I also categorized participants into three groups, a group that accurately estimated their weight status, a group that underestimated their weight status, and a group that overestimated weight status.

Procedures

In a controlled laboratory setting, participants completed an informed consent procedure. Participants granting informed consent then had their pictures taken by a digital camera and viewed either a media clip portraying weight stigmatization or a neutral media clip. Each participant viewed one of a set of 14 video clips from popular television shows or movies (approximately eight minutes in length). The weight-biased media clips portrayed overweight characters in negative and stereotypical ways (e.g., unattractive, overeating, lazy, clumsy). Neutral media clips came from similarly popular television shows and movies and were selected if they did not depict any negative or stereotypical portrayals of overweight characters. In the weight-biased media condition, male participants viewed clips depicting portrayals of overweight male characters and female participants viewed clips depicting portrayals of overweight female characters.

Weight biased media clips were selected from television shows and movies which were identified by previous researchers (Himes & Thompson, 2007) as having episodes and content which depicted weight stigmatization. In order to select appropriate episodes depicting weight stigatization, I used an online media database to search episode plots of the television shows identified by previous researchers. To determine which video clips to use from each television show episode and movie, I watched each episode and each movie and selected clips that portrayed overweight characters in negative and

stereotypical ways (i.e., an overweight character portrayed as the target of a negative fat comment or joke, or plot which supports a negative stereotype associated with being overweight). While the clips were negative in terms of their messages about being overweight, the clips all had a humorous undertone given they were taken from comedy movies and television shows.

After the participants viewed the media clip, they completed the two computer based implicit association tests and played the cyberball game. To avoid order effects, the two IATs were counterbalanced, and as a pair, the IATs were counterbalanced with the cyberball game. Next, participants completed self-report measures. As a manipulation check, participants were asked if they felt like the video clip that they viewed was making fun of an overweight character or making fun of overweight people in general. All participants who viewed weight-biased media reported that this was the case for the video that they viewed and all participants who viewed neutral media reported that this was not the case for the video that they viewed. Following debriefing, participants who gave their consent had their height and weight measured by a researcher.

Results

Overview of Analyses

For each of the dependent variables (body satisfaction, proportion of throws to the overweight player, implicit weight attitude, and implicit self-attitude), 2 x 2 ANOVAs were conducted to evaluate the effects of type of media exposure and weight status. For each outcome variable, I first report the results of ANOVAs that included weight identity (i.e., non-overweight vs. overweight) as the weight status indicator. I also report the results of our exploratory analyses, ANOVAs that included actual weight status (i.e., non-

overweight vs. overweight) as the weight status indicator. Due to the high number of ANOVAs being performed, I reduced the alpha level for each of our analyses to .01 to reduce the probability of Type I error.

Gender and Ethnicity Differences

One-way ANOVAs were computed to determine if there were any significant gender differences or ethnicity differences for dependent measures. Results indicated that there were no gender differences and no ethnicity differences for any of the dependent measures.

Effect of Weight-Biased Media on Body Satisfaction

To determine whether media type and weight status had an effect on body satisfaction, I conducted 2 x 2 ANCOVAs for body satisfaction reported by participants after the media exposure, covarying body satisfaction reported at prescreening. There was a significant interaction between weight identity and type of media exposure, $F(1,91) = 9.58$, $p < .01$., but after applying the alpha level correction, the main effect for weight identity and the main effect for media exposure were not significant. Body satisfaction at prescreening was significantly associated with body satisfaction reported after the media exposure ($p < .01$). After adjustment for initial differences in body satisfaction, exposure to weight-biased media was associated with reports of higher body satisfaction for the overweight participants. For the non-overweight participants, those who viewed weight-biased media reported similar body satisfaction as those who viewed neutral media. This interaction is depicted in Figure 1.

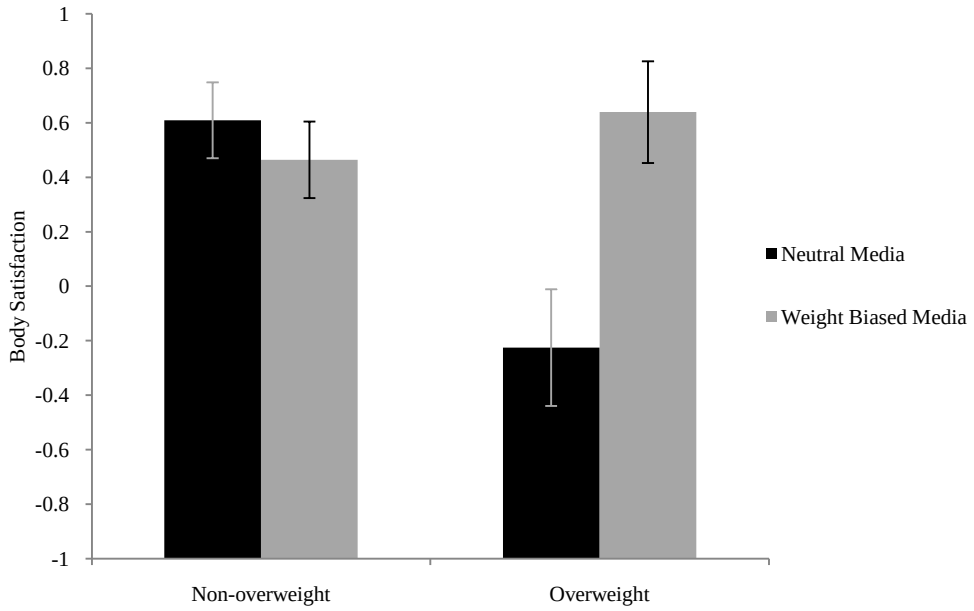

Figure 1. Mean body satisfaction as a function of media type and weight status.

Effect of Weight-Biased Media on Weight-Biased Behavior

Results of an ANOVA indicated no main effect for type of media exposure on weight-biased behavior, but a significant main effect for weight identity, $F(1,91) = 7.69$, $p<.01$, and a significant interaction between these independent variables, $F(1,91) = 17.07$, $p<.001$. For the overweight, exposure to weight-biased media was associated with a significantly higher proportion of throws to the overweight player. For the non-overweight participants, viewing weight-biased media was associated with a significantly lower proportion of throws to the overweight player. This interaction is depicted in Figure 2.

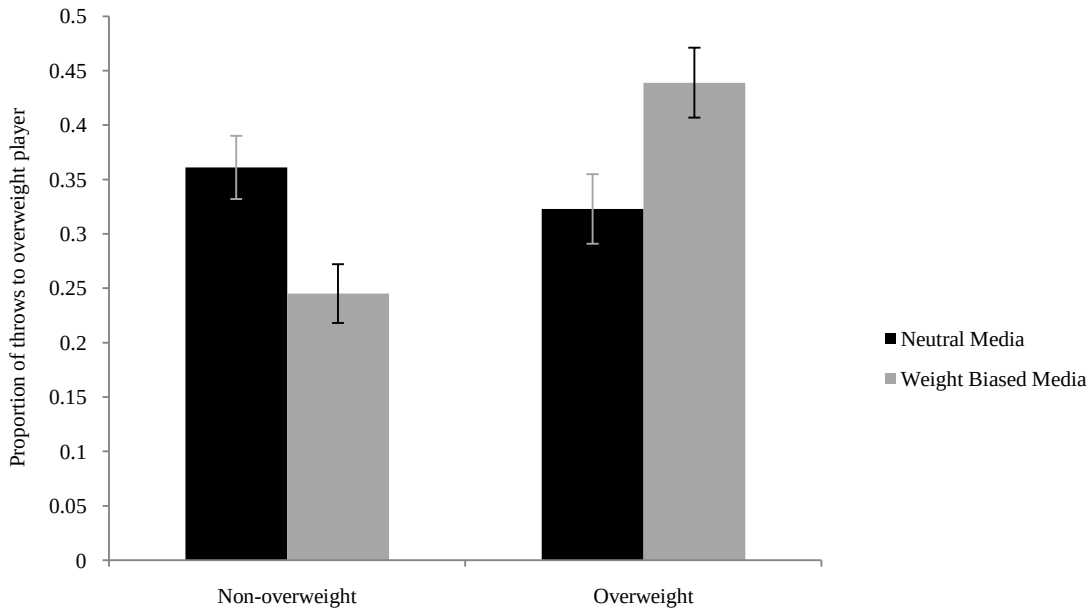

Figure 2. Mean proportion of throws to the overweight player as a function of media type and weight status.

Effect of Weight-Biased Media on Implicit Weight Attitude

The results for the ANOVA indicated no main effects and no interaction for type of media exposure and weight identity on implicit weight attitude.

Effect of Weight-Biased Media on Implicit Self-Attitude

The results for the ANOVA indicated there were no main effects for the type of media exposure and weight status. After applying the alpha level correction, the interaction for these independent variables was non-significant, $F(1,91) = 6.49$, $p = .013$. Exposure to weight-biased media was associated with a trend toward less positive self-attitude for the non-overweight, whereas for the overweight, there was a trend toward more positive self-attitude. This interaction is depicted in Figure 3. When weight identity was entered as the weight status indicator, the ANOVA indicated no main effects and no interaction for type of media exposure and weight status on implicit self-attitude.

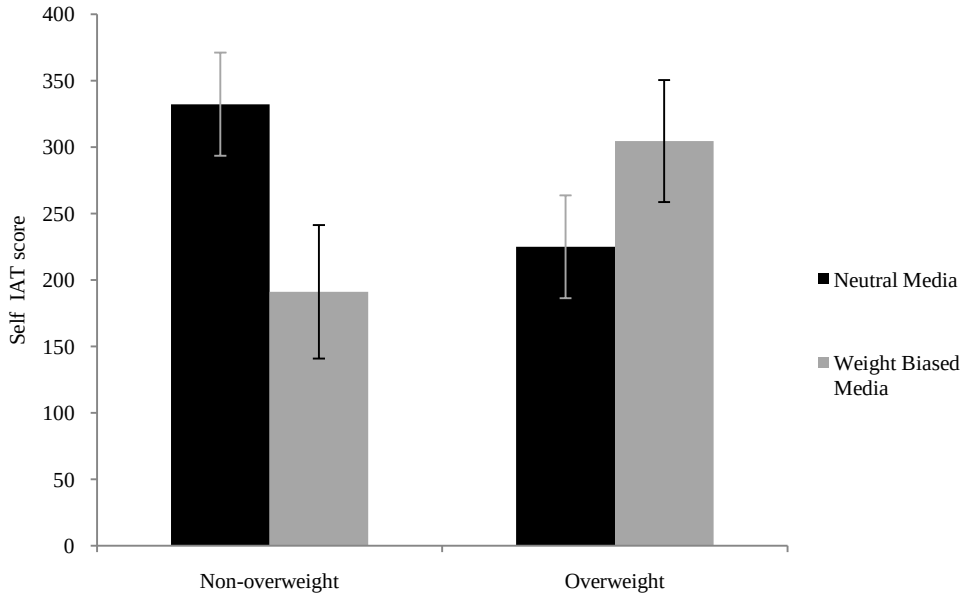

Figure 3. Self IAT score as a function of media type and weight status. Higher scores indicate more positive assocations regarding the self.

Exploratory Analyses Testing the Effects of Weight Perception Accuracy

Sixteen percent of participants (n = 15) underestimated their weight status, seventy-eight percent of participants accurately estimated their weight status (n = 72), and six percent overestimated their weight (n = 5). Discrepancy in perceived and objective weight status was significantly correlated with the weight-biased behavior measure of proportion of throws to the overweight player, $r(91) = .22$, $p<.05$, as well as change in body satisfaction from prescreening to post experiment, $r(92) = .21$, $p<.05$. Overestimation of weight status was associated with making more throws to the overweight player and increase in body satisfaction from prescreening to post experiment. Discrepancy in perceived weight status was not significantly correlated with the other post media viewing measures of implicit self-attitude and implicit weight attitude.

To determine whether or not there was an interaction between weight perception accuracy and media condition, I conducted 3x2 ANOVAs for each of the outcome variables.

Body satisfaction. To determine whether weight perception accuracy and media type had an effect on body satisfaction, I conducted a 3 x 2 ANCOVA for body satisfaction reported by participants after the media exposure, covarying body satisfaction reported at prescreening. The results for the ANCOVA indicated no main effects and no interaction for weight perception accuracy group and type of media exposure on body satisfaction.

Weight-biased behavior. The results for the ANOVA indicated no main effects and no interaction for weight perception accuracy group and type of media exposure on the weight-biased behavior measure of throws to the overweight player.

Implicit weight attitude. The results for the ANOVA indicated no main effect for type of media exposure and no interaction for weight perception accuracy group and type of media exposure on implicit self-attitude. After applying the alpha level correction, the main effect for weight perception accuracy group was not significant, p=.04. Follow up comparisons indicated that there was a trend toward less negative weight attitudes among those who underestimated their weight status (identified as non-overweight when their actual weight status was overweight). Specifically, the group that underestimated their weight status showed less negative weight attitude than the group that estimated their weight status accurately. Mean weight IAT scores and standard deviations are reported in Table 1.

Implicit self-attitude. The results for the ANOVA indicated no main effects and no interaction for weight perception accuracy group and type of media exposure on implicit self-attitude.

Preliminary Study 2

Overview

The purpose of study 2 was to determine whether the results of study 1 were replicable with a full version of the IAT and a new measure of weight-biased behavior.

Method

Participants

Participants (N = 56) in this study were recruited from the introductory psychology subject pool at Rutgers University in Newark. Participants earned 2 research point credits in exchange for their participation. The sample was racially/ethnically diverse (64.3% female; 25.9% White (non-Hispanic), 16.7% African American, 29.6% Asian, 13.0% Hispanic, 7.4% Middle Eastern/Arabic/Persian, 7.4% Other). The sample consisted of 64% females and 36% males. Participants ranged in age from 18 to 53 years (M = 20.30 years, SD = 4.13). Body Mass Index (BMI) computed from researcher-measured height and weight indicated that the participants' mean BMI was 25.7 (SD = 5.66; range = 17.5-41.3). Fifty percent of participants were classified as overweight (BMI between 25.0 and 29.9) or obese (BMI of 30 or greater) according to recommendations of the NIH.

Measures

Prescreening. The same four questions used in study 1 were included in a prescreening survey that students completed at the beginning of the semester. The same e-mail invitation process used in preliminary study 1 was used in this study. Responses were used to equally allot participants to experimental conditions using stratified random assignment. Approximately half of the participants were assigned to each of two experimental conditions, a weight-biased media condition and a neutral media condition.

Implicit weight attitude and implicit self-attitude. Participants completed two full length IATs. The only way in which these tests differed from the IATs used in study 1 was that participants were required to sort more concept and attribute words under each of the 2 category pairings. Participants sorted 20 concept words and pictures (10 exemplars of the thin concept, e.g., the word slim, the word underweight, pictures of slim

people; and 10 exemplars of the fat concept, e.g., the word chubby, the word obese, pictures of overweight people) and sorted 20 attribute words (10 exemplars of the good attribute, e.g., joy, terrific; and 10 exemplars of the bad attribute, e.g., agony, poison) under each of the two category pairings.

Participants also completed an IAT to indicate their strength of association between the concepts self and other and the attributes good and bad (implicit self-attitude). This test was identical to the self-attitude measure completed in study 1 except that again participants sorted 20 concept words and 20 attribute words.

Weight-biased behavior. Participants completed a dormitory assignment task as a measure of weight-biased behavior instead of playing the Cyberball game. As a cover story for the dormitory assignment task, participants were told that the researchers were assisting the university's office of student affairs in the design of dormitory assignment software. In support of the cover story, participants completed a dormitory experience survey before beginning the dormitory assignment task. All participants read profiles of college students, dormitory room descriptions, and potential roommate descriptions. They were asked to assign the profiled students to dormitory rooms and roommates. The profiles included descriptions of the students as well as pictures of the students. Following the room assignment, subjects were asked to sort the room descriptions in order of best to worst, and sort the roommates in order of most to least likable. Each participant's rankings for the rooms and roommates assigned to the overweight student profiles were recorded as a measure of behavior toward the overweight. A total of eight rooms were ranked in order from most to least likeable (1 being the most likeable and 8 being the least likable). As an indicator of negative behavior toward the overweight, I

subtracted the mean of each participant's rankings assigned to the non-overweight students from the mean of each participant's rankings assigned to overweight students. Higher rankings indicate poorer assignments. Thus, more positive scores indicated more biased behavior toward the overweight students (more negative assignments made to overweight students relative to non-overweight students).

Discrepancy and accuracy coding. Discrepancy in perceived weight status was calculated as it was in study 1. Because only one participant overestimated her weight, I categorized participants into two groups based on accuracy in weight status perception (0 = accurate estimate or overestimation, 1 = underestimated weight status).

Media character identification. After viewing the video, participants were asked if they felt like a character was being made fun of or treated unfairly. If their answer was yes, participants were asked how much they identified with or related to the experiences of this character. Responses were made on a 3-point scale (0 = Not at all, 1 = A little, 2 = A lot).

Other laboratory measures. The measures of body satisfaction, demographic information, and actual weight status that were used in study 1 were also completed in this study.

Procedures

In a controlled laboratory setting, participants completed an informed consent procedure. Participants granting informed consent then viewed either a media clip portraying weight stigmatization or a neutral media clip. Each participant viewed one of a set of 14 video clips (the same set used in study 1). The weight-biased media clips portrayed overweight characters in negative and stereotypical ways (e.g., unattractive,

overeating, lazy, clumsy). Neutral media clips came from similarly popular television shows and movies and were only selected if they did not depict any negative or stereotypical portrayals of overweight characters. In the weight-biased media condition, male participants viewed clips depicting portrayals of overweight male characters and female participants viewed clips depicting portrayals of overweight female characters. All participants who viewed weight-biased media reported that the video that they viewed was making fun of an overweight character or making fun of overweight people in general. All participants who viewed neutral media reported that this was not the case for the video that they viewed.

After the participants viewed the media clip, they completed two computer based implicit association tests, and a dormitory assignment task. To avoid order effects, the two IATs were counterbalanced, and as a pair, the IATs were counterbalanced with the dormitory assignment task. Next, participants completed self-report measures. Participants were then asked to complete a brief questionnaire assessing their suspiciousness concerning the overall project. Specifically they were asked to describe what they believed the purpose of the study to be, if any other student had told them about the nature of the project, and whether they believed that deception was involved in the project. While some of the participants reported believing that deception was involved, only two of these participants described the purpose of the study to be related to treatment of overweight people. Because of concerns regarding hypothesis guessing and presentation bias, the data of these two participants were not included in the analyses for this study. Following debriefing, participants who gave their consent had their height and weight measured by a researcher.

