

THE INFLUENCE OF MEDIA ON IMPLICIT  
WEIGHT DISCRIMINATION

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WEIGHT DISCRIMINATION

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ABSTRACT

The purpose of this dissertation is to determine if exposure to media that exhibits weight bias increases implicit anti-fat attitudes using an objective assessment of emotional response to obesity cues. Participants completed a baseline affect modulated startle paradigm during which they viewed photos of obese and non-obese people while startle responses were elicited. Participants were then randomly assigned to view one of two media clips taken from a popular television show. One clip stigmatized obesity; the other did not stigmatize obesity. After viewing the clips, participants completed a second affect modulated startle paradigm during which they viewed pictures of obese and non-obese people while startle responses were elicited. Fear of Fat was found to be associated with the impact of the clip on startle response while viewing photos. There were no other significant findings. Limitations of the study and areas for future research are discussed.

APPROVAL PAGE

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## CHAPTER 1

### OVERVIEW

Despite the current obesity epidemic, people who are obese face discrimination. Weight discrimination can be deliberate or unintentional. Commonly reported types of weight discrimination include negative comments, physical barriers (e.g. chairs that are too small), loved ones' embarrassment due to size, being stared at, excluded, avoided, or ignored, job discrimination, negative assumptions made by others, or being attacked (Friedman et al., 2005). In one study, experiencing these types of discrimination was reported by 4% (being attacked) to 98% (mean comments from family) of participants (Friedman et al., 2005).

One form of weight discrimination is anti-fat attitudes. A person who holds anti-fat attitudes discriminates against people who are overweight because of their size (Morrison & O'Connor, 1999). In addition to preferring people who are thin to people who are heavier, anti-fat attitudes include assuming that people who are overweight possess negative traits such as incompetence, unattractiveness, immorality, laziness, and lacking willpower (Schwartz, Vartanian, Nosek, & Brownell, 2006).

Weight discrimination is also prevalent in the media. Content analyses have shown that anti-fat attitudes are commonly expressed in advertising, news media, and child and adult entertainment media (Blaine & McElroy, 2002; Bonfiglioli et al., 2007; Fouts & Burggraf, 1999; Fouts & Burggraf, 2000; Fouts & Vaughan, 2002; Greenberg et al., 2003; Herbozo, Tantleff-Dunn, Gokee-Larose, & Thompson, 2004; HimeS & Thompson, 2007; Kim & Willis, 2007; Klein & Shiffman, 2005; Klein & Shiffman, 2006; Malkin, Wornian, &

Chrisler, 1999; Robinson, Callister, & Jankoski, 2008; Sandberg, 2007; Stein, 2007; White, Brown, & Ginsburg, 1999). Correlational studies have shown that as media exposure increases so do anti-fat attitudes (Harrison, 2000; Latner, Rosewall, Simmons, 2007; Lin & Reid, 2009).

Though much research has been done, there are limitations in the study of weight discrimination. First, most studies have focused on analyzing the content of media messages, which does not allow one to draw conclusions about the relationship between anti-fat messages in the media and anti-fat attitudes in society. The few studies that have measured the relationship between media exposure and anti-fat attitudes have correlational designs and, therefore, they cannot be used to determine causation. Finally, these studies use subjective measures of anti-fat attitudes that may be biased by social desirability. The current study will address these problems by investigating the relationship between media exposure and anti-fat attitudes using an experimental design and implicit assessment of anti-fat attitudes (i.e., the affect modulated startle paradigm). The purpose of this dissertation is to determine if exposure to media that exhibits weight bias is related to increased implicit anti-fat attitudes.

First, participants completed a baseline affect modulated startle paradigm during which they viewed photos of obese and non-obese people while startle responses were elicited. Participants were then randomly assigned to view one of two media clips taken from a popular television show. One clip stigmatized obesity; the other did not stigmatize obesity. After viewing the clips, participants completed a second affect modulated startle paradigm during which they viewed pictures of obese and non-obese people while startle responses were elicited. Participants in both conditions viewed the same images, but the

order in which images was presented was random. The dependent variable was created by subtracting startle amplitude while viewing images of non-obese people from startle amplitude while viewing pictures of obese people. There were three hypotheses for this study. The first hypothesis was that there would be an interaction between testing time (pre-exposure vs. post-exposure) and media condition (weight vs. non-weight stigmatizing), such that participants exposed to the stigmatizing media condition would have a greater change in the difference score (between obese and non-obese photos) between the first and second startle paradigms than participants exposed to the non-stigmatizing media condition. The second hypothesis was, among participants who viewed the weight-stigmatizing clip, Anti-fat Attitudes Scale (AFAS) scores would moderate the relationship between testing time and difference score, meaning that there would be a difference in the way people with lower versus higher AFAS scores reacted to obese and non-obese pictures before and after viewing a clip stigmatizing obesity. This difference could be in one of two directions: (1) participants with lower AFAS scores may show a greater change from pre-test to post-test than participants with higher AFAS scores because participants with higher AFAS scores may already hold a large amount of bias or (2) participants with higher AFAS scores may show a greater change from pre-test to post-test because they may be more susceptible to weight bias than people who do not hold anti-fat attitudes. The third hypothesis was that there would be a three-way interaction between testing time, gender of obese stimulus, and media condition such that from pre to post assessment, the obesity stigmatizing clip, compared to the non obesity stigmatizing clip, will have a stronger influence on startle response while viewing photos of obese women than startle response while viewing photos of obese men.