Results

Overview of Analyses

For each of the dependent variables (body satisfaction, ratings for the dorm roommates assigned to overweight profiled students, implicit weight attitude, and implicit self-attitude), 2 x 2 ANOVAs were conducted to evaluate the effects of type of media exposure and weight status. For each outcome variable, I report the results of ANOVAs that included weight identity (i.e., non-overweight vs. overweight) as the weight status indicator. I also report the results of exploratory analyses, ANOVAs that included actual weight status (i.e., non-overweight vs. overweight) as the weight status indicator. Due to the high number of ANOVAs being performed, I reduced the alpha level for each of our analyses to .01 to reduce the probability of Type I error.

Gender and Ethnicity Differences

One-way ANOVAs were computed to determine if there were any significant gender differences or ethnicity differences on the dependent measures. Results indicated that there were no gender differences and no ethnicity differences for any of the dependent measures.

Effect of Weight-Biased Media on Body Satisfaction

To determine whether media type and weight status had an effect on body satisfaction, I conducted 2 x 2 ANCOVAs for body satisfaction reported by participants after the media exposure, covarying body satisfaction reported at prescreening. There was not a main effect for media type or a significant interaction between weight identity and type of media exposure, but the main effect for weight identity was significant, $F(1,50) = 7.52$, $p < .01$. Body satisfaction at prescreening was significantly associated with body

satisfaction reported after the media exposure ($p < .01$). After adjustment for initial differences in body satisfaction, identifying as overweight was associated with reports of lower body satisfaction. When actual weight status was entered as the weight status indicator, the ANOVA indicated no main effects and no interaction for type of media exposure and weight status on reports of body satisfaction.

Effect of Weight-Biased Media on Weight-Biased Behavior

Two separate sets of ANOVAs were run for two indicators of behavior toward the overweight (bias in room and roommate assignments made to overweight students relative to non-overweight students).

For dorm room assignments, results of the ANOVA indicated no main effects and no interaction for media type and weight identity. The same was the case when actual weight status was entered as the weight status indicator. For roommate assignments, results of the ANOVA indicated no main effects and no interaction for media type and weight identity. The same was the case when actual weight status was entered as the weight status indicator.

Effect of Weight-Biased Media on Implicit Weight Attitude

The results of the ANOVA indicated no main effects and no interaction for type of media exposure and weight identity on implicit weight attitude. The same was the case when actual weight status was entered as the weight status indicator.

Effect of Weight-Biased Media on Implicit Self-Attitude

The ANOVA indicated there were no main effects for the type of media exposure and weight status. After applying the alpha level correction, the interaction for these independent variables was insignificant, $F(1,52) = 6.49$, $p = .038$. Follow up analyses

indicated that exposure to weight-biased media was associated with a trend toward less positive self-attitude for the overweight, whereas for the non-overweight, it was associated with more positive self-attitude. This interaction is depicted in Figure 4. When weight identity was entered as the weight status indicator, the ANOVA indicated no main effects and no interaction for type of media exposure and weight status on implicit self-attitude.

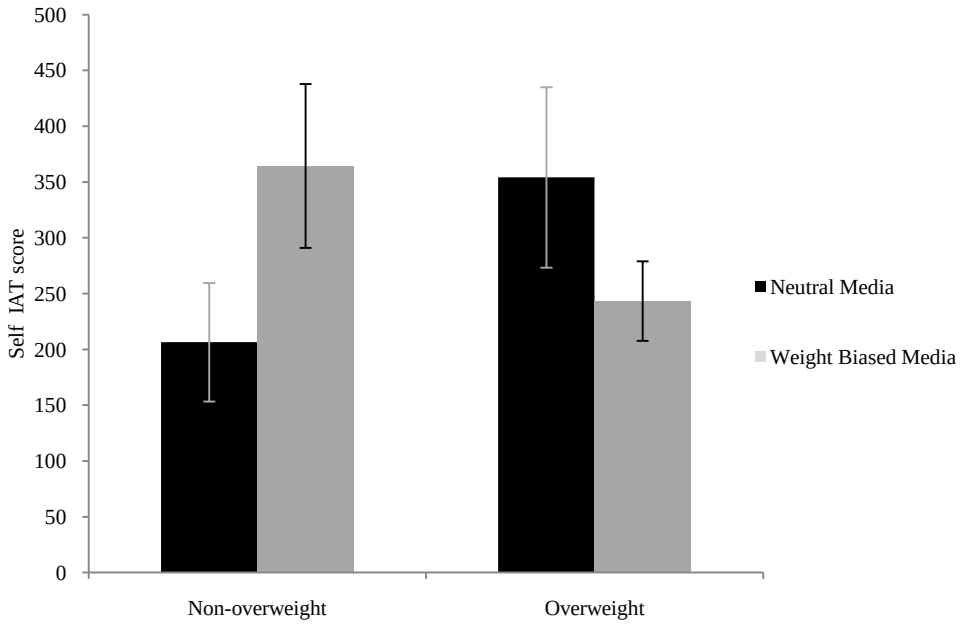

Figure 4. Self IAT score as a function of media type and perceived weight status. More positive scores indicate more positive associations regarding the self.

Exploratory Analyses Testing Experimental Effects on Weight-Biased behavior

Two mixed factorial ANOVAs were conducted to investigate the role that weight status and gender played in the experimental effects on roommate and dorm room assignments. In one analysis, weight identity was entered as the weight status indicator. In another analysis, actual weight status was entered as the weight status indicator. Participant gender, participant weight status, and experimental condition were the between-subjects factors included in this analysis. Within-subjects factors included gender and weight status of the target students being assigned to rooms and roommates by the participant.

Roommate assignments. The multivariate and univariate tests indicated no main effects or interactions for any of the within-subject or between-subject factors on roommate assignments. This was the case when both weight identity and actual weight status were entered as the weight status indicators.

Dorm room assignments. When weight identity was entered as the weight status indicator, the multivariate criterion of Wilks's lambda indicated no main effects or interactions for these factors on dorm room assignments. The univariate between-subjects test of the gender x media type x weight identity interaction was significant, F (1, 48) = 6.40, p<. 05. Separate ANOVAs computed for each weight group indicated that the interaction between gender and media type was significant only for the group of participants who identified as overweight, F (1, 13) = 7.18, p<. 05. Among those who identified as overweight, for females but not males, exposure to weight-biased media was associated with making better dorm room assignments across target student gender and weight. Separate ANOVAS computed for each gender indicated that the interaction

between weight status and media type was significant for females but not males, $F(1, 32) = 4.83$, $p<.05$. For females who identified as overweight but not females who identified as non-overweight, weight-biased media exposure was associated with making significantly better dorm room assignments across target student gender and weight.

When actual weight status was entered as the weight status indicator, the multivariate criterion of Wilks's lambda indicated no main effects or interactions for these factors on dorm room assignments. The univariate between-subjects test also indicated no main effects or interactions for the between subjects factors on dorm room assignments.

Exploratory Analyses Testing the Effects of Weight Perception Accuracy

Twenty-five percent of participants ($n = 14$) underestimated their weight and seventy-five percent of participants accurately estimated or overestimated their weight ($n = 42$). Discrepancy in perceived weight status was significantly correlated with the post media viewing measures of implicit self-attitude, $r(56) = .27$, $p<.05$, and body satisfaction, $r(92) = -.41$, $p<.01$. However, it was not significantly correlated with change in body satisfaction from prescreening to posttest or the other post media viewing measures of implicit weight attitude or weight-biased behavior.

To determine if there was an interaction between weight perception accuracy and media condition, I conducted 2x2 ANOVAs for each of the outcome variables. An ANCOVA was conducted for post media viewing body satisfaction with prescreening body satisfaction entered as a covariate. There was no main effect for type of media exposure and no interaction for weight perception accuracy group and type of media exposure on body satisfaction. After applying the alpha level correction, the main effect

of weight perception accuracy on body satisfaction was still significant, $F(1,50) = 6.42$, $p=.01$. After adjustment for initial differences in body satisfaction, those who underestimated their weight status showed higher body satisfaction ($M = .71$, $SE = .23$) than those who did not ($M = .029$, $SE = .234$). The results for the ANOVAs indicated no main effects and no interactions for weight perception accuracy group and type of media exposure on any of the other outcome variables.

Exploratory Analyses Testing the Effects of Media Character Identification

Because none of the participants in the neutral media condition reported that they felt like a character was being made fun of or treated unfairly, all exploratory analyses testing for the effects of media character identification included participants exposed to weight-biased media only.

Bivariate correlations indicated a significant negative association between media character identification and the post media viewing measure of body satisfaction, $r(28) = -.446$, $p<.05$, but no significant association between media character identification and change in body satisfaction from prescreening to post experiment, $p = .18$. Media character identification did not significantly correlate with the other post media viewing measures of implicit self-attitude and implicit weight attitude, or behavior toward the overweight.

To determine if there was an interaction between media character identification and weight status, I conducted 2x2 ANOVAs for each outcome variable. An ANCOVA was conducted for post media viewing body satisfaction with prescreening body satisfaction entered as a covariate. According to reports of media character identification

I categorized participants into two groups (e.g., 0 = did not identify with the media character at all, 1= identified with the media character "a little" or "a lot").

Body satisfaction. The results for the ANCOVA indicated no main effects and no interaction for media character identification and weight identity on the post media viewing measure of body satisfaction. The same was the case when actual weight status was entered as the weight status indicator.

Weight-biased behavior. Two separate sets of ANOVAs were run for the two indicators of behavior toward the overweight (relative ranking of dorm rooms assigned to the overweight profiled students and relative ranking of roommates assigned to the overweight profiled students). For dorm room assignments, when weight identity was entered as the weight status indicator results of the ANOVA indicated no main effects and no interaction for media character identification and weight identity. The same was the case when actual weight status was entered as the weight status indicator. For roommate assignments, when weight identity was entered as the weight status indicator results of the ANOVA indicated no main effects and no interaction for media character identification and weight identity. When actual weight status was entered as the weight status indicator there were no main effects for media character identification or weight status but there was a significant interaction between these two variables, $F(1,23) = 9.93$, $p < .01$. This interaction is depicted in Figure 5. Among the non-overweight but not the overweight, identification with the media character was associated with making significantly better roommate assignments (lower rankings indicate better assignments) for the overweight students. Among those who identified with the media character,

being overweight was associated with making significantly poorer roommate assignments for the overweight students.

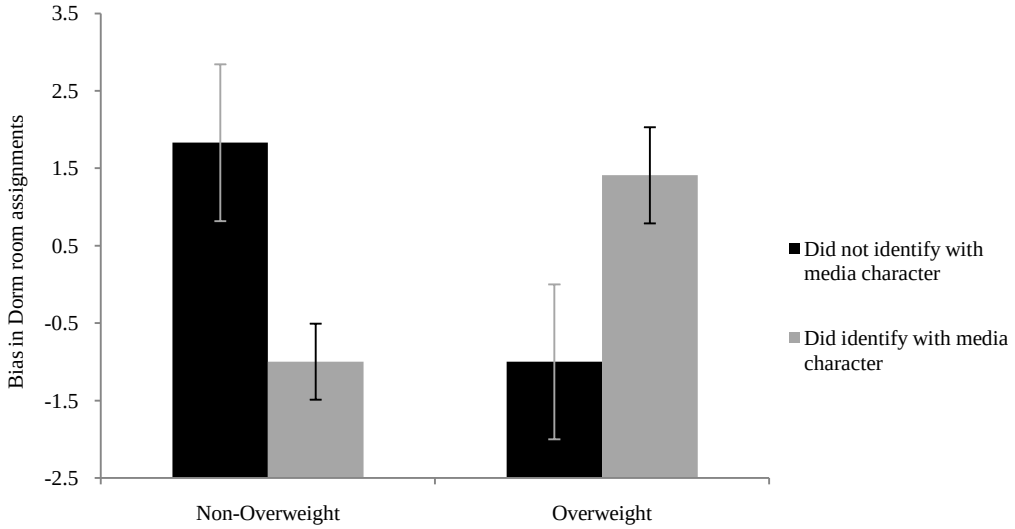

Figure 5. Relative ranking of dorm rooms assigned to the overweight profiled students as a function of media character identification and weigh status.

Implicit weight attitude. The results for the ANOVA indicated no main effects and no interaction for media character identification and weight identity on implicit weight attitude. The same was the case when actual weight status was entered as the weight status indicator.

Implicit self-attitude. The results for the ANOVA indicated no main effects and no interaction for media character identification and weight identity on implicit self-

attitude. The same was the case when actual weight status was entered as the weight status indicator.

Preliminary Study 1 and 2 Discussion

The purpose of both preliminary study 1 and preliminary study 2 was to investigate the effects of weight-biased media on the weight attitude, weight-biased behavior, self-attitude, and body satisfaction of non-overweight and overweight participants. In study 1, an interaction was observed between weight status and type of media exposure for body satisfaction, and weight-biased behavior. For overweight participants, exposure to weight-biased media was associated with higher body satisfaction and more throws to the overweight player. For non-overweight participants, exposure to weight-biased media was associated with fewer throws to the overweight player. I also observed an interaction between weight status and type of media exposure for implicit self-attitude. For the non-overweight, exposure to weight-biased media was associated with less positive self-attitude, whereas, for the overweight, there was an insignificant trend toward more positive self-attitude. With the one exception of the implicit self-attitude finding, these effects emerged when weight identity was entered as the weight status indicator. None of these results were replicated in study 2. For each of the outcome variables, there were no main effects and no interactions between weight status and media type that emerged as significant after applying the alpha level correction in study 2. It is possible that results of study 1 were not replicated in study 2 because of the different measures that were used. Asking participants to assign profiled overweight students to living situations may not have evoked the potential for weight bias in the same way that playing the Cyberball game did. Perhaps because students were told that

they were actually interacting online with the students when playing this game, the degree to which the other "players" were like or unlike the participant may have been more salient. In this task, physical appearance was the only information provided other than each player's name, whereas in the dormitory assignment task, each student's profile included multiple characteristics (major, extracurricular activities, etc.). Participants completing the weight-biased behavior measure of study 1 may have been more likely to notice weight, thus making it more likely to influence decision making. In study 2, implicit weight attitudes were only significantly correlated with behavior toward the overweight among the overweight participants (more negative weight attitude was associated with less positive ratings of assignments made to the overweight students; r = -.393, $p < .05$). Measures that other researchers have developed to assess weight-biased behavior have not correlated with implicit weight attitudes or explicit weight attitudes (e.g., O'Brien, Latner, Halberstadt, Hunter, Anderson, & Caputi, 2008), which in combination with our inconsistent results for two different weight-biased behavior measures points to a need for further work developing measures of weight bias.

The implicit measures in study 2 were also different from the implicit measures in study 1, in that study 1 included shortened versions of the implicit association tests as measures of weight attitude and self-attitude and study 2 included full versions. Participants only sorted 8 exemplar stimuli during each of the critical trials of the shortened test whereas they sorted 40 exemplar stimuli during each of the critical trials in the full version. Given this difference in test length, it seems likely that the inconsistent results stemmed from the measurement difference and not from a difference in the media and weight status effects across studies. The null findings of study 2 could be an

indication that the variance in weight salience among participants was limited. Higher levels of weight salience might be expected of students who are currently experiencing eating disorder-related symptoms or excessive concern food or weight.

Findings from the exploratory analyses indicating that media character identification and weight status interacted in predicting relative quality of roommate assignments made to overweight students are novel in that previous research has not addressed identification with overweight people as a predictor of weight-biased behavior. Findings from these analyses indicate that, among the non-overweight, this identification may be linked to more positive behavior toward overweight people. For the overweight participants, identifying with a mistreated overweight character was associated with more negative behavior toward the overweight students. On the other hand, the overweight individulas who reported lower levels of identification with the stigmatized overweight media character actually showed more positive behavior toward the overweight students in the dormitory assignment task. This disidentification paired with prosocial behavior toward overweight others could indicate an attempt to boost self-image. Thus, future work should explore this construct in more detail, aiming to understand what specific elements of identification with stigmatized or overweight people curbs bias. Importantly, preliminary study 1 provides evidence that weight-biased media exposure influences attitudes about the self and behavior toward the overweight. This study provides experimental evidence for the argument that weight-biased media promotes weight-biased behavior. Preliminary study 2 created interest in media character identification as a potential moderator of weight-biased media effects.

Dissertation Study 1

Overview

The results of preliminary study 1 provided evidence that weight-biased media exposure influences attitudes about the self and behavior toward the overweight. Study 2 pointed to a need for further research of media character identification as a potential moderator of weight-biased media effects. The dissertation studies described below investigate experience with weight stigma as a predictor of negative weight attitudes, negative self-evaluation, and eating disorder symptoms. I investigate the correlates of two different forms of weight stigmatization experiences: exposure to weight-biased media, and direct weight-related stigmatization experiences.

The primary goal of dissertation study 1 was to investigate weight-biased media exposure as a predictor of eating disorder-related cognitions and test these dysfunctional cognitions as mediators, which might account for the relation between reports of direct weight-based stigmatization experiences and disordered eating symptoms. First, I tested the hypothesis that exposure to weight-biased media was associated with negative implicit weight attitude, negative self-evaluation, and dysfunctional eating cognitions (explicit body dissatisfaction, memory bias, and appearance-schema activation). Previous research has indicated that individuals who report higher levels of disordered eating behavior are more vulnerable to the negative effects of thin-ideal media (e.g., Hamilton & Waller, 1993; Irving, 1990). I expected to see a similar vulnerability to the negative effects of exposure to weight-biased media among participants who report high levels of eating disorder symptoms. If the experience of being stigmatized because of one's weight has an impact on disordered eating behaviors through activation of negative weight-related beliefs and attitudes or negative attitudes about the self, being exposed to

media which depict others' experiencing this type of mistreatment may trigger subtle fluctuations in attitudes and behaviors in line with those that occur during first-hand experiences. As such, previous or current experience with weight-based stigmatization or being overweight should enhance the process of relating to mistreatment of an overweight character and thus predict heightened sensitivity to any resulting changes in attitudes and behaviors. I therefore expected higher sensitivity to the priming effects of the weight-biased media for those who self-identified as overweight and those who reported more experience with weight-based stigmatization. To follow up on the media character identification finding of preliminary study 2, I also tested media character identification as a moderator of the effects of weight-biased media.