None of the above hypotheses were supported, suggesting that brief exposure to stigmatizing media does not increase anti-fat attitudes, as measured by emotional response to obesity cues using the affect modulated startle paradigm. Future studies should address limitations of the current study by including longer media exposures, adjusting the startle paradigm to maximize responding, and including a more varied sample.

## CHAPTER 2

### REVIEW OF THE LITERATURE

#### Overview of Obesity

##### Definition of Obesity

In adults, body mass index (BMI) is commonly used to measure overweight/obesity status. Overweight is defined as having a BMI between 25 and 29.9 kg/m<sup>2</sup> and obese is defined as having a BMI of 30 kg/m<sup>2</sup> or greater (National Institutes of Health, 1998). There are three categories of obesity: Class I (BMI of 30-34.9 kg/m<sup>2</sup>), Class II (BMI of 35-39.9 kg/m<sup>2</sup>), and Class III (BMI of 40 kg/m<sup>2</sup> or greater). In children, percentiles are used to estimate obesity status. Children with a BMI greater than 85% of children of the same age and sex are classified as overweight and those with a BMI greater than 95% of children of the same age and sex are classified as obese (August et al., 2008).

##### Prevalence of Obesity

Obesity has reached epidemic proportions in the United States. There has been a rapid increase in rates of overweight and obesity since 1980. In the National Health and Nutrition Examination Survey (NHANES) 2003-2004 data, 66.3% of adults age 20 years or older in the United States were overweight and 32.2% of adults age 20 years or older in the United States were obese (Ogden et al., 2006). This is an increase from past NHANES reports. The increase in prevalence is greater for those classified as obese than for those classified as overweight (Flegal, Carroll, Ogden, & Johnson, 2002). In the NHANES 1976-

1980 study, only 15.0% of adults age 20 to 74 years in the United States were obese, which shows that the prevalence of obesity has more than doubled since 1980 (Flegal et al., 2002).

Rates of overweight are also increasing in children. According to the NHANES 2003-2004 survey, 17.1% of children are overweight compared to 7.2% of children in the NHANES 1976-1980 survey (Ogden et al., 2002; Ogden et al., 2006). Being overweight as a child increases risk of being overweight as an adult. Half of children who are overweight after the age of six years, will be obese as adults, compared to only 10% of children who are not obese (Whitaker, Wright, Pepe, Seidel, & Dietz, 1997).

## Consequences of Obesity

### Medical

Obesity is a leading cause of mortality, morbidity, disability, healthcare utilization, and healthcare costs in the United States. It is associated with both prevalence and severity of many physical health conditions including diabetes, cardiovascular disease, gallstones, fatty liver disease, sleep-related breathing disorders, pelvic floor disorders, osteoarthritis, childhood asthma, and some types of cancer (Calle, Rodriguez, Walker-Thurmond, & Thun, 2003; Chen et al., 2009; Katsika, Tuvblad, Einarsson, Lichtenstein, & Marschall, 2007; Klein et al., 2004; Lievense et al., 2002; Liu, Balkwill, Spencer, Beral, & Million Women Study Collaborators, 2008; Michelson, Williams, Benjamin, & Barnato, 2009; Peppard, Young, Palta, Dempsey, & Skatrud J, 2000; Reeves et al., 2007; Reijman et al., 2006; Zelber-Sagi, Nitzan-Kaluski, Hapern, & Oren, 2006). Weight loss is associated with improvement in many of these health conditions (Klein et al., 2004; Peppard et al., 2000). Overweight and obesity are also associated with a greater mortality risk and shorter lifespan



(Adams et al., 2006; Calle, Thun, Petrelli, Rodriguez, & Heath, 1999; Fontaine, Redden, Wang, Westfall, & Allison, 2003).

### Economic

A study by Finkelstein and colleagues (2009) showed that as rates of obesity have increased, obesity-related healthcare costs have increased. The estimated healthcare costs associated with adult obesity in 2008 totaled approximately 147 billion dollars. This is a large increase over the past decade as the estimated healthcare costs associated with obesity were 78.5 billion dollars in 1998. In 2006, 9% of all medical spending was obesity related. On average, people who were obese spent nearly 1,500 dollars more on medical care in 2006 than people who were at a healthy weight did. This means that, in 2006, obese people spent 41.5% more on medical care than non-obese people. Despite the increased spending in obesity related healthcare, rates of obesity and overweight continue to climb.

### Psychosocial

In addition to the many physical health complications, obesity is associated with mental health problems including depression and eating disorders. Depression is marked by a sad mood, negative affect, and a loss of interest or pleasure in previously enjoyed activities (McKay, Davis, & Fanning, 1997). Onyike and colleagues (2003) analyzed the NHANES III data and found that overall prevalence of depression is associated with BMI, but this relationship is different in men and women. Specifically, they found a positive relationship between BMI and depression prevalence in women such that prevalence of depression was lowest in non-obese women (prevalence = 3.82%) and highest among women with Class III

obesity (prevalence = 13.03%). In men, the relationship was not as consistent. The lowest prevalence of depression was found in men with Class II obesity (prevalence = 0.83%). At the same time, prevalence of depression was greatest in men with Class III obesity (prevalence = 11.54%). Regardless of gender, the highest prevalence of depression was found in people with Class III obesity, suggesting that male gender may be a protective factor against depression among obese people except among those at the highest levels of obesity.

In another nationally representative study, Carpenter and colleagues (2000) found that, in women, BMI is positively correlated with the likelihood of having major depressive disorder and suicidal ideation, meaning that the more a woman weighs the more likely she is to have major depression and suicidal thoughts. In males, underweight men were more likely to be depressed, have suicidal ideation, and attempt suicide than men in heavier weight classes. Overall, these studies suggest that obesity is associated with depression in women, but not in men.

Obesity is also associated with an increased risk of eating disorders and eating disordered behavior. For instance, Stunkard and Allison (2003) found that Binge Eating Disorder is more common among people with early onset obesity and higher levels of obesity. Similarly, binge eating is associated with overweight (Milkewicz Annis, Cash, & Hrabosky, 2004).

One strong predictor of eating disordered behavior is distorted body image. Body image is a person's self perception and attitudes concerning his or her physical appearance (Cash, Morrow, Hrabosky, & Perry, 2004). Attitudes include one's body satisfaction or evaluation of his or her body as well as how much one values one's appearance (Cash, et al.,

2004). Obesity affects body image. Milkewicz Annis and colleagues (2004) compared women who were currently overweight, women who had been overweight in the past, but currently were not overweight, and women who had never been overweight on level of body image. They found that women who are currently overweight have more body image dissatisfaction than women who are not currently overweight. Additionally, women who have a history of being overweight have higher levels of body image disturbance than women who have never been overweight. Kaczynski, Goold, and Mudry (2004) found that the relationship between body image and BMI is partially mediated by beliefs about the controllability of weight and thin ideal valuation. Greater valuation of the thin ideal and believing that body weight is controllable increase body dissatisfaction. Overall, the studies focusing on the relationship between eating disorders/eating disordered behavior and BMI suggest that obesity is a risk factor for developing eating disorders.

### Overview of Weight Discrimination

#### Definition of Weight Discrimination

Despite the high prevalence of obesity, people who are obese face discrimination. Weight discrimination can be deliberate or unintentional. Commonly reported types of weight discrimination include mean/inappropriate comments, physical barriers (e.g. chairs that are too small), loved ones' embarrassment due to size, being stared at, excluded, avoided, or ignored, job discrimination, negative assumptions made by others, or being attacked (Friedman et al., 2005). In one study, experience of these types of discrimination was reported by 4% (being attacked) to 98% (mean comments from family) of participants (Friedman et al., 2005).

One form of weight discrimination is anti-fat attitudes. A person who holds anti-fat attitudes discriminates against people who are overweight because of their size (Morrison & O'Connor, 1999). In addition to preferring people who are thin to people who are heavier, anti-fat attitudes include assuming that people who are overweight possess negative traits, such as beliefs that people who are overweight are incompetent, unattractive, immoral, lazy, and lacking willpower (Schwartz et al., 2006).

### Causes of Discrimination

Weiner's attribution-affect model may help to explain why people commonly discriminate against those who are obese. This model states that people judge situations based on the perceived controllability and their affective response (1985). Situations that are viewed as negative and controllable elicit a negative affective response (e.g., anger) (Weiner, 1985). The negative affective response leads others to treat badly the person that they view as responsible for the situation (Weiner, 1985). Applied to weight discrimination, this model posits that people who believe that it is bad to be obese, and that obese people are responsible for their obesity, will have a negative affective response to people who are obese. This negative affective response leads people with these views to discriminate against people who are obese.

### Who Discriminates

Though discrimination is widespread, some people are more likely to discriminate against obese people than others. Factors associated with level of weight bias include personal beliefs, demographic variables, and obesity status. Several beliefs influence how

likely someone is to discriminate against obese individuals. Crandall (1994) studied the association between level of anti-fat attitudes and various belief systems including Protestant values, belief in a just world, authoritarianism, political conservatism, and racism. A common opinion held by people with the aforementioned belief systems is that people get what they deserve, which led Crandall to hypothesize that people with these belief systems would be more likely to hold anti-fat attitudes because they would blame obese people for their obesity. His hypothesis was accurate; scores on the scales measuring strength of each belief system were positively correlated with scores on the anti-fat attitude scale. In a similar study, Morrison and O'Connor (1999) found that anti-fat attitudes are positively correlated with authoritarianism, discrimination against individuals who are gay, lesbian, or bisexual, and political conservatism.

Demographic factors that seem to influence the prevalence and strength of anti-fat attitudes include gender of attitude holder, relationship with obese individuals, education, and age. Females are more likely to display an anti-fat bias than males (Holub, 2008; Latner & Stunkard, 2003; Morrison & O'Connor, 1999; Schwartz et al., 2003). Among obesity experts, those who work directly with people who are obese, who have friends who are obese, and who report having more positive interactions with obese people and understanding what it is like to be obese are less likely to hold anti-fat attitudes (Schwartz et al., 2003). Similarly, among non-obese adults, those who report a personal relationship with someone who is obese are less likely to report anti-fat attitudes (Geier, Schwartz, & Brownell, 2003). Education is positively correlated with anti-fat attitudes, meaning that the higher someone's level of education is the more likely he or she is to hold anti-fat attitudes (Robinson, Bacon, & O'Reilly, 1993). In adulthood, some studies show that age is

negatively correlated with anti-fat attitudes (Robinson et al., 1993; Schwartz et al., 2003), while others suggest that there is no relationship between age and level of anti-fat attitudes (Wang, Brownell, & Wadden, 2004). Among children, overt weight discrimination seems to occur most frequently in elementary and middle school and become less frequent in high school (Neumark-Sztainer, Story, & Faibisch, 1998). Some studies suggest that ethnicity of the attitude holder does not impact level of anti-fat attitudes (Wang et al., 2004), while others show that Black women are less likely than White women to hold anti-fat attitudes (Hebl & Heatherton, 1998).