I tested the hypothesis that the relation between weight-based stigmatization experiences and eating disorder symptoms and the relation between weight-based stigmatization experiences and weight-biased behavior were mediated by negative weight attitudes, negative self-evaluation, and dysfunctional eating cognitions. Negative weight attitudes, negative self-evaluation, and dysfunctional eating cognitions were expected to provide a pathway between weight-based stigmatization experiences and eating disorder symptoms. Specifically I expected that exposure to weight-based stigmatization would be associated with more negative weight attitudes, negative self-evaluation, and dysfunctional eating cognitions, which, in turn, would be related to higher scores on the key behavior and concern aspects of eating-disorder psychopathology.

Method

Participants

Participants (*N* = 123) in this study were recruited from the introductory psychology subject pool at Rutgers University in Newark. Participants earned 2 research point credits in exchange for their participation. The sample was racially/ethnically diverse (22.8% White/Caucasian, 13.9% Black/African American, 20.8% Asian, 14.9% Latino/a/Hispanic, 13.9% Middle Eastern/Arabic/Persian, 8.9% Other). The sample consisted of 78% females and 22% males. Participants ranged in age from 18 to 48years (*M* = 20.64 years, *SD* = 4.15). Body Mass Index (BMI) computed from researcher measured height and weight indicated that the participants' mean BMI was 20.63 (*SD* = 6.05; range = 16.36-56.68). About 40% of participants were classified as overweight or obese.

Measures

Prescreening. The same four questions used in study 1 and 2 were included in a prescreening survey that students were required to complete prior to their attending the laboratory for the experimental stage of the study (weight, height, weight identity, body satisfaction). Participants also completed a brief measure to screen for eating disorder symptoms (Morgan, Reed, & Lacy, 1999). The same e-mail invitation process used in preliminary study 1 and 2 was used in this study. Prescreening information regarding weight status and weight identity was used to equally allot participants to experimental conditions using stratified random assignment. With the goal of increasing variance in eating disorder pathology and weight salience among the participants of this study, prescreening information regarding eating disorder symptoms was used to selectively recruit students from the undergraduate research pool. The body satisfaction scale was used as baseline measure for laboratory assessment. Approximately half of the

participants were assigned to each of two experimental conditions, a weight-biased media condition and a neutral media condition.

Word encoding and recall memory task. Participants were presented with 20 words presented in random order at the rate of one word every 5 seconds. This set of words consisted of two categories of positively and negatively toned words and a set of neutral filler words: eight body words (4 provoking body words, e.g., hips, belly; and 4 non-provoking body words, e.g., knees, ankles), eight emotion-related words (4 negative emotion words, e.g., hopeless, sad; 4 positive emotion words, e.g., happy, joyful), and four neutral filler words (e.g., wagon, key). Most of the body words were drawn from previous published research (i.e., Hunt & Cooper, 2001; Huon & Brown, 1996; Sebastian, Williamson, & Blouin, 1996), as were the emotion-related words (Bradley & Lang, 1999). Participants were instructed to read the word and imagine themselves in a situation involving the word. Following completion of the word task participants were given a distraction task, in which they were required to complete a series of math problems. Participants then were asked to recall and type all the words that they could remember seeing in the previous memory task, indicating when they had finished. Selective recall of provoking body related words, as well as negative emotion related words was assessed by comparing the ratio of words recalled from each sub-category of words.

Appearance- and weight-schema activation. Participants completed the word-stem completion task designed to measure appearance- and weight-schema activation (Tiggemann, Hargreaves, Polivy, & McFarlane, 2004). Twenty word stems (e.g., thi,

obe, wai) were presented and participants were asked to complete these stems with whatever word came to their mind first.

Implicit weight attitude, self-attitude, and weight stereotyping. Participants completed three full length IATs. This included the weight attitude IAT and the self-attitude IAT that were completed in study 2, and to assess a common weight-related stereotype, an IAT indicating strength of association between the concepts thin and fat and the attributes motivated and lazy. For the weight stereotype IAT, participants sorted 20 concept words and pictures (10 exemplars of the thin concept, e.g., the word slim, the word underweight, pictures of slim people; and 10 exemplars of the fat concept, e.g., the word chubby, the word obese, pictures of overweight people) and sorted 20 attribute words (10 exemplars of the motivated attribute, e.g., determined, eager; and 10 exemplars of the lazy attribute, e.g., sluggish, slow) under each of the two category pairings.

Media character identification. To gain a better understanding of the media effects, participants were asked about their identification with the characters in the media clips. After viewing the video, participants were asked if they felt like a character was being made fun of or treated unfairly. If their answer was yes, participants were asked questions about their identification with this character (e.g., "How much do you identify with or relate to the experiences of this character?", "How much do you look like this character?"). Responses were made on a 3-point scale (0 = Not at all, 1 = A little, 2 = A lot). Items were adapted from a scale used previously by other researchers to assess identification with violent media characters (Huesmann, Moise-Titus, Podolski, & Eron, 2003). A composite score was computed based on the sum of all identification items (Cronbach's alpha = .75).

Weight-based stigmatizaton experience. Participants completed a 10-item self-report measure of their previous and current experience with different types of weight-based stigmatization and weight-related teasing (e.g., "How often do others make fun of you for being overweight or heavy?", "How often do family members nag you to lose weight?"). Items were adapted from measures previously used by other researchers (Myers & Rosen, 1999; Thompson, Cattarin, Fowler, & Fisher, 1995). For each item, participants asked how often this happens currently, as well as how often this happened in their childhood or adolescence. Responses were made on a 4-point scale (0 = Never, 1= One time, 2 = A few times, 3 = Very often). Two composite scores were computed based on the sum of weight stigmatization experiences reported currently, and during childhood or adolescence, and a total sum for all weight stigmatization experiences reported.

Eating disorder symptoms. Participants completed the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 2008), a 33-item self-report measure derived from the Eating Disorder Examination, a well established investigator-based interview which has been used for the assessment and diagnosis of eating disorders according to the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (Garner, 2002; American Psychiatric Association, 1994). I obtained two types of data from this measure. First, I obtained frequencies of key behavior and concern features of eating disorders in terms of number of episodes and, in some cases, number of days on which a behavior occurred in the past 28 days. Second, I obtained subscale scores for dietary restraint, eating concerns, concerns about weight, concerns about shape, and a global score derived from items addressing attitudinal aspects of eating-

disorder psychopathology. For the subscale items, responses were made on a 7-point scale indicating the number of days or episodes in which these concerns or behaviors indicative of these concerns occurred, or the severity of these concerns. Subscale scores were created by calculating the sum of the ratings for the relevant items. A global score was created by calculating the sum of all items from the four subscales. The internal consistency and convergent validity of the EDE-Q has been documented (Black & Wilson, 1996; Fairburn & Beglin, 1994).

Weight-Biased Behavior. As a measure of weight-biased behavior, participants completed the computer-based ball tossing game, Cyberball, which was included in preliminary study 1. Again, as a cover story, participants were told that they were playing the game with the other players via the Internet.

Other measures. The measures of current body satisfaction, demographic information, and actual weight status that were used in preliminary study 1 and preliminary study 2 were also included in this study.

Procedure

In a controlled laboratory setting, after completing the informed consent procedure, participants viewed either a media clip portraying weight stigmatization or a neutral media clip. Each participant viewed one of a set of 14 video clips (the same set used in study 1 and 2). In the weight-biased media condition, male participants viewed clips depicting portrayals of overweight male characters and female participants viewed clips depicting portrayals of overweight female characters.

After the participants viewed the media clip, they completed the word encoding and recall memory task, the word stem completion task, and the three IATs. To avoid

order effects, these first two implicit tasks were counterbalanced as a pair, and the three IATs were counterbalanced as a set. Because several of the exemplar words and category words presented in the IATs began with word stems included in the word stem completion task, the three IATs were always completed after the other two implicit measures. Once all of the implicit measures were completed, participants completed the self-report measures. Following debriefing, participants who gave their consent had their height and weight measured by a researcher.

Overview of Analyses

For each of the criterion variables (implicit weight attitude, self-attitude, and weight stereotyping; selective recall of provoking body related words, and negative emotion related words; appearance-schema activation; and body satisfaction), 2 x 2 ANCOVAs were conducted to evaluate the main effects of and interaction between type of media exposure and eating disorder-related pathology level. ANCOVAs were conducted to evaluate the main effects of and the interaction between type of media exposure and weight-based-stigmatization experiences. To covary out the effects of a potentially confounding variable, weight status was entered as the covariate in each ANCOVA. Also for each of these criterion variables and the weight-biased behavior measure, proportion of throws to the overweight player, 2 x 2 ANOVAs were conducted to evaluate the main effects of and interaction between type of media exposure and weight status. For exploratory purposes, I tested for the main effects of and the interaction between weight status and identification with the overweight media character for each criterion variable.

A second goal of this study was to examine the process by which exposure to weight-based stigmatization relates to disordered eating pathology. Dysfunctional cognitions (implicit weight attitude, implicit weight stereotyping, attentional bias, and weight and appearance- schema activation) were expected to provide a pathway between exposure to weight-based stigmatization and disordered eating pathology. To examine this, a test of mediation described by Barron and Kenny (1986) was applied. A stringent version of this test requires that (a) the independent variable significantly predicts both the mediator and the outcome (i.e., exposure to weight-based stigmatization should significantly predict both dysfunctional cognitions linked to disordered eating, and higher levels of eating disorder-related attitudes and behavior, (b) the mediator significantly predicts the outcome variable (i.e., dysfunctional cognitions should significantly predict higher levels of eating disorder-related attitudes and behavior), and (c) the independent variable predicts the outcome less (partial mediation) or non-significantly (complete mediation) when the mediator also is included as a predictor (i.e., exposure to weight-based stigmatization is a less significant predictor or a non-significant predictor of eating disorder-related attitudes and behavior when dysfunctional cognitions are included in the regression equation). This model is depicted in Figure 6. Partial mediation was expected not complete mediation.

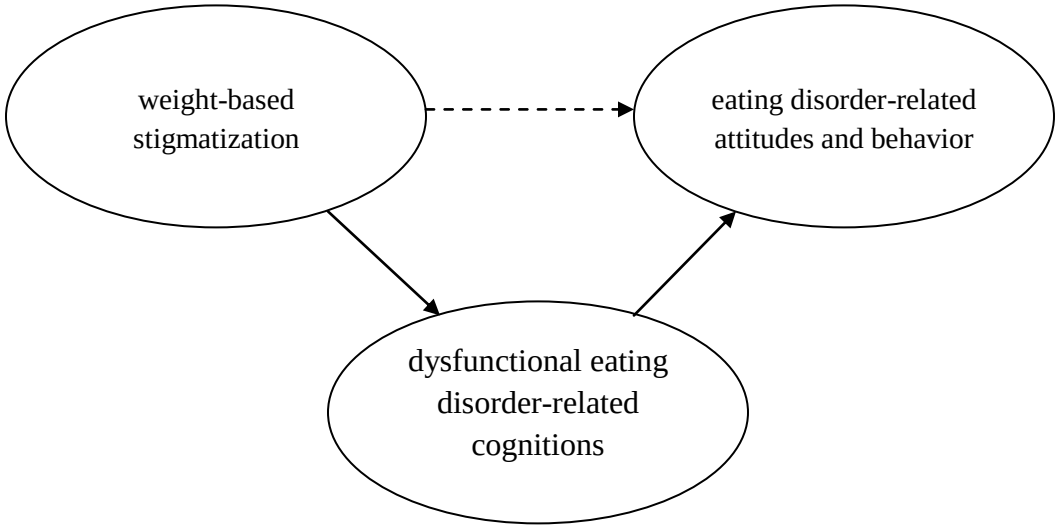

Figure 6. Hypothesized mediational model tested in study 3.

Separate sets of regression analyses were run with 7 disordered eating factors as criterion variables (EDE-Q restraint sum, EDE-Q eating concern sum, EDE-Q shape concern sum, EDE-weight concern sum, EDE-Q global scale sum, frequency of compensatory behaviors, and frequency of binge eating). Each set included regression analyses for each dysfunctional cognition. Gender, experimental condition, and weight identity (non-overweight, overweight), were entered as control variables in each regression analysis to covary out effects of the media viewing, weight status, and gender. Because of the correlational nature of the data, these tests of mediation were considered exploratory and not confirmatory. Assessments at successive time points are necessary in order to infer a causal version of the proposed mediational model.

Results

Effects of Media Type and Eating Disorder Pathology Level

I conducted 2 x 2 ANCOVAs to test the effects of media type and eating disorder pathology level on each of the criterion variables (selective recall of provoking body related words, and negative emotion-related words; appearance-schema activation; implicit weight attitude, self-attitude, and weight stereotyping; and body satisfaction) while covarying the effect of perceived weight status (non-overweight vs. overweight) reported at prescreening. For implicit weight stereotyping, while there were no main effects, there was an interaction between media type and eating disorder pathology level, $F(1,108) = 3.97$, $p = .05$. Follow up analyses indicated that, for the at-risk group, weight-biased media exposure was associated with more negative stereotyped associations. For the not-at-risk group, biased media exposure was associated with less negatively stereotyped associations. This interaction is depicted in Figure 7.

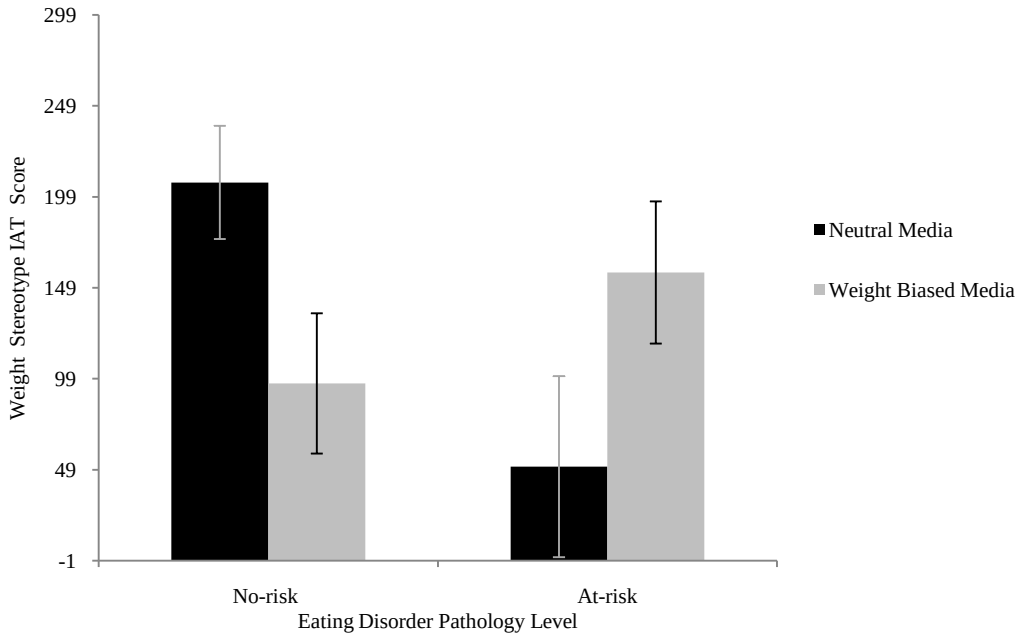

Figure 7. Mean IAT scores on the weight stereotype IAT as a function of media type and eating disorder pathology level.

Analyses also indicated a significant main effect for media type on appearance-schema activation as measured by the word stem completion task, $F(1,114) = 5.26$, $p = .02$. For both participants who reported at-risk levels of eating disorder pathology and those who did not, less weight schema activation was observed in the weight-biased media group ($M = 4.96$, $SD = 2.70$) compared to the neutral media group ($M = 5.84$; $SD = 2.63$). There were no main effects or interactions for type of media exposure and eating disorder pathology level on any of the other criterion variables.

Effects of Media Type and Experience with Weight Stimatization

ANCOVAs were conducted to evaluate the main effects of and the interaction between type of media exposure and weight-based stigmatization experiences. Participants were divided into two groups (a high weight stigmatization group and a low weight stigmatization group). The high group consisted of participants who had a weight stigmatization experience composite score at or above the 75th percentile, and the low group consisted of participants who had a composite score below the 75th percentile. While controlling for the effect of weight status, there was no main effect for weight stigmatization group and no interaction between media type and weight stigmatization group for any of the criterion variables.

Effects of Media Type and Weight Status

I conducted 2 x 2 ANOVAs to test the effects of media type and weight status (non-overweight vs. overweight) on each of the criterion variables (selective recall of provoking body-related words, and negative emotion words; appearance-schema activation; implicit weight attitude, self-attitude, and weight stereotyping; and body

satisfaction, and proportion of throws to the overweight player in the cyberball game). For implicit weight stereotyping, while there were no main effects, there was an interaction between media type and weight status, $F(1,112) = 6.56$, $p = .01$. Follow up analyses indicated that, for those who identified as overweight, weight-biased media exposure was associated with more negative stereotyped associations. For those who did not identify as overweight, biased media exposure was associated with less negatively stereotyped associations. This interaction is depicted in Figure 8.

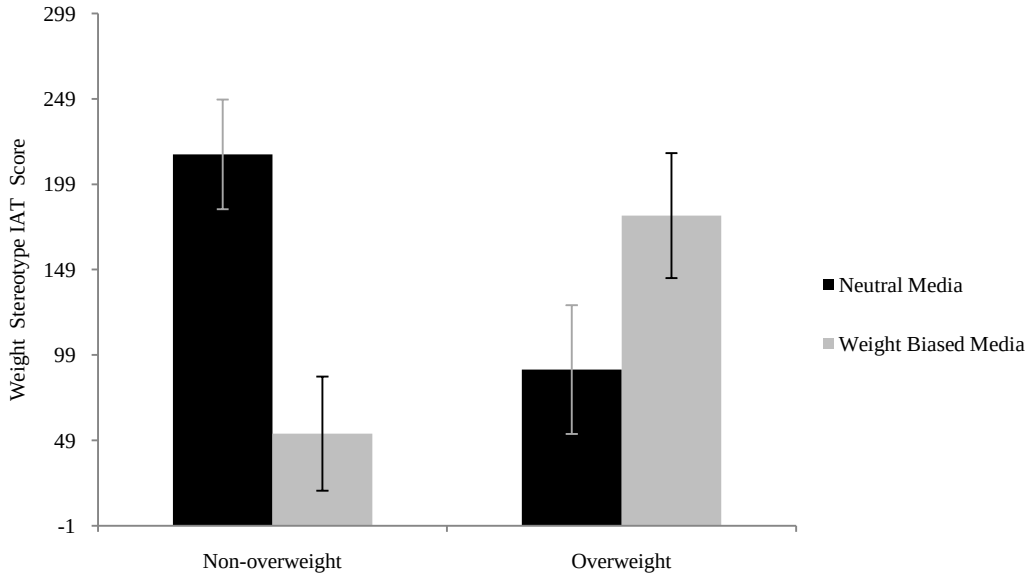

Figure 8. Mean IAT scores on the weight stereotype IAT as a function of media type and weight status. Higher weight stereotype IAT scores indicated more negative stereotyped associations.

An ANCOVA controlling for baseline body satisfaction level measured at prescreening, indicated a significant main effect for media type on body satisfaction, $F(1,114) = 5.26$, $p = .02$. For participants who identified as overweight and those who

did not, lower body satisfaction was observed in the weight-biased media group (M = .46, SD = .95) compared to the neutral media group (M = .07, SD = 1.14).

There was a significant main effect for weight status, $F(1,114) = 8.45$, $p < .01$, and a significant interaction between media type and weight status, $F(1,114) = 7.30$, $p < .01$ on the weight-biased behavior measure, proportion of throws to the overweight player in the cyberball game. Participants who identified as overweight (M = .37, SD = .18) made a higher proportion of throws to the overweight player than did participants who identified as non-overweight (M = .29, SD = .12). Follow up analyses indicated that, for the overweight, exposure to weight-biased media was associated with a significantly higher proportion of throws to the overweight player. For the non-overweight participants, viewing weight-biased media was associated with a significantly lower proportion of throws to the overweight player. This interaction is depicted in Figure 9.

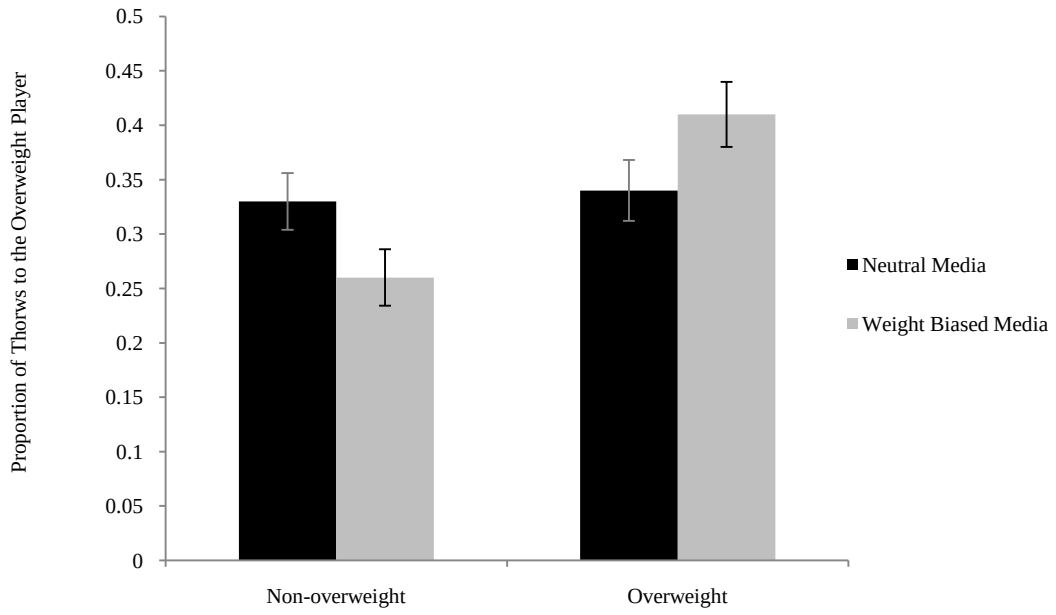

Figure 9. Mean proportion of throws to the overweight player in the cyberball game as a function of media type and weight status.

There were no main effects or interactions for perceived weight status and media type for any of the word recall measures. However, when actual weight status (based on height and weight measured by the researcher) was entered as the weight status indicator, there was a significant interaction for positive emotion word recall bias, $F(1,110) = 4.84$, $p = .03$. For the overweight participants, weight-biased media exposure was associated with recall of a higher proportion of positive emotion-related words. For the non-overweight participants, both media groups recalled a similar amount of positive emotion words. This interaction is depicted in Figure 10.

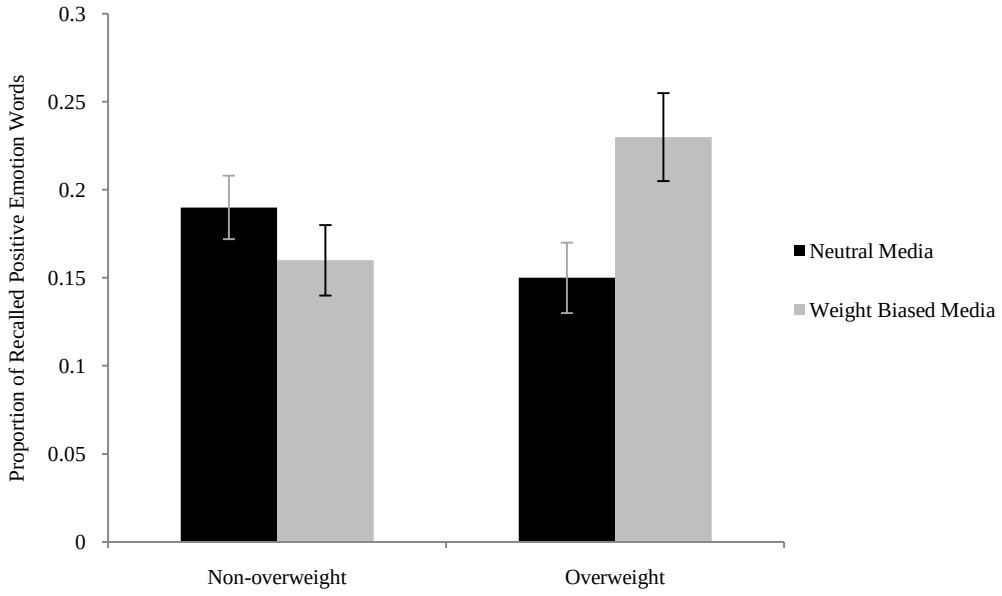

Figure 10. Mean proportion of recalled positive emotion-related words as a function of media type and researcher measured weight status.

There were no main effects for researcher measured weight status and no interaction between researcher measured weight status and media type for any of the other criterion variables.

Effects of Weight Status and Media Character Identification

There were no main effects for media character identification group and no interaction between media character identification group and media type for any of the criterion variables.

Testing Cognitive Mediators of Disordered Eating Symptoms

An initial step in the examination of the process by which exposure to weight-based stigmatization relates to disordered eating pathology was examining associations among weight stigmatization experiences, disordered eating symptoms, and the proposed cognitive mediators (implicit weight attitude, implicit weight stereotyping, attentional bias for provoking body related stimuli, and appearance-schema activation). Table 2 presents bivariate correlations among disodered eating symptoms and three different self-report measures of weight stigmatization: the sum of current weight stigmatization experiences, the sum of childhood weight stigmatization experiences, and a combined sum for weight stigmatization experienced currently and during childhood.

Two cognitive mediators were correlated with the weight stigmatization measures. These were implicit weight attitude and appearance-schema activation. Current weight stigmatization was significantly and negatively associated with implicit weight attitude, $r(112) = -.31$, $p < .01$. Participants who reported higher current levels of weight stigma exhibited less negatively biased associations on the weight attitude IAT. Childhood weight stigmatization was significantly and positively associated with

appearance schema activation in the word stem completion task, $r(53) = .31$, $p < .05$. However, this was only the case for participants who viewed weight-biased media. Two sets of regressions were run, one with current weight stigmatization and implicit weight attitude as predictors, and one with childhood weight stigmatization and appearance schema activation as predictors. Each set of analyses included seven regressions; all seven of the disordered eating factors (EDE-Q restraint sum, EDE-Q eating concern sum, EDE-Q shape concern sum, EDE-weight concern sum, EDE-Q global scale sum, frequency of compensatory behaviors, frequency of restriction behaviors, and frequency of binge eating) were separately regressed on these two predictors. As described earlier, all regression analyses were run with three variables entered as control variables: gender, media condition, and weight identity.

In each regression, the effect of the mediator on the outcome variable lost significance when controlling for the effect of the stigmatization predictor. According to Baron and Kenny (1986), to show that the mediator affects the outcome variable, it is not sufficient to merely show that the mediator and the outcome are correlated. Controlling for the predictor variable is necessary because the mediator and the outcome may only be correlated due to their shared relation to the predictor variable. Thus, the two dysfunctional cognitions I tested, implicit weight attitude and appearance schema activation do not meet criteria for mediation.

Discussion

Results of this study do not support the hypothesis that dysfunctional cognitions (implicit weight attitude, implicit weight stereotyping, attentional bias, and weight and

appearance- schema activation) provide a pathway between exposure to weight-based stigmatization and disordered eating pathology.

This study does, however, replicate a portion of the findings from preliminary study 1 and provide laboratory evidence in support of weight-biased media as a sociocultural factor which may be powerful enough to influence stereotyped associations regarding the overweight.

I replicated the interaction observed in study 1 between media type and weight status for the weight-biased behavior measure, proportion of throws to the overweight player in the Cyberball task. This speaks to the reliability of the cyberball task as a test of the effects of weight-biased media and the validity of these results as support for the assertion that exposure to weight-biased media reinforces negatively biased behavior toward the overweight among the non-overweight while boosting in-group affiliation among the overweight. Stereotyped associations regarding the overweight varied in this study as a function of exposure to weight-biased media. This finding is striking for two reasons. First, implicit attitudes, as measured by the IAT, are sufficiently resistant to intentional control. Previous research has shown that participants have very little control over the direction or size of IAT score they obtain (Banse, Seise, & Zerbes, 2001). Thus, the effect observed here is not likely to be a result of participants' attempts to perform in line with what they might have perceived as researcher preference or expectation. Second, the fact that I observed small changes in implicit weight stereotyping associated with exposure to a brief 8-minute clip of weight-biased media, implies that repeated exposure to weight-biased media over time or exposure to a wider variety of weight-biased media may have the potential to change stereotypical associations regarding

weight that could endure and impact behavior or beliefs about the self. Consistent with our predictions, identifying as overweight and exhibting a higher level of eating disorder pathology was associated with a more negative impact of weight-biased media exposure: negatively stereotyped associations regarding weight. Associations between heavier weight status and negative characteristics such as laziness or sluggishness have the potential to reinforce fears of gaining weight or the rewarding aspect of compulsive exercise among those struggling with anorectic or bulimic pathology. They could also underpin a sense of shame or negative self-evaluation among those who identify as overweight, which may increase risk for binge eating and depressive symptoms (e.g., Sanftner & Crowther, 1998). Thus, if viewing weight-biased media accesses or strengthens these associations, it could prompt or exacerbate health risk-behaviors among these two vulnerable groups.

Clear interpretion of the mediation analysis is somewhat limited particularly because the design of this study forced us to control for the effects of media condition. Longitudinal data provides a much more stringent test of mediation and is a necessary follow up to this type of investigation. It would be premature to entirely rule out the role of change in any of the dysnfuctional cognitions measured as part of the underlying process that accounts for the relation between disordered eating symptoms and weight stigmatization. For this reason, our next study aims to test this relation using a short-term longitudinal design.

Dissertation Study 2

Overview

The purpose of this study was to investigate weight-biased media exposure as a longitudinal predictor of disordered eating behavior and weight-biased behavior. I investigated mediational processes by which this risk factor may work to promote these outcomes. First, I tested the hypothesis that implicit and explicit antifat stereotypes serve as mediators between weight-biased media exposure and weight-biased behavior. Second, I tested the hypothesis that antifat stereotypes and dysfunctional eating cognitions serve as mediators between weight-biased media exposure and concerns and behaviors related to disordered eating. No previous studies have tested these mediational models using longitudinal data. These goals are fulfilled by this study. Moreover, existing research on weight stigmatization and psychological distress has relied primarily on self-report methodology. Thus, it is difficult to ascertain the direction of effects between reports of weight-stigmatization and reports of distress. This study addressed these limitations by using an experimental design to manipulate the weight stigmatization experience of weight-biased media exposure.

Method

Participants

Participants in this study were recruited from the introductory psychology subject pool at Rutgers University in Newark (N = 78; mean age = 21.05 years, *SD* = 5.30; 54% female; 25.9% White (non-Hispanic), 16.7% African American, 29.6% Asian, 13.0% Hispanic, 7.4% Middle Eastern/Arabic/Persian, 7.4% Other). Body Mass Index (BMI) computed from researcher-measured height and weight indicated that the participants' mean BMI was 26.49 (*SD* = 5.96; range = 16.5-43.2). Fifty percent of participants were classified as overweight or obese.

This study involved a 2-session, single-exposure/follow-up design. Figure 11 depicts the order of procedures for the pre-test and the posttest. Procedures of the pre-test were identical to procedures of dissertation study 1, except that media was presented after participants completed all study measures, and 3 new self-report measures were completed. At the end of the pre-test, participants scheduled a time to return to the lab for the posttest. Participants were required to return for the posttest a minimum of 3 weeks and a maximum of 4 weeks after the pre-test.

Prescreening. The same weight, height, and weight identity items used in studies 1, 2, and 3 were included in a prescreening survey that students were required to complete prior to attending the laboratory for the experiment. Participants were recruited for this study through the same e-mail invitation process used in preliminary study 1 and 2, and dissertation study 1. Self-reported weight and height information was used for the purpose of equally allotting participants to three different media conditions using stratified random assignment.

Participants also completed the same brief measure used in dissertation study 1 to screen for eating disorder symptoms (Morgan, Reed, & Lacy, 1999) as a prescreening measure. As was done in study 3, to ensure adequate variance in eating disorder pathology and weight salience among the participants of this study, prescreening information regarding eating disorder symptoms was used to selectively recruit students from the undergraduate research pool. One third of the participants were assigned to each of three experimental conditions, a weight-biased media condition, a non-weight biased media condition and a neutral media condition.

Pre-test

A pre-test survey completed in the laboratory at the beginning of the study, was used to obtain the information below. This survey included the new explicit measures of dysfunctional cognitions, which are hypothesized to contribute to restrictive eating patterns, and other concerns and behaviors related to disordered eating, as well as filler items to control demand characteristics.

Weight status and weight identity. To assess weight status and weight identity at pre-test, the same self-report weight, height, and weight identity items completed at prescreening for study 1 and 2, and dissertation study 3 were included in the pre-test survey. I determined whether participants identified as non-overweight (i.e., too thin or just right) or overweight (i.e., overweight or very overweight).

Baseline disordered eating behaviors. Participants completed items of the EDE-Q. These items provided baseline levels on the major eating concern subscales and frequency measures of restriction behavior (e.g., extreme dietary restraint), compensatory behavior (e.g., excessive exercise, use of diuretics, laxative misuse, self-induced vomiting), and binge eating behavior (e.g., subjective bulimic episodes, and objective bulimic episodes). Each EDE-Q item was revised to assess thoughts, feelings, and behaviors that occurred over the last 3 weeks.

Body satisfaction. Participants indicated the degree to which they are satisfied with the current shape and size of their body as an indicator of body satisfaction (same self-report item used in prescreening for study 1 and 2, and dissertation study 3).

Personal and perceived cultural stereotypes. Participants completed three items from the Fat Phobia scale short form (F-scale short form; Bacon, Scheltema, & Robinson,

2001) to assess explicit personal weight-based stereotypes. In addition, revised versions of these items were included to assess participants' estimates of cultural stereotypes.

Perceived consequences of appearance. Participants completed the Beliefs about Appearance Scale (BAAS; Spangler & Stice, 2001), a measure of dysfunctional beliefs about one's bodily appearance, specifically the perceived consequences of appearance for relationships, achievement, feelings, and self-view. Each of the 20 BAAS items are rated on a 5- point scale (0=not at all to 4=extremely). The BAAS has been shown to have high internal consistency and retest reliability in previous research (Spangler & Stice, 2001).

Fear of gaining weight. Participants completed the Fear of Fatness subscale of the Multifactorial Assessment of Eating Disorder (Anderson, Williamson, Duchmann, Gleaves, & Barbin, 1999), a measure of negative attitudes about gaining weight.

For all self-report items, participants were asked to respond by describing their thoughts, feelings, and behaviors during the past 3 weeks.

Weight-Biased Behavior. As a measure of weight-biased behavior, participants completed the computer-based ball tossing game, Cyberball, which was included in preliminary study 1 and dissertation study 1. Again, as a cover story, participants were told that they were playing the game with the other players via the Internet.

Media Exposure

As mentioned above, participants were assigned to one of three media conditions: a weight-biased media condition, a neutral media condition, and a non-weight biased media condition. As an effort to strengthen the biased media exposure, each participant viewed a 20-minute set of media clips. The content of the weight-biased and neutral media clips was the same as that of the respective clips used in preliminary study 1, 2,

and dissertation study 1. Participants in the non-weight biased media condition viewed clips portraying non-overweight characters being made fun of to a similar degree as the overweight characters in the weight-biased media condition about things unrelated to weight. The biased clips were viewed with one neutral clip in order to protect against hypothesis guessing and maintain participants' viewing interest. As in preliminary study 1 and 2, and dissertation study 1, this included video clips from popular television shows or movies (see Appendix). In the weight-biased media condition, male participants viewed clips depicting portrayals of overweight male characters and female participants viewed clips depicting portrayals of overweight female characters.

All twenty-five of the participants who viewed weight-biased media reported that the video clip that they viewed was making fun of overweight people. Fifteen of the participants who viewed weight-biased media reported that the video clip that they viewed made them feel at least somewhat sad and eleven of these participants reported that the clip made them feel at least somewhat angry. However, only 2 of these participants reported not liking the video clip at all, suggesting that while the participants are aware of the weight-biased messages in the weight-biased media clips, awareness of this bias is not enough to prevent their enjoyment of the media. Perhaps because these clips were all taken from comedy movies and television shows, the humorous undertones prevent participants from viewing them as entirely distasteful or inappropriate. Weight status did not interact with video type in predicting participants impressions of the media clips.