Though people who are obese hold anti-fat attitudes, some evidence suggests that they are less likely to hold these attitudes than people who are non-obese (Holub, 2008; Latner & Stunkard, 2003; Morrison & O'Connor, 1999; Schwartz et al., 2003; Schwartz et al., 2006; Teachman & Brownell, 2001). In adults, people who are non-obese are more likely than overweight and obese people to prefer people who are thin to people who are overweight, rate people who are overweight as lazier and less motivated than people who are thin, and automatically pair negative characteristics like “bad” or “lazy” with being obese (Schwartz et al., 2006). Additionally, non-obese people compared to overweight and obese people, are also more willing to endure an aversive event rather than be obese (Schwartz et al., 2006). Similarly, work with children shows that children are often inaccurate in estimating body size/shape, but perceived size/shape is correlated with likelihood of holding anti-fat attitudes (Holub, 2008).

In contrast to the above findings, some studies have shown no correlation between BMI and level of weight bias (Brandsma, 2005; Crandall, 1994; Foster et al., 2003; Wang et al., 2004). Despite the conflicting findings, members of all weight groups do hold anti-fat

attitudes and no studies have shown that people who are obese respond more favorably to others who are obese than to thin people. Therefore, not only do people who are obese fail to form an in-group preference that would provide support to in-group members and buffer discrimination, they actively discriminate against their own group.

### Prevalence and Extent of Weight Discrimination

Weight discrimination is prevalent in Western society and has been called the last socially acceptable form of discrimination (Morrison & O'Connor, 1999; Puhl & Heuer, 2009). Unlike other forms of discrimination, weight bias continues to increase in prevalence and strength (Andreyeva, Puhl, & Brownell, 2008; Schwartz et al., 2006). An analysis of data from the National Survey of Midlife Development in the United States, which was conducted between 1995 and 1996, shows that overall 5% of men and 10% of women experience weight discrimination (Puhl, Andreyeva, & Brownell, 2008). The prevalence of obesity discrimination greatly increases with BMI. In adults with a BMI of 35 kg/m<sup>2</sup> or above (Class II obesity), 40% report experiencing weight discrimination (Puhl et al., 2008). Weight discrimination is reported most frequently by women and younger participants (Puhl et al., 2008). Rates of weight discrimination found in this study were approximately equal to prevalence of gender and race discrimination (Puhl et al., 2008). In contrast, a study by Crandall (1994) shows that people hold more negative views against obese people than against minority groups, which could mean either racial discrimination is less prevalent than obesity discrimination or social pressure causes people to underreport discriminatory attitudes toward minority groups (Crandall, 1994). This suggests that either obesity discrimination is more prevalent than other types of discrimination or that society accepts

discrimination against people who are obese. This latter view is supported by a study by Morrison and O'Connor (1999) that found no correlation between social desirability and scores on an anti-fat attitudes scale.

## Consequences of Weight Discrimination

### Physical Consequences

The consequences of weight bias are far reaching, including psychological, interpersonal, and physical problems. They also may account, at least in part, for the association between obesity status and health. Concerning physical health, research suggests that obesity stigma may reduce health-related behaviors. For instance, experience of weight stigma may result in people being less likely to attempt to lose or maintain weight. Belief in obesity stereotypes is positively correlated with refusal to diet, which suggests that people who believe stereotypes about obesity are less willing to try to lose weight (Puhl, Moss-Racusin, & Schwartz, 2007). Additionally, experience of stigmatization due to weight is associated with avoidance of exercise (Vartanian & Shaprow, 2008). These findings show that people who experience weight-related stigma are not likely to participate in activities such as altering diet and exercise that might help reduce weight or prevent weight gain.

Another negative result of weight stigmatization may be delay of medical care. Though obese patients generally attend physician appointments more frequently than non-obese patients due to chronic medical conditions, obese patients are more likely to delay preventive care appointments (Fontaine, Faith, Allison, & Cheskin, 1998; Reidpath, Crawford, Tilgner, & Gibbons, 2002). Olson, Schumaker, and Yawn (1994) surveyed 310 women who worked in medical centers about medical care. Seventy-two percent of



participants who reported delaying medical care, said that they delayed medical because they did not want to have their weight measured. In this study, 13% of all respondents reported delaying medical care because they were embarrassed by their weight. The percentage who reported delaying medical care because of embarrassment concerning weight increased with BMI such that 32% of those with a BMI greater than 27 kg/m<sup>2</sup> and 55% of those with a BMI greater than 35 kg/m<sup>2</sup> reported delaying medical care because they were embarrassed by their weight. Overall, 63.8% of women said they planned to lose weight before going to the doctor. Finally, BMI was positively related to likelihood of cancelling an appointment. In a similar study, Drury and Louis (2002) found that BMI is positively correlated with delay and avoidance of healthcare. Participants in this study reported delaying medical care because they had gained weight, they did not want to be weighed, and they did not want to be told to lose weight.