Posttest

A minimum of 3 weeks and a maximum of 4 weeks after participants completed the pre-test, participants returned to the laboratory for a posttest survey and to complete the implicit measures and cyberball task a second time. During the posttest session, participants completed the same eating disorder-related behavior and concern survey items, personal and perceived cultural stereotype items, and body satisfaction items that

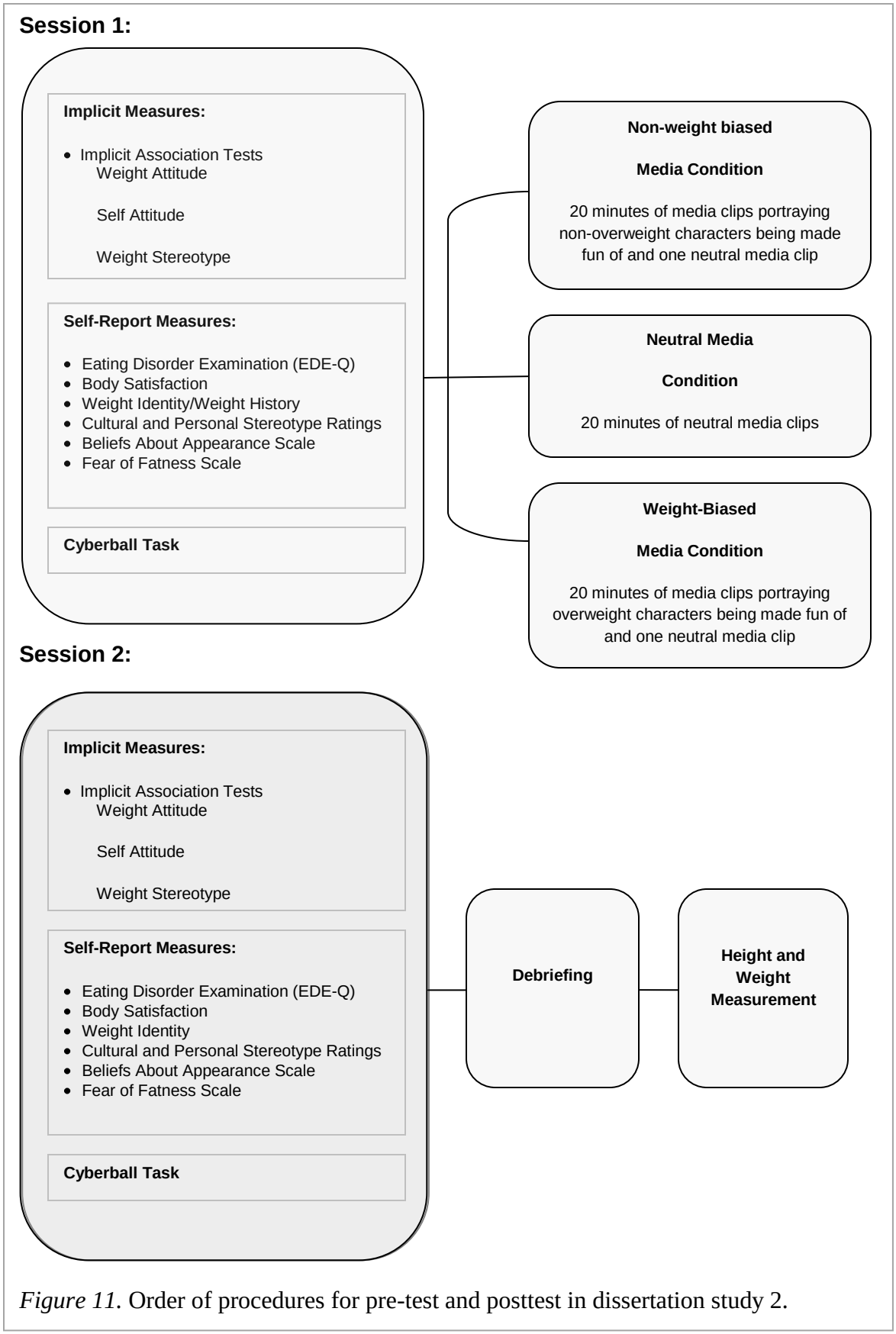

Figure 11. Order of procedures for pre-test and posttest in dissertation study 2.

were completed at pre-test. For all self-report items, participants were asked to respond by describing their thoughts, feelings, and behaviors during the last 3 weeks. Participants were fully debriefed upon completion of the research tasks. A researcher explained the purpose of the study to the participants and provided them with a written debriefing statement. They were told that the true purpose of the study was to determine whether weight-biased media has an effect on people's weight attitudes, actions toward the overweight, and eating disorder-related concerns and behaviors. They were specifically told that the study was examining whether viewing weight-biased media clips, as opposed to non-weight biased media clips, would be associated with negative attitudes and behaviors toward the overweight and eating disorder-related concerns and behaviors. Participants were asked not to tell other potential participants in this study what the true purpose of the study was, as participants' knowledge of the true purpose of this study could alter the results of the study. A counseling referral slip with contact information for the campus counseling services center was given to all participants. This referral suggested that if they felt distressed as a result of the study, and were interested in counseling or support, they should see the contact information provided. Participants were given the opportunity to ask additional questions about the nature of the study and were informed that they were free to request that their data be withdrawn from the study. Following debriefing, participants who gave their consent had their height and weight measured by a researcher. Researcher measured height and weight were used to compute BMI values, and determine whether participants were classified as non-overweight (i.e., underweight or healthy weight; BMI of 24.9 or below) or overweight (i.e., overweight or obese; BMI of 25 or greater). There were four participants who declined to have their

weight measured by a researcher. Self-reported height and weight were used in place of researcher measured height and weight in determing weight status for these participants.

Overview of Analyses

To study change in the constructs over time, I applied mixed factorial repeated measures ANOVAs (Keppel, 1991) to assess the direct effects of weight-biased media exposure on both levels of behaviors and attitudes related to disordered eating and differences in these measures from pre-test to posttest. A separate ANOVA was run to assess the direct media effects on levels of biased behavior toward the overweight (proportion of throws to the overweight player in the cyberball game) and change in this measure from pre-test to posttest.

If a direct effect of weight-biased media exposure on behavior and attitudes related to disordered eating was established, I then completed two tests recommended by Cox and Maxwell (2003) for testing longitudinal mediation with multiple regression. First, I tested the relation between weight-biased media exposure and dysfunctional eating cognitions and stereotypes (posttest) while controlling for pre-test levels of dysfunctional eating cognitions and stereotypes (path *a*). Second, I tested the relation between initial dysfunctional eating cognitions and stereotypes and behavior and concerns related to disordered eating (posttest) while controlling for existing levels of these behaviors and concerns reported at pre-test (path *b*). Two similar tests were planned for the weight-biased behavior measure. First, I tested the relation between weight-biased media exposure and implicit and explicit weight-related stereotypes and attitudes (posttest) while controlling for the pre-test levels of these stereotypes and attitudes (path a). Second, I tested the relation between initial explicit and implicit

weight-related stereotypes and attitudes and weight-biased behavior (posttest) while controlling for the pre-test levels of weight-biased behavior (path b). These hypothesized models are depicted in Figure 12.

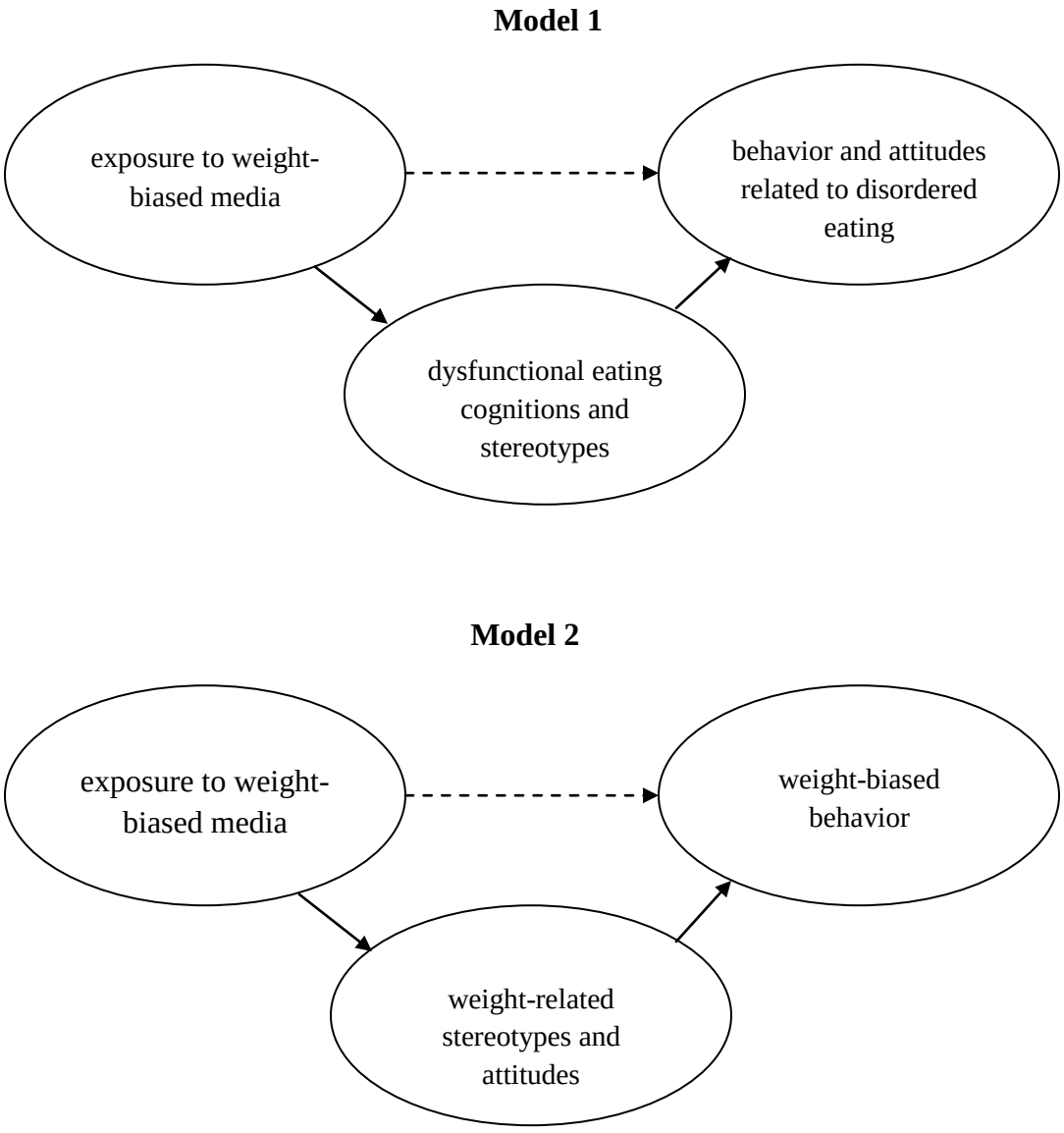

Figure 12. Hypothesized mediational models tested in dissertation study 2.

If both path a and path b were significant, the next step was to test the indirect effects from weight-biased media exposure to posttest behavior and concerns related to

disordered eating as mediated through dysfunctional eating cognitions and stereotypes. To complete these tests for mediation, I aimed to determine whether there was a change in the direct path from weight-biased-media exposure to posttest levels of the outcome variable (behavior and attitudes related to disordered eating or weight-biased behavior) when the associated mediator was included in the model.

For the group of dysfunctional eating cognitions measured, there were somewhat inconsistent patterns in how groups of cognitions related to the various disordered eating outcome variables. I therefore chose not to create composite measures of dysfunctional cognition measures for the purpose of condensing the mediation analyses. Instead, I ran separate mediation tests for each of the dysfunctional cognitions measured.

Results

Media Exposure Effects Over Time

An initial step in the examination of the process by which exposure to weight-biased media relates to disordered eating pathology and weight-biased behavior was examining how media exposure related to differences in pre-test and posttest levels of behaviors and concerns related to disordered eating and weight-biased behavior. I conducted mixed factorial repeated-measures ANOVAs testing the effects of media type (neutral media, non-weight biased media, and weight-biased media), time (pre-test vs. posttest), and weight identity (overweight vs., non-overweight) on the weight-biased behavior measure and the behavioral and attitudinal eating disorder measures. I included weight identity as a factor due to consistent evidence in my preliminary studies supporting its role as a moderator of media effects.

The only main effects or interaction effects I observed that were significant were for the behavioral eating disorder measure, restriction. Main effects and interaction effects were tested using the mutivariate criterion of Wilks's lambda (Λ). The main effect for time was significant, $\Lambda = .92$, $p = .017$, partial $\eta^2 = .08$, and there was a significant 3-way interaction between media type, time of measurement, and weight status on frequency of restriction behaviors, $\Lambda = .91$, $p = .046$, partial $\eta^2 = .09$. Weight identity did not moderate the impact of media type on change in weight-biased behavior. Thus, an interaction between weight identity and media type was not replicated with the longitudinal Cyberball data obtained in this study.

Simple-effect analyses were conducted plotting the media type x time interaction for the overweight participants and the non-overweight participants separately. Media type only had an effect on restriction behaviors among the overweight participants, $\Lambda = .81$, $p = .024$, partial $\eta^2 = .19$. This interaction is depicted in Figure 13.

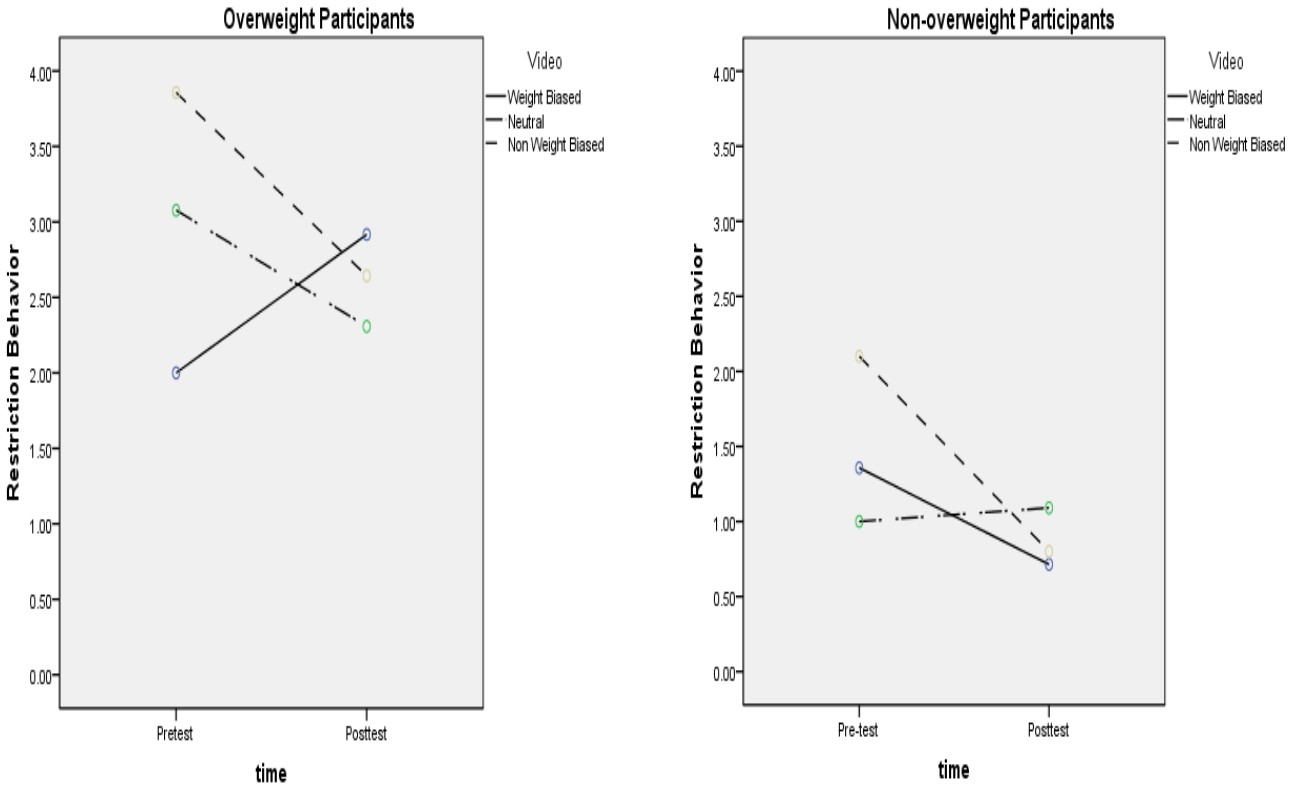

Figure 13. Restriction behavior as a function of time, media condition, and weight status.

Figure 13 shows that the weight-biased media had a different effect on restriction behaviors than did the neutral media and the non-weight biased media. There was a trend toward increased restriction behaviors for overweight participants who viewed weight-biased media and a trend toward decreased restriction behaviors for the overweight participants who viewed neutral or non-weight biased media. However, three paired-samples *t* tests to follow up the significant interaction in the overweight group indicated that differences in the mean frequency of restriction behaviors over pre-test and posttest were non-significant for all three media conditions.

Tests of Dysfunctional Cognitions as Mediators of Media Effects

Media type was only associated with change in one behavioral measure of disordered eating over time, restriction behavior. Weight-biased media exposure had an effect which was distinct from the effects for the other two media conditions. As shown in Figure 13, the neutral media group and the non-weight biased media group exhibited similar trends in restriction behavior from pre-test to posttest. I therefore chose to combine the neutral media condition and the non-weight biased media condition and create a dichotomous variable (0 = neutral media exposure, 1 = weight-biased media exposure) for use in the regression analyses. Only one set of regressions was run to test the hypothesis that dysfunctional eating cognitions would mediate the relation between weight-biased media exposure and restriction behavior. This set was run with frequency of restriction behavior entered as the outcome variable. Because weight identity was observed as a moderator in the analyses above, I ran separate analyses for overweight and non-overweight participants. Analyses included 18 pairs of regressions; 2 pairs for each

of the proposed cognitive mediators (implicit weight attitude, implicit weight stereotyping, self-attitude, attentional bias for provoking body related stimuli, attentional bias for negative emotion related stimuli, appearance-schema activation, fear of fatness, beliefs about appearance, and personal and perceived cultural stereotypes). For each cognitive mediator, I tested path *a* and path *b* as described above. There were no cases in which both paths were significant.

In all of the regression analyses, the effect of weight-biased media exposure on the mediator at posttest was not significant when controlling for initial levels of the mediator. Thus, media exposure did not account for a significant proportion of variance in dysfunctional eating cognitions after taking into account pre-existing differences. In all but one of the regression analyses, the effect of the mediator at pre-test on posttest levels of restriction behavior lost significance when controlling for initial levels of restriction. For overweight participants only, belief in the importance of appearance predicted restriction behaviors at posttest while controlling for initial levels of restriction behavior at pre-test, unstandardized $b = .71$, $p = .045$. In this step of the mediation test, statistically controlling for initial levels of the mediator is neccesary to ensure an unbiased estimate for the effect of the mediator and to rule out the possibility of pre-existing differences driving the effects. Thus, the dysfunctional cognitions I tested do not meet the criteria for mediation.

Exploratory Tests of Dysfunctional Cognitions as Moderators of Media Effects

The autocorrelations between pre-test and posttest levels of the dysfunctional cognitions were rather high (.30 and .82). Controlling for pre-test levels of dysfunctional cognitions, therefore, left only a very small proportion of variance to be accounted for in

the mediational models. This evident stability suggests that the dysfunctional cognitions might also be conceptualized as robust individual difference variables that have the potential to magnify the negative effects of weight-biased media. In other words, a more suitable model for the role played by dysfunctional cogntion in this study might be a moderation model, in which degree of dysfunctional cognition moderates the relation between weight-biased media exposure and eating disorder-related concerns and behaviors. Participants who exhibit high levels of certain dysfunctional cognitions might be more susceptible to the negative effects that exposure to weight-biased media might have on these behaviors and concerns.

Because of the longitudinal design of this study, I was able to control for pre-existing individual differences in the disordered eating-related outcomes and conduct rigorous tests of the dysfunctional cognitions as moderators of the relation between weight-biased media exposure and disordered eating-related concerns and behaviors. I ran an exploratory set of regressions for each dysfunctional cognition variable to examine dysfunctional eating cognitions as moderators of the relation between weight-biased media exposure and disordered eating-related concerns and behaviors. In each regression, gender, weight status, and the pre-test symptom variable were entered as control variables in step 1. Next, the predictor variables of weight-biased media exposure (coded such that 0 = non-weight biased or neutral media exposure and 1 = weight-biased media exposure) and dysfunctional cognition were entered together in step 2. As suggested by Aiken and West (1991) the dysfunctional cognition variables were centered to reduce multicollinearity between the continuous predictor variable and the product variable. To test the moderation of the media effect by dysfunctional cognitions, I entered a

multiplicative term representing the interaction between weight-biased media exposure and the dysfunctional cognition in step 3. I followed Holmbeck's (2002) recommendations for probing significant interaction effects. For succinctness, I only discuss results for regressions in which the interaction term was significant. Explicit personal weight stereotyping was the only dysfunctional cognition that was indicated as a significant moderator of the relation between weight-biased media exposure and disordered eating-related concerns and behavior.

Restraint as a function of media exposure and explicit personal weight stereotyping. After taking into account the effects of the control variables at step 1, and the effects of explicit personal weight stereotyping and weight-biased media exposure in step 2, the interaction term for explicit personal weight stereotyping and weight-biased media exposure accounted for significant incremental variance (4%) in scores on the restraint subscale of the EDE-Q, $F_{\Delta}(1, 57) = 7.03$, $p < .05$. To understand better the interaction between explicit personal weight stereotyping and weight-biased media exposure, the relation between media exposure and restraint was tested at high and low levels of explicit weight stereotyping (high = 1 *SD* above the mean, low = 1 *SD* below the mean). Relations between weight-biased media exposure and restraint were significant for those with high scores on the explicit personal weight stereotyping measure (negative weight stereotyping), unstandardized $b = 1.68$, $p < .05$, but not for those with low scores on the explicit personal weight stereotyping measure, unstandardized $b = -.15$, $p = .81$, suggesting that strong belief in negative weight stereotypes amplifies the impact of weight-biased media exposure on restraint (see Figure 14).

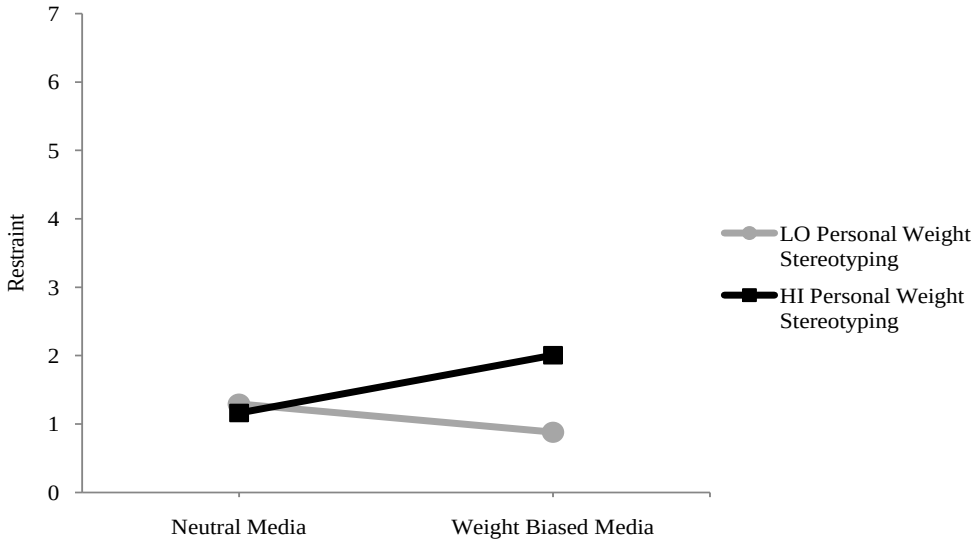

Figure 14. Restraint as a function media exposure and explicit personal weight stereotyping.

Eating concern as a function of media exposure and personal weight stereotyping. After taking into account the effects of the control variables at step 1, and the effects of explicit personal weight stereotyping and weight-biased media exposure in step 2, the interaction term for explicit personal weight stereotyping and weight-biased media exposure accounted for significant incremental variance (6%) in scores on the eating concern subscale of the EDE-Q, $F_{\Delta}(1, 57) = 6.71$, $p < .05$). To understand better the interaction between explicit personal weight stereotyping and weight-biased media exposure, the relation between media exposure and eating concern was tested at high and low levels of explicit personal weight stereotyping (high = 1 *SD* above the mean, low = 1 *SD* below the mean). Relations between weight-biased media exposure and eating

concern were significant for those with high scores on the explicit personal weight stereotyping measure (negative weight stereotyping), unstandardized $b = 1.29$, $p < .05$, but not for those with low scores on the explicit personal weight stereotyping measure, unstandardized $b = -.42$, $p = .54$, suggesting that strong belief in negative weight stereotypes also amplifies the impact of weight-biased media exposure on eating concern (see Figure 15).

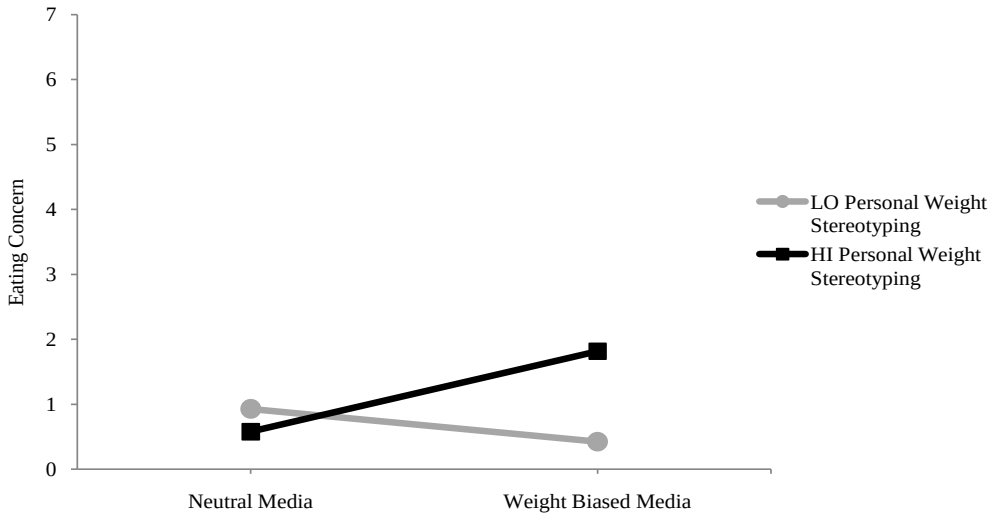

Figure 15. Eating concern as a function media exposure and explicit personal weight stereotyping.

Compensatory behavior as a function of media exposure and personal weight stereotyping. After taking into account the effects of the control variables at step 1, and the effects of explicit personal weight stereotyping and weight-biased media exposure in step 2, the interaction term for explicit personal weight stereotyping and weight-biased media exposure accounted for significant incremental variance (5%) in scores on the compensatory behavior subscale of the EDE-Q, $F_{\Delta}(1, 57) = 4.14$, $p < .05$. To

understand better the interaction between explicit personal weight stereotyping and weight-biased media exposure, the relation between media exposure and compensatory behavior was tested at high and low levels of explicit weight stereotyping (high = 1 *SD* above the mean, low = 1 *SD* below the mean). Relations between weight-biased media exposure and compensatory behavior were significant for those with high scores on the explicit personal weight stereotyping measure (negative weight stereotyping), unstandardized $b = 5.76$, $p < .05$, but not for those with low scores on the explicit personal weight stereotyping measure, unstandardized $b = -.76$, $p = .67$, suggesting that strong belief in negative weight stereotypes strengthens the impact of weight-biased media exposure on compensatory behavior (see Figure 16).

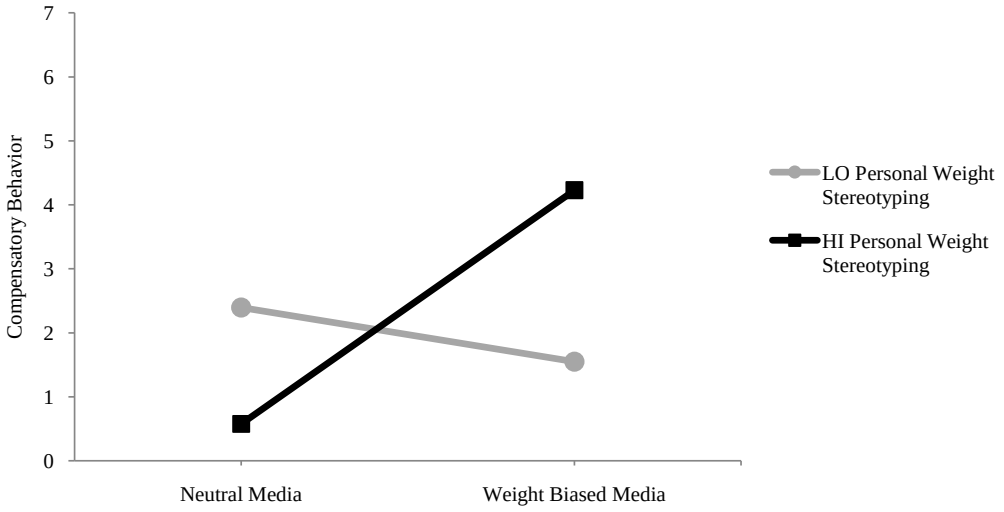

Figure 16. Compensatory behavior as a function of media exposure and explicit personal weight stereotyping.

As shown in Figure 14, 15 and 16, for participants who endorsed strong belief in negative weight stereotypes, exposure to weight-biased media was associated with higher

reports of restraint behavior, compensatory behavior, as well as eating concerns. Participants who endorsed less belief in negative weight stereotypes reported similar levels of these behaviors and concerns across media conditions. Thus, holding more positive beliefs about the characteristics of overweight people protected against health risking infuences of weight-biased media exposure in this study.

Discussion

The purpose of dissertation study 2 was to investigate weight-biased media exposure as a longitudinal predictor of disordered eating behavior and weight-biased behavior. Using an experimental design to manipulate the weight stigmatization experience of weight-biased media exposure, I completed two novel longitudinal tests of mediational hypotheses. First, I tested implicit and explicit antifat stereotypes as mediators of the relation between weight-biased media exposure and weight-biased behavior. Second, I tested implicit and explicit antifat stereotypes and dysfunctional eating cognitions as mediators of the relation between weight-biased media exposure and disordered eating-related concerns and behaviors. Neither of these hypotheses were supported.

Of the behavioral outcomes explored, results suggest that restriction may be the only behavior that is sensitive to the degree of weight-biased media exposure tested in this study. There was a trend toward increased restriction behaviors for overweight participants who viewed weight-biased media and a trend toward decreased restriction behaviors for the overweight participants who viewed neutral or non-weight biased media. While these trends were nonsignificant, they do deserve further exploration. Excessive dietary restriction and the inflexible thinking style that goes along with it are

believed to place individuals at risk for binge eating (Fairburn, Stice, Cooper, Doll, Norman, & O'Connor, 2003). It is possible that prolonged or repeated exposure to weight-biased media could contribute to processes that intiate or maintain such a cycle.

Mediation tests indicated that none of the dysfunctional cognitions explored in this study accounted for the media effects on restriction. Dissertation study 2 allowed for a much more stringent test of the effects of media exposure on dysfunctional cognitions than did dissertation study 1. The fact that weight-biased media exposure did not have an effect on dysfunctional eating cognitions after taking into account pre-existing differences in these cognitions could be an indication that the media exposure was not at a dosage or intensity level strong enough to result in a change that lasted the full 3 to 4 weeks between pre-test and posttest. One reasonable follow-up investigation could therefore involve a shorter lapse of time before follow-up, more extensive or longer-lasting sessions of exposure, or media content with more explicitly negative biased messages.

Another reasonable explanation for the null effects for the dysfunctional eating cognitions could be that the dysfunctional eating disorder-related cognition measures included in this study are indicators of stable, crystallized cognitions. Once these cognitions form, they may be resistant to the type of change expected in this study. Developmental research suggests that many of the core cognitions guiding social behavior are already internalized by early adolescence (Davis-Kean et al., 2008; Huesmann, 1998), and in the absence of significant life events might be difficult to modify into later adolescence and beyond.

In dissertation study 1, dysfunctional cognitions and implicit stereotypes and attitudes were measured briefly after participants were exposed to media clips. Thus, the significant effects seen in dissertation study 1 may actually reflect increases in the momentary activation level of the associations in participants' memories which corresponded to these crystallized cognitive structures and not immediate change in these associations. This is not meant to discredit the importance of the effects seen in dissertation study 1. Repeated activation of associative cognitive structures linking, for example, concepts related to being overweight with negative and stereotypical concepts could lead to biased processing of weight-related information. Thus, in line with the weight-biased media effects seen in dissertation study 1, for the high eating disorder risk group, repeated exposure to weight-biased media might lead to remembering only negatively stereotyped information about overweight others. For those who identify as overweight, it might lead to distorted impressions of personal characteristics or experiences that are in line with negative weight stereoypes.

Although the design of study 2 seems to have limited the observation of mediating effects over time of dysfunctional cognitions, it did permit a unique and novel test of moderating effects of cognitions-- one that could not be conducted in either of the preliminary studies. I ran an exploratory set of regressions for each dysfunctional cognition variable to examine dysfunctional eating cognitions as moderators of the relation between weight-biased media exposure and disordered eating-related concerns and behaviors. Because I had longitudinal data, I took advantage of the opportunity to control for pre-existing individual differences in the disordered eating-related outcomes in each regression.

Endorsement of personal negative weight-related stereotypes emerged as a moderator of the impact of weight-biased media exposure on restraint, eating concern, and compensatory behavior. Exposure to weight-biased media predicted higher levels of these eating disorder-related concerns and behaviors even after taking into account pre-existing differences. Results suggest that holding strong beliefs in negative weight stereotypes at time 1, amplified the negative impact that exposure to weight-biased media had on restraint behavior, compensatory behavior, and eating concerns.

The moderation results have implications for eating disorder prevention and intervention efforts. Disbelief in negative weight-related stereotypes appears to be an individual characteristic that protects against increased disordered eating symptoms as a response to weight-biased media exposure. If weight-biased media exposure is experienced like other weight-based stigmatization experiences, strengthening beliefs in positive characteristics of overweight individuals could prevent weight stigmatization experiences from negatively affecting eating behaviors. Debunking negative weight-related stereotypes might be useful as a strategy to intervene with those struggling with both weight stigmatization experiences and disordered eating.

General Discussion

In recent years, research has revealed alarming pervasiveness of weight stigmatization experiences (Puhl & Brownell, 2006; Roehling, 1999; Schwartz, O-Neal, Brownell, Blair, & Billington, 2003) and growing rates of bias against overweight people. (Andreyeva et al., 2008). A major reason these findings are a cause for concern is the co-occuring accumulation of research that supports experience with weight-based stigmatization as a predictor of a range of maladaptive psychological and behavioral

outcomes (Puhl & Heuer, 2009). These adjustment outcomes include depression, low self-esteem, and body image disturbance (e.g., Benas & Gibb, 2008; Carr et al., 2007; Vartanian & Shaprow, 2008). Previous findings also implicate weight-based-stigmatization as a risk factor for disordered eating behaviors such as binge eating, bulimic symptoms, overly restrictive eating patterns or excessive dieting, and laxative or diuretic mis-use (e.g., Ashmore et al., 2008; Libbey et al., 2008; Wertheim et al., 2001).

Body dissatisfaction, internalized weight bias, and negative weight attitudes and stereotypes have been postulated as mediators of the relation between weight-based stigmatization experiences and disordered eating (e.g., Benas & Gibb, 2008; Durso & Latner, 2008; Reddy & Crowther, 2007). However, prior to this dissertation research, experimental research evaluating proximal processes had never been conducted to determine how weight-based stigmatization experiences influence eating behavior. Hence, the studies described here represent an important advance in research on weight stigmatization experiences by moving past an inherent limitation in self-report methodology, difficulty ascertaining the direction of effects between reports of weight-stigmatization and reports of distress.

Preliminary study 1 examined the influence of media depictions of weight stigmatization on weight attitudes, weight-biased behavior, self-esteem, and body satisfaction. Results suggested that weight-biased media is experienced differently by the overweight and the non-overweight. Unexpected protective effects were observed for the overweight. This data suggests that for overweight individuals, exposure to weight-biased media may activate or boost positive self-related associations and positive evaluation of one's body size and increase positive treatment of other overweight

individuals. In contrast, for the non-overweight, exposure to weight-biased media may activate more negative self-related associations and support exclusion of overweight others or discrimination against overweight others.

The purpose of preliminary study 2 was to determine whether the results of study 1 were replicable with a longer version of the IAT and a new measure of weight-biased behavior. Results were not replicated in preliminary study 2. The dormitory assignment task apparently did not evoke the same potential for weight bias as the cyberball task. Non-significant correlations between assignments made in this task and implicit weight attitudes supported the notion that use of this new measure as a measure of biased behavior against the overweight was not warranted. These inconsistent results for the major effects tested in this study could have stemmed from measurement differences or limited variance in weight salience among participants.