Overall these findings suggest that weight discrimination has a negative impact on physical health. Experience of stigma reduces weight maintenance/weight loss behavior and fear of having weight evaluated can lead to delaying important preventive care appointments, which could, in part, account for the relationship between obesity status and illness.

### Psychological Consequences

Psychologically, people who experience stigmatization due to obesity may be more vulnerable to eating disordered behaviors and cognitions, depression, lower self-esteem, and poorer overall psychological adjustment and life satisfaction.

## Eating Disorders

Studies have shown a link between eating disorders and having experienced weight discrimination. People who are teased about their eating patterns by friends or family or are criticized by friends concerning eating are more likely to develop eating disorders than people who do not experience teasing and criticism from others (Annus, Smith, Fisher, Hendricks, & Williams, 2007). Benas and Gibb (2008) found that weight-related teasing is positively associated with dysfunctional eating patterns.

As stated above, one strong predictor of eating disordered behavior is body image. Previous studies have found a relationship between obesity and body image, which may be explained by experience of stigmatization (Kaczynski et al., 2004; Milkewicz Annis et al., 2004). Studies have found a negative association between body image and the frequency of stigmatizing experiences (Friedman et al., 2005; Friedman, Ashmore, & Applegate, 2008; Milkewicz Annis et al., 2004). Friedman and colleagues (2005) found a positive correlation between stigmatizing experiences and body image disturbance that was moderated by level of anti-fat attitudes held by the stigmatized person. People who held anti-fat attitudes and were stigmatized for obesity had more body dissatisfaction than people who did not hold anti-fat attitudes and were stigmatized for obesity. Together these results suggest that the more someone experiences weight stigma and the more one internalizes weight stigma, the more likely he or she is to develop body dissatisfaction.

One form of stigmatization is weight/appearance related teasing. Weight and appearance related teasing have frequently been an area of focus in body image literature. Studies suggest that experiencing both appearance related teasing (Jackson, Grilo, & Masheb, 2000; Rieves & Cash, 1996; Thompson et al., 1995) and weight-related teasing

(Matz, Foster, Faith, & Wadden, 2002; Rosenberger, Henderson, Bell, & Grilo, 2007; Thompson & Heinberg, 1993) predict body dissatisfaction. Conversely, one study found no impact of weight-related teasing on body dissatisfaction (Stice & Whitenton, 2002). Thompson and colleagues (1999) suggested that the effect of experiencing appearance-related teasing on body image is mediated by appearance-based social comparison, illustrating that experiencing teasing is correlated with social comparison, which in turn is associated with body image. These findings further suggest that weight stigma leads to poor body image.

One behavior commonly associated with eating disorders is binge eating. Binge eating is eating an excessive amount of food in a short period of time and feeling a loss of control over eating (American Psychiatric Association, 2000). Like body image dissatisfaction, the relationship between binge eating and obesity may be due, in part to stigmatizing experiences as research has shown a positive correlation between stigmatizing experiences and binge eating behavior (Ashmore, Friedman, Reichmann, & Musante, 2008). In a sample of participants recruited from a weight-loss program, Ashmore and colleagues (2008) found that self-reported frequency of experiencing weight-related stigma predicts self-reported binge eating severity. Similarly, Friedman and colleagues (2008) found that frequency of past weight-related stigmatization experiences is associated with the diagnosis of binge eating disorder, such that the greater the frequency of weight stigmatization, the greater the likelihood of having a binge eating disorder diagnosis (Friedman et al., 2008). Further, the relationship between experience of stigma and binge eating disorder may be influenced by stereotype internalization. Puhl and colleagues (2007) surveyed members of a weight loss organization concerning their beliefs about obesity stereotypes. They found that

overweight and obese women who believe that stereotypes about obesity are true have more frequent binge eating episodes. Collectively, these findings show a relationship between weight stigma and binge eating, suggesting that weight stigma may increase eating disordered behaviors.

#### Depression/Negative Affect

Experience of weight stigma may also increase vulnerability to depression. In a sample of adults seeking weight loss surgery, BMI was not correlated with depressed mood, but the experience of weight-related stigma was (Sarwer, Fabricatore, Eisenberg, Sywulak, & Wadden, 2008). Experience of weight-related stigma accounted for 32.6% of the variance in depression scores. In one study, Friedman and colleagues (2008) found that weight-based stigmatization was positively associated with level of depression. In another study by Friedman and colleagues (2005) the relationship between depression and experience of stigma was moderated by anti-fat attitude. The relationship between depression and experience of stigma was stronger among people who held anti-fat attitudes compared to people who did not hold anti-fat attitudes, suggesting that internalization of stereotypes increases likelihood of developing depression. These studies suggest that it is not obesity that causes depression, but the correlates of obesity (e.g. discrimination, internalization of anti-fat attitudes). This suggestion is further supported by studies concerning teasing experiences and depression. Depression has been linked to experiencing weight-related teasing and general appearance-related teasing (Benas & Gibb, 2008; Eisenburg, Neumark-Sztainer, Haines, & Wall, 2006; Jackson et al., 2000; Keery, Boutelle, van den Berg, & Thompson, 2005).