Preliminary study 2 presented new evidence supporting media character identification as a potential moderator of weight-biased media effects. Again, effects varied as a function of weight. Results suggest that for the non-overweight, identification with a mistreated overweight media character may result in more positive behavior toward overweight people. For the overweight participants, identifying with a mistreated overweight character may result in more negative behavior toward the overweight, whereas, disidentifying with a mistreated overweight character may result in more positive behavior toward the overweight. One explanation for this pattern, which may fit with effects observed for the overweight participants in preliminary study 1, is that some overweight individuals distance themselves from the negative messages conveyed by weight-biased media. Disidentifying with an overweight character being mistreated in

weight-biased media and showing benevolent positive behavior toward overweight others may reflect efforts to distance oneself from threatening stigmatizing messages and restore self-image. The same can be said for the protective effects of weight-biased media seen among overweight individuals in preliminary study 1. Reporting higher body satisfaction and throwing the ball more to the overweight player could both serve the purpose of boosting positive self-image. From the perspective of terror management theory (Greenberg, Pyszczynski, & Solomon, 1986), particularly if attention is drawn to the health threats associated with being obese or overweight, weight-biased media are likely to pose a threat to overweight individuals and could create a need to boost self-worth. According to terror management theory, self-esteem provides protection against concerns about mortality. Turning to positive appraisal of one's body and engaging in benevolent behavior could be defenses designed to protect against fear of the negative health consequences of being overweight. Thus, preliminary study 1 provided evidence that weight-biased media exposure impacts attitudes about the self and behavior toward the overweight and preliminary study 2 created interest in media character identification as a potential moderator of weight-biased media effects.

The primary goal of dissertation study 1 was to test weight-biased media exposure as a predictor of eating disorder-related cognitions and explore these dysfunctional cognitions as mediators that might account for the relation between reports of direct weight-related stigmatization experiences and disodered eating symptoms. Results did not support the hypothesis that the dysfunctional cognitions tested in this study provide a pathway between exposure to weight-based stigmatization and disordered eating pathology. This study did, however, replicate the weight-biased behavior findings from

preliminary study 1 and provided laboratory-based evidence that weight-biased media exposure may elicit activation of stereotyped associations regarding the overweight.

The purpose of dissertation study 2 was to investigate weight-biased media exposure as a longitudinal predictor of disordered eating behavior and weight-biased behavior. Results did not support implicit and explicit antifat stereotypes as mediators of the relation between weight-biased media exposure and weight-biased behavior and they also did not support implicit and explicit antifat stereotypes and dysfunctional eating cognitions as mediators of the relation between weight-biased media exposure and disordered eating. Exploratory analyses, however, did suggest that holding strong beliefs in negative weight-related stereotypes at time 1 amplified the negative impact of exposure to weight-biased media. For participants who reported more negative stereotypes about weight, weight-biased media exposure was associated with higher levels of restraint behavior, compensatory behavior, and eating concerns. This supports the idea that prevention and intervention efforts targeting weight-related stereotypes may be successful in reducing risk for disordered eating among those exposed to weight-based stigmatization.

Previous research has shown that more frequent weight stigmatization experiences predicted improved treatment outcomes (higher levels of weight loss) for participants enrolled in a weight-loss program (Latner, Wilson, Jackson, and Stunkard, 2009). Results of dissertation study 1 suggest that for those who hold negative weight-related stereotypes, increases in potentially unhealthy restrictive and compensatory behaviors may account for this weight loss that follows weight stigmatization. These data suggest that negative weight stereotypes, instead of decreasing motivation to exercise

restraint in eating (as suggested by Carels et al., 2009), may actually increase drive to control eating and energy expenditure. It should be noted, however, if fluctuation in restriction, compensatory, and binge eating behaviors had been recorded on a momentary or daily basis results could have been quite different and this methodological distinction could explain why results from this dissertation research are inconsistent with Carels et al.

A strength of this research, which was made clear in dissertation study 4, was that the media manipulation appeared to be succesful. All participants who viewed weight-biased media reported that the clip that they viewed was making fun of overweight people. In addition, participants had similar emotional reponses to weight-biased media clips, neutral media clips and non-weight biased media clips. A comparison of participants' emotional responses to the media clips indicated that participants did not feel significantly more angry or sad in response to viewing the weight-biased media clips than they did in response to viewing the neutral or non-weight biased media clips. Participants in each condition also reported liking the clips that they viewed to a similar degree. This was the case for overweight participants and non-overweight participants. Further research is needed to determine what type of weight-biased media messages are experienced negatively and whether humor contained in weight-biased media alters the way an individual experiences these messages. However, it is not likely that different emotional responses to the media content account for the media effects observed in this study.

Inconsistent Findings

Inconsistent findings that emerged in this research should be mentioned. Because this research involved tests of effects of weight-biased media and measures of weight-biased behavior that were novel to some extent, inconsistent findings were to be expected. Even so, to inform future research in this area, an attempt to explain these inconsistencies is necessary.

While there was a pattern in the effects of weight-biased media on overweight participants, across studies and across measures, which might be described as protective, this pattern was not entirely consistent. In preliminary study 1, a protective effect was seen for weight-biased media exposure on the body satisfaction and weight-biased behavior of overweight participants (exposure was associated with reports of higher body satisfaction and a higher proportion of throws to the overweight cyberball player). In preliminary study 2, these effects were not replicated. However, preliminary study 2 included a different measure of weight-biased behavior (dormitory assignment task). In addition, with re-incorporation of the Cyberball task in dissertation study 1, this protective effect was replicated. Therefore, it can be argued that the lack of replication in preliminary study 2, at least with respect to the weight-biased behavior findings, stemmed from the difference in measures. On the other hand, weight status and media type did not interact in predicting body satisfaction in preliminary study 2, or dissertation study 1. Further, in dissertation study 2, longitudinal analyses indicated that interacting effects of weight status and media type did not result in change in body satisfaction and weight biased behavior over time. Because these protective effects did not hold for overweight participants in the longitudinal study, the possibility that the protective effects that were observed, only reflect momentary reactions must be considered. Perhaps with time and

introspection, any initial positive effects of weight-biased media fade. More research is needed to determine if some overweight individuals respond positively to stigmatizing experiences such as exposure to weight biased media and, if so, what the duration and long-term behavioral outcomes of such a response might be. Dissertation study 2, at least for overweight participants who report elevated negative weight related stereotypes, provided evidence for long-term negative impacts of weight biased media on eating disorder-related concerns and behaviors. Thus, referring to the momentary positive effects seen in the earlier studies as protective may be inaccurate. It is possible that momentary positive reactions reflect immediate defensiveness, which, overtime, could weaken and leave one vulnerable to distress. The most consistent of these findings was increased proportion of throws to the overweight player in the cyberball game among overweight participants who viewed weight-biased media. Thus, an alternative interpretation of the media effects is that for overweight participants, exposure to weight-biased media increases salience of weight as a social grouping variable and one's sense of belonging to the overweight group. This could temporarily increase tendency to favor an overweight player in the cyberball game. Further research is needed to better understand the immediate and long-term impacts of weight-biased media exposure on attidudes about overweight others and one's own weight.

Limitations and Future Research

In dissertation study 2, the absence of results in support for dysfunctional cognitions as mediators of the relation between weight-biased media exposure and disordered eating-related behaviors and concerns, and the absence of results in support of explicit and implicit antifat attitudes and stereotypes as mediators of the relation between

weight-biased media exposure and weight-biased behavior should not be attributed to limited range of disodered eating-related behaviors and concerns or limited range in the dysfunctional cognitions assessed in this study. Possible global EDE-Q scores range between 0 and 6 and the scores of participants who completed dissertation study 2 ranged between 0 and 5.15. The authors of the EDE-Q report a mean global EDE-score of 1.55 for a normative community sample of women (Fairburn & Beglin, 1994), and mean Global EDE-score for participants of dissertation study 2 was 1.47. Thus, while the observed mean is slightly lower than the community mean (likely due to inclusion of males in this study), it is not so low that findings from this study should not be expected to generalize to other normative samples. Means of the dysfunctional cognitions assessed in this study fell within an expected range for a college sample. For example, previous work using the BAAS in college samples and college age community samples has resulted in BAAS means ranging from 23.34 to 30.57 (Spangler & Stice, 2001), and the BAAS mean observed in dissertation study 2 was 31.29. Instead, the lack of mediation might be attibutable to the fact that our manipulation of weight-biased media exposure was quite subtle. Participants in the weight-biased media condition viewed 20 minutes of media, which included a mix of weight-biased media and neutral media. A reasonable explanation for the lack of mediation as well as some of the other null effects from this research is that the manipulation of exposure to weight-biased media was not intense enough to influence cognitions and behaviors related to disordered eating. A goal in dissertation study 2 was to strengthen the media exposure element of the study by lengthening it to 20 minutes. However, given that the posttest came at least 3 full weeks after this exposure, extending the exposure manipulation to a higher frequency or over a

longer period of time (e.g., weekly or daily exposure over the course of the 3 week interval between pre-test and posttest or a 30-40 minute exposure session) may have been more appropriate. Exposure to weight-biased media in everyday life is likely to involve lengthened and more intense depictions of weight stigma. Certainly, a more ecologically valid experimental test of the effects of weight-biased media would necessitate repeated exposure to media depictions of weight-based stigmatization and future research on weight-biased media should incorporate this type of methodology.

As mentioned, a reasonable explanation for some of the null effects observed in this study is that the dysfunctional eating disorder-related cognition measures included in this study are indicators of stable, crystallized cognitions. Once these cognitions are formed, they may be resistant to change, particularly to change in response to the subtle manipulations such as those tested in this dissertation research. Thus, this line of research might benefit from an investigation of age differences in the malleability of dysfunctional eating disorder-related cognitions. It may be more informative to study change in these cognitions in younger samples (i.e., children or adolecents) if these groups show higher levels of malleability.

One limitation of this study that needs to be noted is that while the participants in this study showed expected levels of eating disoder related pathology for a college sample, participants were not morbidly obese individuals or clinical patients diagnosed with anorexia, bulimia nervosa, or binge eating disorder. The study compared moderately overweight or obese participants to non-overweight participants and nonclinical participants scoring high on a measure of disordered eating symptoms with those scoring low on disordered eating symptoms. Less research has addressed correlates of weight

stigmatization among undergraduate students and there is a need to extend this line of research beyond weight loss clinic and weight loss support group populations. However, use of a sample that includes nonclinical subjects limits any generalization of these results to clinical eating disorder pathology.

There are limitations of the media exposure component of this research, which should also be noted. Female participants viewed weight-biased media which depicted female characters being ridiculed and male participants viewed weight-biased media which depicted male characters being ridiculed. However, in the non-weight biased media clips males and females were both being ridiculed. The neutral media clips depicted scenarios which involved both males and females. Given the gender specific nature of the weight-biased media clips, ideally, the neutral media clips and the non-weight biased media clips should have been gender specific as well. It is possible that a viewer may be more attentive to the experiences of media characters who are of the same gender. Thus, in order for these neutral and non-weight biased media clips to serve as adequate control conditions future studies should extend gender specificity to these conditions as well.

Conclusions

In summary, this research adds to the current body of research on weight stigmatization. It corroborates past findings of negative behavioral and psychological impacts of weight stigmatization. Further, important moderators of the negative consequences of weight stigmatization were revealed. Future laboratory based studies of the effects of weight-biased media should include manipulations which involve enhanced

exposure in order to fully test underlying cognitive processes which account for its impact on behavior.

Ongoing exploration of factors which might prevent or moderate the negative impact that weight stigmatization has on emotional states and thought patterns is needed to inform treatment efforts targeting disordered eating behaviors in individuals who report a history of weight stigmatization. The results of this research suggest that future work in this area should place a particular emphasis on understanding how stereotypical beliefs about individuals who are overweight might influence vulnerability to media depictions of weight-based stigmatization. Exploration of whether stereotypical beliefs serve the same moderator role for first-hand weight stigmatization experiences is necessary.

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Table 1

Mean Weight IAT Scores as a Function of Weight Perception Accuracy Group

Weight Perception Accuracy Group	M	SD
Accurate Estimate	335.80	287.17
Underestimation	174.03	216.69
Overestimation	355.96	315.39

Note. Positive scores indicate negative weight attitudes (more positive attitude toward thinness).

Table 2

Correlations for Weight Stigmatization Experiences and Eating Disorder Concerns and Behaviors

Measure	1	2	3	4	5	6	7	8	9	10
1. Childhood Stigmatization	--									
2. Current Stigmatization	.48**	--								
3. Total Stigmatization	.86**	.86**	--							
4. Restraint	.22**	.26**	.27**	--						
5. Eating Concern	.33**	.25**	.33**	.47**	--					
6. Weight Concern	.44**	.35**	.46**	.56**	.70**	--				
7. Shape Concern	.42**	.33**	.44**	.54**	.74**	.87**	--			
8. Global EDE-Q subscale score	.40**	.35**	.44**	.78**	.82**	.91**	.92**	--		
9. Binge Eating	.18	.17	.21*	.17	.29**	.23*	.21*	.24*	--	
10. Compensatory Behavior	.29**	.06	.21*	.20	.11	.39**	.31**	.30**	.22*	--
11. Restriction Behavior	.22*	.19*	.24**	.96**	.36**	.46**	.44**	.69**	.15*	.21*

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

Appendix A

Prescreening Survey

Self Reported Height and Weight

1. What is your current weight without your shoes on? (please indicate weight in pounds)

2. What is your current height without your shoes on? (please indicate height in feet and inches)

Body Satisfaction (Brown, Cash, & Mikulka, 1990)

3. Overall, how satisfied are you with the shape and size of your body?

Very Dissatisfied
Mostly Dissatisfied
Neither Satisfied nor Dissatisfied
Mostly Satisfied
Very Satisfied

Weight Identity

4. How do you describe your weight?

Too Thin
Just Right
Overweight
Very Overweight

Appendix B

Implicit Association Test Category Labels and Exemplars

Greenwald, McGhee, & Schwartz (1998); Nosek & Smyth (2007)

Evaluative

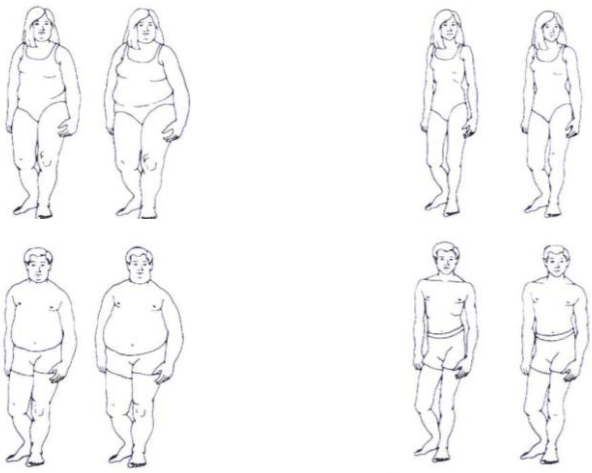
Good	Bad
Love	Maggot
Joy	Poison
Triumph	Hatred
Happy	Agony
Terrific	Devil

Self-Concept

Self	Other
Me	Their
Mine	Them
My	They
Self	Other

Weight

Fat	Thin
Chubby	Skinny
Large	Slim
Obese	Thin
Overweight	Underweight



Appendix C

Self-Report Survey Items

Body satisfaction (Brown, Cash, & Mikulka, 1990)

1. Overall, how satisfied are you with the shape and size of your body?

Very Dissatisfied
Mostly Dissatisfied
Neither Satisfied nor Dissatisfied
Mostly Satisfied
Very Satisfied

Demographic Information

Please complete the following information:

1. Age_____

2. Gender_____

3. Race/Ethnicity_____

Appendix D

Dormitory Experience Survey

1. Have you ever lived in a dormitory room before?

No
Yes

(If yes)

2. How many different dormitory rooms have you lived in? _____

3. Thinking about all the dormitory rooms you have lived in, please rate your overall impression of your dormitory living experience:

1	2	3	4	5	6	7
very negative						very positive

4. Have you ever lived with one or more roommates, not including siblings or other family members?

No
Yes

(If yes)

5. How many different roommates have you had, not including siblings or other family members? _____

6. Thinking about all the roommates you have lived with, please rate your overall impression of your experience living with roommates:

1	2	3	4	5	6	7
very negative						very positive

Appendix E

Room and Roommate Descriptions and Dorm Room Assignment Task Instructions

Instructions Part I:

Based on the profiles of new students presented below, please assign each new student to a dormitory living situation. Each living situation must include one roommate and one room. Because the new dormitory assignment system uses preferential "best fit" rankings and not absolute assignments, you may use roommates and rooms more than once.

New student profiles:

Male student, 19 years old, entering Fall 2009
This student plans to major in the social sciences and in high school was active in athletics.

Female student, 18 years old, entering Fall 2009
This student plans to major in the humanities and in high school was active in student government.

Male student, 20 years old, entering Fall 2009
This student plans to major in pre-law and in high school was active in student journalism.

Female student, 19 years old, entering Fall 2009
This student plans to major in pre-medicine and in high school was active in student fundraisers.

Male student, 18 years old, entering Fall 2009
This student plans to major in the natural sciences and in high school was active in cultural
activities.

Female student, 20 years old, entering Fall 2009
This student plans to major in languages and in high school was active in music.

Potential roommate descriptions:

The roommate is majoring in social sciences and is involved with student recreational sports. The roomate has been written up by residence advisors in the past for noise complaints. Last roommate described this person as: “Loud, obnoxious, difficult to deal with.”

The roommate is majoring in natural sciences and is involved with student government. The roommate is on academic probation after cheating in one of his/her courses. Last roommate described this person as: “A total liar.”

The roommate is majoring in the humanities and is active in campus cultural organizations. The roommate recently was cited by campus police for verbally abusing an officer. Last roommate described this person as: “A complete psycho – will flip out at the drop of a hat.”

The roommate is majoring in languages and is involved in campus political action activities. The roommate was expelled from high school for disciplinary violations and enrolled in the university after earning a GED. Last roommate described this person as: “So totally negative and down about everything.”

The roommate is majoring in natural sciences and is involved in student community outreach activities. The roommate works part-time in the campus library and takes her/his studies very seriously. Last roommate described this person as: “Hard working and quiet but also a good listener.”

The roommate is majoring in the humanities and is involved in student media activities. The roommate has her/his own part-time business working as a DJ for small campus parties. Last roommate described this person as: “Not around much, but a lot of fun when s/he was there.”

The roommate is majoring in languages and is involved with the student newspaper. The roommate travels home on weekends to spend time with family. Last roommate described this person as: “Interesting, talkative, and gave me the room to myself on the weekends.”

The roommate is majoring in social sciences and is involved with campus environmental action activities. The roommate volunteers time with an organization that plants trees and maintains public gardens around the city. Last roommate described this person as: “Very cool, super active with environmental stuff, I learned a lot from him/her.”

Potential room descriptions:

The room is in a building that is old and in disrepair – the heat often does not work and there is still asbestos in the ceiling tiles in the hallway.

The room is in a building that has been adapted to house more students – there is only one bathroom on each hall that has to be shared by all 40 students on the hall.

The room is in a building whose foundation has some structural flaws – the basement laundry room often gets flooded with 6-8 inches of water during heavy rains.

The room is in a building that is in a noisy location – the room has a window overlooking the train and bus depot and you can hear loud and unpleasant noises most of the time.

The room is in a building that is a historical landmark – it is the oldest building on campus with impressive 18th century architectural details.

The room is in a building that has been designated as a "community house" – more students have been assigned there to increase diversity and social interaction.

The room is in a building that has scenic views – it is located next to a river with wooded banks.

The room is in a building that is in a convenient location – it is next to a commuter hub with direct transportation to the city and suburbs.

Instructions Part II:

Now, please rank the potential rooms in order from Most Desirable to Least Desirable.

Instructions Part III:

Now, please rank the potential roommates in order from Most Desirable to Least Desirable.

Appendix F

Suspiciousness Questionnaire

Instructions: The purpose of this questionnaire is to determine your understanding of the overall project procedures. Please answer honestly.

1. Please describe what you believe to be the purpose of the study in which you just participated.

2. Did any of your classmates or other students tell you about the nature of this project before you arrived today?

No
Yes

3. Do you believe that any deception was involved in the project today? That is, that the study was not really about what we told you it was about?

No
Yes

Appendix G

Eating Disorder Screening Items

Morgan, Reed, & Lacy (1999)

1. Do you make yourself sick or vomit because you feel uncomfortably full?

No
Yes

2. Do you worry you have lost control over how much you eat?

No
Yes

3. Have you recently lost more than 15 pounds in a 3 month period?

No
Yes

4. Do you believe yourself to be fat when others say you are too thin?

No
Yes

5. Would you say that food dominates your life?

No
Yes

Appendix H

Encoding and Recall Memory Word Lists

Body stimuli:

(Hunt & Cooper, 2001; Huon & Brown, 1996; Sebastian, Williamson, & Blouin, 1996)

provoking	non-provoking
abdomen	neck
buttocks	ankles
belly	knees
hips	feet

Emotion stimuli:

(Bradley & Lang, 1999)

negative	positive
worthless	confident
depressed	happy
sad	joyful
hopeless	lively

Non-emotion stimuli:

wagon

column

key

lantern

Appendix I

Word-stem Completion Task

Tiggemann, Hargreaves, Polivy, & McFarlane (2004)

Instructions: Please complete the following word stems with whatever word comes to your mind first.

Example:

EXA____ →EXAmple or EXAmination or EXA. . .

FRE ____ →FREeze or FREe or FRE. . .

1. PRE_____
2. CAL_____
3. BIN_____
4. SCA_____
5. GOR_____
6. DIE_____
7. THI_____
8. SLE_____
9. PLU_____
10. SLI_____
11. SKI_____
12. HAN_____
13. BLO_____
14. GRO_____
15. OBE_____
16. PET_____
17. CHE_____
18. MUS_____
19. CEL_____
20. WAI_____

Appendix J

Weight Stereotype Implicit Association Test Category Labels and Exemplars

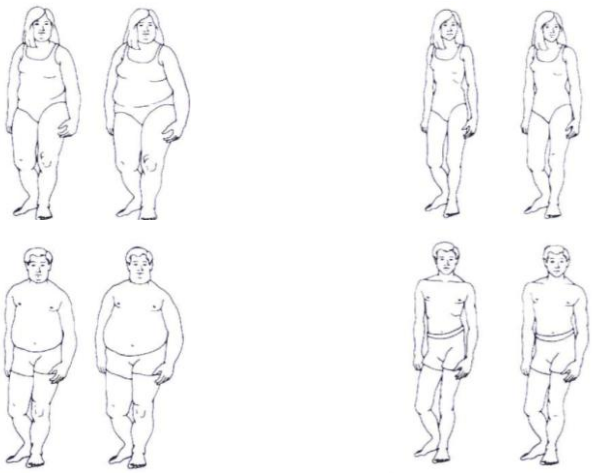
Teachman & Brownell (2001)

Stereotype

Motivated	Lazy
Determined	Slow
Motivated	Lazy
Eager	Sluggish

Weight

Fat	Thin
Chubby	Skinny
Large	Slim
Obese	Thin
Overweight	Underweight



Appendix K

Media Character Identification

Instructions: These questions are relevant to the movie or video clip that you viewed. Please select the response which is appropriate for you.

1) Did you feel like a character was being made fun of or treated unfairly?

0	1
No	Yes

2) If so, how much do you identify with or relate to the experiences of this character?

(3) A lot (2) A little (1) Not at all

3) If so, how much are you like this character?

(3) A lot (2) A little (1) Not at all

4) If so, how much do you look like this character?

3) A lot (2) A little (1) Not at all

Appendix L

Exposure to Weight-Based Stigmatization

Myers & Rosen (1999); Thompson, Cattarin, Fowler, & Fisher (1995)

First, for each question rate how often you think the following things occur now or currently (using the scale below), "never" (1) to "very often" (3).

Second, for each question rate how often you think the following things occurred when you were younger (e.g., when you were in elementary school or high school).

____1. How often do others make fun of you about being overweight or heavy?

_____How often did this happen when you were younger?

____2. How often do others make jokes about your being heavy?

_____How often did this happen when you were younger?

____3. How often do others laugh at you for taking part in certain activities (e.g., exercise, sporting events, or dancing) because you are heavy?

_____How often did this happen when you were younger?

____4. How often do others call you names like "fatso."

_____How often did this happen when you were younger?

____5. How often do others snicker about you or point at you because you are overweight?

_____How often did this happen when you were younger?

____6. How often does it happen that others keep you from joining in their activities because you are overweight?

_____How often did this happen when you were a child?

____7. How often does it happen that others keep you from joining in their group of friends because you are overweight?

_____How often did this happen when you were younger?

____8. How often do you have trouble getting job because you are overweight?

_____How often did this happen when you were younger?

____9. How often do you have trouble getting a date because you are overweight?

_____How often did this happen when you were younger?

____10. How often do your parents, your significant others, or other family members nag you to loose weight?

_____How often did this happen when you were younger?

Appendix M
Eating Disorder Examination Questionnaire
Fairburn & Beglin (2008)

Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all the questions. Thank you.

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.

.

	On how many of the past 28 days	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
1	Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
2	Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?	0	1	2	3	4	5	6
3	Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
4	Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
5	Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6
6	Have you had a definite desire to have a totally flat stomach?	0	1	2	3	4	5	6
7	Has thinking about food, eating or calories made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
8	Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
9	Have you had a definite fear of losing control over eating?	0	1	2	3	4	5	6
10	Have you had a definite fear that you might gain weight?	0	1	2	3	4	5	6
11	Have you felt fat?	0	1	2	3	4	5	6
12	Have you had a strong desire to lose weight?	0	1	2	3	4	5	6

Questions 13-18: Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).

Over the past four weeks (28 days) .....

13 Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)?	.....
14 ..... On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?	.....
15 Over the past 28 days, on how many **DAYS** have such episodes of overeating occurred (i.e., you have eaten an unusually large amount of food and have had a sense of loss of control at the time)?	.....
16 Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?	.....
17 Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?	.....
18 Over the past 28 days, how many times have you exercised in a "driven" or "compulsive" way as a means of controlling your weight, shape or amount of fat, or to burn off calories?	.....

Questions 19 to 21: Please circle the appropriate number. Please note that for these questions the term "binge eating" means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

19 Over the past 28 days, on how many days have you eaten in secret (ie, furtively)? ..... Do not count episodes of binge eating	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
	0	1	2	3	4	5	6
20 On what proportion of the times that you have eaten have you felt guilty (felt that you've done wrong) because of its effect on your shape or weight? ..... Do not count episodes of binge eating	None of the times	A few of the times	Less than half	Half of the times	More than half	Most of the time	Every time
	0	1	2	3	4	5	6
21 Over the past 28 days, how concerned have you been about other people seeing you eat? ..... Do not count episodes of binge eating	Not at all		Slightly		Moderately		Markedly
	0	1	2	3	4	5	6

Questions 22 to 28: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days).

	Over the past 28 days …..	Not at all		Slightly		Moderate -ly		Markedly
22	Has your weight influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
23	Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
24	How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?	0	1	2	3	4	5	6
25	How dissatisfied have you been with your weight?	0	1	2	3	4	5	6
26	How dissatisfied have you been with your shape?	0	1	2	3	4	5	6
27	How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?	0	1	2	3	4	5	6
28	How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?	0	1	2	3	4	5	6

What is your weight at present? (Please give your best estimate.) .....

What is your height? (Please give your best estimate.) .....

If female: Over the past three-to-four months have you missed any menstrual periods? .....

If so, how many? .....

Have you been taking the "pill"? .....

THANK YOU

*In dissertation study 2, all items were re-worded to assess thoughts, feelings, and behaviors that occurred over the past three weeks (21 days).

Appendix N

Personal and Perceived Cultural Stereotypes

Bacon, Scheltema, & Robinson (2001)

Instructions: Listed below are 3 pairs of adjectives sometimes used to describe obese or fat people. For each adjective pair, please place an X on the line closest to the adjective that you feel best describes your feelings and beliefs.

1.	lazy	_____	_____	_____	_____	_____	industrious
		5	4	3	2	1	
2.	attractive	_____	_____	_____	_____	_____	unattractive
		5	4	3	2	1	
3.	no will-power	_____ 5	_____ 4	_____ 3	_____ 2	_____ 1	has will-power

Directions: Listed below are 3 pairs of adjectives sometimes used to describe obese or fat people. For each adjective pair, please place an X on the line closest to the adjective that you feel best describes feelings and beliefs of society as a whole.

1.	lazy	_____	_____	_____	_____	_____	industrious
		5	4	3	2	1	
2.	attractive	_____	_____	_____	_____	_____	unattractive
		5	4	3	2	1	
3.	no will-power	_____ 5	_____ 4	_____ 3	_____ 2	_____ 1	has will-power

* Item 2 was reverse scored

Appendix O

Beliefs About Appearance Scale

Spangler & Stice (2001)

Instructions: Please indicate the degree to which you agree with each of the following statements on a scale from 0 (not at all) to 4 (extremely).

1. The opinion others have of me is based on my appearance.
2. The amount of influence I have on other people depends upon how I look.
3. People will think less of me if I don't look my best.
4. People would be more interested in me if I looked better.
5. My relationships would improve if I looked the way I wished.
6. The amount of success I have in my (future) job or career depends largely upon how I look.
7. My appearance influences my ability to do things.
8. My performance in activities (e.g., school, work, hobbies, etc.) is influence by how I look.
9. The opportunities that are available to me depend upon how I look.
10. My school and work performance or opportunities would improve if I looked the way I wished.
11. My value as a person depends upon how I look.
12. How I feel about myself is largely based on my appearance.
13. I would think more highly of myself if I looked the way I wished.
14. How I look is a large part of who I am.
15. It is difficult to feel good about myself when I am not looking my best.
16. My ability to feel happy depends upon how I look.

17. Improving my appearance is one of the few activities that makes me feel good or like I am accomplishing something.

18. My life will be more exciting or rewarding if I look good.

19. My moods are influenced by how I look.

20. I would enjoy life more if I looked the way I wished.

Appendix P

Fear of Fatness Scale

Anderson, Williamson, Duchmann, Gleaves, & Barbin (1999)

Instructions: Please indicate the degree to which you believe the following statements to be true on a scale from 0 (not at all true) to 6 (very true).

1. I feel that being fat is terrible.
2. I do everything I can to avoid being overweight.
3. It's okay to be overweight.
4. I would be very upset if I gained 2 pounds.
5. I feel that being fat would be terrible.
6. I am terrified about being overweight.
7. I am obsessed with becoming overweight.
8. Fat people are unhappy.
9. I hate it when I feel fat.
10. Fat people are disgusting.
11. I wouldn't mind gaining a few pounds.

*Items 3, and 11 were reverse scored

Appendix Q

Video Clip Descriptions

Weight-Biased Video Clips

Female Clips:

1. This clip was taken from the television show Friends. Chandler, a male character on the show, is reunited with a previous girlfriend from summer camp. He tells his current girlfriend that he ended the relationship because the girl became overweight. Over the course of the clip, Chandler uses several "fat jokes" in reference to the previous girlfriend's weight.

2. This clip was taken from the television show Friends. Monica, a female character on the show is shown in a flashback to when she was overweight. In this flashback, Monica is stereotypically portrayed as a girl who overeats and is desparate for attention from her brother's college roommate who is visiting for the Thanksgiving holiday. She walks in on her brother and his roommate talking about their plans for the evening. She overhears the roommate say to the brother that he does not want to have to be around his "fat sister".

3. This clip was taken from the movie "Dodgeball: A True Underdog Story". A male character is shown in a flashback to his tryout for the cheerleading team. He is expected to toss and lift a female cheerleader over his head. The female cheerleader who he is paired with is overweight. He is not strong enough to lift her weight and she falls. The fall is exaggerated. She lands directly on top of the boy. Because of her size, he is shown struggling to stand.

4. This clip was taken from the television show Friends. Monica, a female character on the show, is shown in a flashback to when she was overweight. The flashback shows Monica and her friend Rachel getting ready for their prom. Monica is shown as an overeating teenager who was only able to get a prom date because her date was bribed. She is eating a sandwich while she is getting ready and she accidentally smears mayonnaise on Rachel.

Male Clips:

1. This clip was taken from the television show King of Queens. Doug, an overweight male character on the show, is shown lying in bed with his wife. Their older mattress cannot hold Doug's weight any longer. They are shown falling to the floor when the mattress breaks. Doug's wife complains and blames Doug for the expense of the new mattress.

2. This clip was taken from the television show Everybody Loves Raymond. Raymond a male character on the show, and his wife are playing a game which involves picking a "replacement" spouse for each other. Raymond is expected to come up with someone who could take over his role as his wife's husband when he is no longer living. Raymond comes up with his friend Bernie. His wife is not happy with this choice and Raymond decides that it is because Bernie is overweight.

3. This clip is taken from the movie Dodgeball: A True Underdog Story. The owner of a gym is shown advertising his gym. He makes fun of being overweight and points out a picture of himself when he was overweight. The picture shows a gluttonous younger version of the owner eating an entire case of ice cream.

4. This clip was taken from the television show King of Queens. Doug, a male character on the show, is shown making a big breakfast. His wife is angry with him for not sticking to his diet and she sends him to a therapist. She claims that this will help him figure out why he has no control over his eating. Doug goes to the therapist and during his session, he cannot stop eating candy out of the dish in his therapist's office. By the end of the clip, Doug has stopped going to the therapist and is shown eating snack cakes.

<u>Non-Weight Biased Video Clips</u>

1. This clip was taken from the television show Frasier. Frasier, the main male character on the show, is the host of a radio program. The clip begins with Frasier starting off his two-thousandth show with Bill Gates as his guest. When the show turns into a question and answer session for listeners with computer software problems, Frasier becomes frustrated and throws a childish temper tantrum. Later, he goes home to his collection of show recordings and realizes that one is missing. He obsessively interrogates his family members until one of them confesses to destroying the tape.

2. This clip was taken from the movie Legally Blonde. Elle, the main character of the show is portrayed as a driven Valley Girl who is obsessed with fashion but also her career ambitions. The clip begins with Elle getting ready for a date with her boyfriend. She is telling her friend that she has to look perfect because she suspects that her boyfriend is going to propose. While she frantically trys to come up with the perfect outfit, she brags about her ring, tells a sales lady that their fabric is not good enough for her taste, and daydreams about the proposal. Later Elle is taken by surprise when her boyfriend dumps her instead of proposing.

3. This clip was taken from the television show Everybody Loves Raymond. Raymond, the main male character on the show is shown yelling at his television. His cable is not working and he overreacts because he is unable to finish what he is watching.

4. This clip was taken from the television show Everybody Loves Raymond. Robert, a male character is portrayed in this clip as he always is on this show: goofy and unlucky. He is supposed to make the invitation for his wedding. He lets his brother and father talk him into designing an absurdly distateful invitation so that when his fiancée sees the design she will not want to ask him to take on any other wedding responsibilities. Robert, regrets his decision when the invitations are accidentally printed and shipped with his design.

5. This clip was taken from the television show Everybody Loves Raymond. Debra, a female character on the show, comes home to tell her husband Raymond about her day volunteering. Raymond, is too lazy to volunteer and argues with his wife when she asks him to join her. Raymond wants to offer to make a donation of money instead of going to the trouble of volunteering his time. The clip ends with a frustrated Raymond who has agreed to volunteer.

6. This clip was taken from the television show Friends. Rachel, a female character on the show has a new male assistant at work. The clip portrays Rachel as having a crush on the assistant. While she should consider him "off–limits" because of his age and the fact that she is his supervisor, she shows no restraint in flirting with him at work. When she suspects that a female assistant is trying to spend time with her crush she threatens to get her fired.

Neutral Media Clips

1. This clip was taken from the television show King of Queens. Doug and his wife Carrie, the main characters on the show, are shown eating dinner over at their friends house. Doug is shown playing with the couple's son. The couple tells Carrie that they are going to have a baby. The wife gets upset when she realizes that Doug already knows about their news because her husband could not keep it a secret.

2. This clip was taken from the television show King of Queens. Doug and his wife Carrie, the main characters on the show, are shown driving their car. They have a discussion about their neighbors' children which turns into a discussion of whether it is time for them to have a baby.

3. This clip was taken from the television show Friends. The clip shows Rachel and Phoebe, two female characters on the show arguing over who should be their other friend's maid of honor. At the end of the clip, they decide to have an audition and allow their neighbors to decide who acts like the best maid of honor.

4. This clip was taken from the movie "The Holiday". Iris, a main female character in the movie is participating in a home exchange for the holiday. The clip shows Iris meeting her elderly neighbor. After talking to him she realizes he is a famous writer.

VITA

Sarah Savoy

1980	Born July 11 in Baton Rouge, Louisiana.
1998	Graduated from Episcopal High School, Baton Rouge, Louisiana.
2002	B. S. in Psychology, Louisiana State University, Baton Rouge, Louisiana.
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