## Self Esteem

Guindon (2002, p. 207) defined self esteem as “the attitudinal, evaluative component of the self; the affective judgments placed on the self concept consisting of feelings of worth and acceptance, which are developed and maintained as a consequence of awareness of competence, sense of achievement, and feedback from the external world.” Research has shown that BMI is negatively correlated with self-esteem in adults (Carr & Friedman, 2005; Friedman et al., 2005; Kaczynski et al., 2004; Milkewicz Annis et al., 2004), but not in children (Edmunds & Fox, 2000). This could be because children have not experienced many of the negative consequences of obesity like stigmatization, yet. Like depression and body image, the relationship between self-esteem and BMI in adults is moderated by anti-fat attitudes, such that the relationship between stigmatization experience and self-esteem is stronger among people who hold anti-fat attitudes than among those who do not hold anti-fat attitudes (Friedman et al., 2005; Kaczynski et al., 2004). Finally, experience of weight stigmatization and weight and appearance teasing is negatively correlated with self-esteem (Friedman et al., 2008; Fulkerson, Strauss, Neumark-Sztainer, Story, & Boutelle, 2007; Gleason et al., 2000; Jackson et al., 2000; Keery et al., 2005). Overall, these findings suggest that experience of weight stigma is associated with low self-esteem.

## Psychological Well-being

Overall psychological well-being is also related to obesity stigmatization. Research has shown that frequency of stigmatization experiences is positively correlated with psychological distress such that the more frequently participants reported experiencing

stigma the greater the number of general psychological symptoms they endorsed (Ashmore et al., 2008; Friedman et al., 2005; Myers & Rosen, 1999; Patt, Yanek, Moy, & Becker, 2004). In contrast, Puhl and Brownell (2006) found that frequency of stigmatization was not correlated with psychological distress, though coping responses were. Specifically, coping by gaining social support or using positive self-talk was associated with better psychological functioning. This could suggest that positive coping strategies could be employed to help lessen the negative impact of weight bias.

Taken together, the findings linking weight discrimination and mental health emphasize that it is important to study weight discrimination. With such negative impacts on mental health, research needs to investigate how weight bias develops, how weight bias can be prevented, and how people can learn to cope with experiencing weight bias.

### Interpersonal Consequences

#### Childhood

Use of appearance stereotypes are thought to develop as a result of subtle communications and expectations of parents and teachers in children as young as 4-years-old (Adams & Crane, 1980; Adams, Hicken, & Salehi, 1988; Holub, 2008). Once developed, these attitudes negatively impact relationships for overweight/obese people. For instance, Holub found that pre-school aged children rated line drawings of the silhouettes of overweight children as meaner than line drawings of average-weight children, suggesting that they would be less likely to choose an overweight child as a friend. Children report being less willing to befriend heavier children and that they like children with obesity less than children with physical disabilities and children that appear healthy (Goldfield &

Chrisler, 1995; Latner & Stunkard, 2003). These attitudes have become more common since the 1960's (Latner & Stunkard, 2003). When rating characteristics of silhouettes, children indicate that the silhouette representing an overweight child had fewer friends, was less well liked by parents, performed more poorly in school, had a greater desire to be thinner, and was less satisfied with their appearance than the thin silhouette (Hill & Silver, 1995). These findings all suggest that children hold anti-fat attitudes and are not likely to befriend overweight children.

Weight discrimination impacts adolescent relationships as well. Overweight adolescent girls report experiencing weight-related stigma including hurtful comments, not being accepted by peers, and being negatively stereotyped by friends, family, employers, other children/teenagers, and strangers (Neumark-Sztainer et al., 1998). Similarly, Strauss and Pollack (2003) found that overweight adolescents had fewer friends and were not as central to social networks as normal weight adolescents. Additionally, friends of people who are overweight are less popular than people who do not have friends that are overweight (Strauss & Pollack, 2003). These findings suggest that obese adolescents have more difficulty forming friendships than non-obese adolescents.

## Adulthood

Anti-fat attitudes impact adult relationships as well. In adulthood, overweight people seem to have less success in initiating romantic relationships. For instance, overweight college women were less likely to be involved in a romantic relationship than their non-obese peers (Sheets & Ajmere, 2005). In another study, college students were asked to rank a set of six drawings of potential sexual partners according to desirability (Chen & Brown,

2005). The drawings included one non-obese person, one obese person, a person in a wheelchair, a person whose left arm has been amputated, a person with mental illness, and a person with a history of curable sexually transmitted infections. Participants ranked the drawing of the obese person as the least desirable sexual partner. This ranking was more consistent among men than among women.

The relationship between obesity and difficulty in other types of adult relationships is less clear-cut. Several studies suggest that people who are obese have fewer friends (Sarlio-Lahteenkorva, 2001) and less satisfactory relationships with families (Ball, Crawford, & Kenardy, 2004; Carr & Friedman, 2006), spouses (Ball et al., 2004), and coworkers (Ball et al., 2004). Conversely, other studies report no differences between friendships (Carr & Friedman, 2006; Patt et al., 2001), family relationships (Miller, Rothblum, Brand, & Felicio, 1995), spousal relationships (Carr & Friedman, 2006; Patt et al., 2001), or relationships with coworkers (Carr & Friedman, 2006; Patt et al., 2001) between obese and non-obese women.

Collectively these findings suggest that people who are obese have more difficulty in forming romantic relationships, but that obesity status does not consistently impact other types of relationships. Impairment in relationships among obese people is another reason that obesity discrimination should be studied.

#### Areas of Focus in Stigma Research

While discrimination is harmful, specific types of discrimination can be particularly damaging. For this reason, many studies have focused on the prevalence and impact of weight stigma in various areas including employment and healthcare.



## Employment

### Perceived Discrimination

Employment is another setting where weight bias is experienced. Studies of obesity and discrimination in the workplace have shown that obese people are more likely to experience discrimination than non-obese people. Compared to healthy weight people, overweight people were 12 times more likely to perceive weight discrimination, obese people 37 times more likely, and severely obese people 100 times more likely (Roehling, Roehling, & Pichler, 2007). This relationship is impacted by factors like job type and gender. Obese people in white-collar positions were more likely to report employment discrimination than obese people in blue-collar positions (Carr & Friedman, 2005). Additionally, women were more likely to perceive weight discrimination than men (Roehling et al., 2007). The relationship between obesity and discrimination in the workplace might be a function of attractiveness. In a study by Rothblum, Miller, and Garbutt (1988), the relationship between obesity and workplace discrimination was eliminated when they controlled for attractiveness.

People also admit to discriminating against others in the workplace. Undergraduates report being less willing to work with obese people than thin people (Klassen, Jasper, & Harris, 1993). Despite this, their recommended disciplinary behavior for a work-related problem behavior did not vary as a function of weight (Klassen et al., 1993).

Unlike other forms of discrimination, obesity discrimination is not prevented by legal policies. Legal protection against obesity discrimination is limited and only available

for people with a BMI of 40 kg/m<sup>2</sup> or greater, though people with lower BMI's report experiencing weight stigma (Maranto & Fraedrick Stenoien, 2000).

### Effects of Weight Discrimination on Workers

Compared to non-obese young women, obese young women are more likely to desire to be self-employed or homemakers, both areas where they are less likely work with others who might discriminate against them (Ball et al., 2004). Additionally, obese young women tend to be less satisfied with their current work, despite being less likely to aspire to further education compared to non-obese young women (Ball et al., 2004). More research needs to be conducted to determine why obese young women are dissatisfied with work and why they do not want further education, but obesity stigma may play a role.

### Wages

One form of workplace discrimination is inequality in wages. Several studies show that obese people earn less than non-obese people (Baum & Ford, 2004; Brunello & D'Hombres, 2007; Cawley, 2004; Maranto & Fraedrick Stenoien, 2000; Saporta & Halpern, 2002; Sarlio-Lahteenkorva, 2001). Most studies suggest that this effect is stronger in women than in men. Cawley (2004) found that the relationship between BMI and wages was greatest in White women and that a weight increase of 64 pounds is associated with 9% lower wages, which is equivalent to having 1.5 years less education or 3 years less work experience. Similarly, Maranto and Faedrick Stenoien (2000) found that women begin to experience reduced wages when they have 20% excess body weight, while men do not experienced reduced wages until they have 100% excess weight. Conversely, Bruenllo and

D'Hombres (2007) found that the effect was stronger in men with a 10% increase in BMI resulting in a 3.7% decrease in wages for males and a 1.86% decrease in wages for women. In contrast to all these findings, Patt and associates (2004) found no relationship between BMI and household income in African American women.

The inequality in wages could be related to obesity stereotypes. Common stereotypes of obese people include believing that obese people are lazy, incompetent, and unintelligent. People who hold these stereotypes are likely to believe that obese individuals are not good employees and therefore deserve less compensation. This view is supported by findings that the relationship between BMI and wages is stronger in women because women are more commonly stigmatized because of weight than men.

#### Occupational Attainment and Hiring Decisions

Some research has explored the effects of obesity on hiring decisions. Bellizzi, Klassen, and Belonax (1989) asked business students to assign a sales territory to various people (or choose not to assign any sales territory) based on a personnel record that had a photo of the employee with it. The students were less likely to assign obese employees to a desirable territory and more likely to assign obese employees to an undesirable territory or not assign obese employees to a territory compared to non-obese employees. Obese women fared the worst. Conversely, Polinko and Popovich (2001) found that, though undergraduate students would assign more negative work-related attributes to overweight individuals than non-overweight individuals, they did not discriminate against overweight people in the hiring process. Weight discrimination in hiring decisions may vary depending on the type of

job. Popovich and colleagues (1997) found that undergraduates were less likely to hire an obese person for an active job than for a job that did not require physical activity.

Overall, obese people are less likely to be employed than non-obese people (Klarenbach, Padwal, Chuck, & Jacobs, 2006; Morris, 2007; Paraponaris, Saliba, & Ventelou, 2005; Tunceli, Li, & Keoki Williams, 2006; Sarlio-Lateenkorva, 2001). This relationship is stronger in women than in men (Tunceli et al., 2006). Further, it takes longer for obese people to regain employment after being unemployed compared to non-obese people (Paraponaris et al., 2005). In women, BMI is negatively associated with occupational status such that obese women hold lower status jobs than non-obese women (Morris, 2006; Wardle et al., 2002). In contrast to the above findings, Patt and associates (2004) found no relationship between BMI and employment status in African American women.

Again the relationship between BMI and occupational attainment/hiring could be caused by negative beliefs about obese workers. Obesity stereotypes could lead to the assumption that obese workers are incompetent, therefore, lessening the likelihood that they will be hired.

### Validity of Weight Stereotypes

A novel article by Roehling, Roehling, and Odland (2008) investigated whether stereotypes about obese workers have any validity. In two studies, the authors measured participants' BMI and levels of conscientiousness, agreeableness, emotional stability, and extraversion. In the first study, a nationally representative sample of English-speaking adults from the United States self-reported personality traits using the Midlife Development Inventory Personality Scales and weight and height. In this study BMI was negatively

correlated with extraversion ( $R^2$  change = .001) and conscientiousness ( $R^2$  change = .003), but these correlations were not practically significant and more likely resulted from a large sample size than from actual differences in personality. In the second study, 320 college students self-reported personality traits, using a short form of the NEO Personality Inventory, and had their height, weight, and body fat measured. BMI was not correlated with any of the personality variables in the second study. These studies suggest that the stereotypes concerning obesity are not supported.

Overall the studies of obesity discrimination in the workplace suggest that obese people are stigmatized at work and this may lead to inequality in wages, unfair hiring practices, and lower job satisfaction among obese workers. These findings show that it is important to learn more about obesity stigma.

## Health Care

### Physicians

Due to the increase morbidity associated with obesity, healthcare is one area where anti-fat attitudes could be particularly damaging. Despite this, anti-fat attitudes are prevalent in healthcare among various types of healthcare professionals.

#### Physicians Perceptions of Obese Patients

Physicians tend to hold a negative view of obese people. Klein, Najman, Kohrman, and Munro (1982) asked physicians to list 5 medical conditions and 5 social categories that elicit feelings of discomfort, reluctance, or dislike. Obesity was the fourth most frequently listed medical condition with 33.5% of physicians listing it. Many physicians report that

obese patients are awkward, unattractive, ugly, noncompliant, weak-willed, sloppy, self-indulgent, sad, lacking in self control, and lazy (Bocquier et al., 2005; Foster et al., 2003; Loomis, Connolly, Clinch, & Djuric, 2001; Maddox, & Liederman, 1969; Ogden & Flanagan, 2008). Over one-third report negative reactions toward the appearance of obese people and over half believe that obese patients are unaware of the health risks associated with obesity (Ogden & Flanagan, 2008). Few physicians report difficulty feeling empathy for obese patients or discomfort in examining obese patients, but they seem to blame people with obesity for their obesity and cite behavioral factors (e.g. inactivity, overeating, and poor diet) as the most important causes of obesity (Bocquier et al., 2005; Epstein & Ogden, 2005; Foster et al., 2003; Ogden & Flanagan, 2008). Anti-fat attitudes seem to be less common among physicians who have successfully lost weight and who subscribe to medical journals suggesting that increased understanding of obesity leads to weaker anti-fat attitudes (Bocquier et al., 2005). Conversely, anti-fat attitudes are increased in physicians who were aware of the obesity guidelines (Bocquier et al., 2005).

#### Patients' Perception of Physician's Attitudes

Overall it seems that obese patients perceive their physicians hold negative attitudes toward them because of their size. A study by Brandsma (2005) compared physicians' reported attitudes toward obesity to their patients' perception of their attitudes. She found that, though healthcare professionals reported neutral attitudes toward people with obesity, patients who were obese perceived that their physicians held negative attitudes towards them. Studies have also shown that most overweight patients do not feel their physicians understand what it is like to be overweight (Anderson & Wadden, 2004; Wadden et al.,

2000). Additionally, patients report believing that their physicians make assumptions about their patients because of the patients' weight. For instance, one third of patients report feeling that their doctors do not believe they do not overeat (Wadden et al., 2000). Patients with obesity also believe that their doctors blame all their medical conditions on their obesity, regardless of whether the condition is actually caused by obesity (Brown, Thompson, Tod, & Jones, 2006). Patients' and doctors also differ on their views of weight loss. Patients perceive less health risk due to their obesity, are more optimistic about weight loss, and report a higher motivation to lose weight compared to physicians' ratings of patients. Finally, a study by Anderson and Wadden showed that nearly 65% of patients seeking weight loss surgery and nearly 30% of patients seeking non-surgical weight loss reported that their doctor had tried to scare them into losing weight.

As level of obesity increases, patients tend to report more negative attitudes from their physicians. Few patients report negative interactions with their doctors, but the number of negative interactions is positively correlated with BMI (Anderson & Wadden, 2004; Wadden et al., 2000).

#### Patients' Satisfaction with Medical Care

Despite perceiving obesity stigma from physicians, most obese patients are satisfied with their medical care (Anderson & Wadden, 2004; Wadden et al., 2000). In fact, among people aged 55 years and older, obese patients report greater satisfaction with healthcare than non-obese patients (Fong, Bertakis, & Franks, 2006). Contrary to these findings, a study by Bertakis and Azari (2005) showed that obese people are less satisfied with general healthcare than non-obese people. Similarly, in a study by Amy and colleagues (2006),

obese women reported that their weight is a barrier to receiving adequate health care due to inadequately sized medical equipment, disrespectful treatment, embarrassment at being weighed, negative attitudes of providers, and unsolicited advice to lose weight. In this study, women were more likely to perceive weight as a barrier to healthcare as level of obesity increased.

Healthcare satisfaction may be dependent on gender. Among women, obese women report greater satisfaction with medical care than non-obese women, while men show the opposite pattern (Hebl, Xu, & Mason, 2003). Another factor that seems to influence healthcare satisfaction is type of care received. A study by Wee and colleagues (2002) found that obese patients reported satisfaction with their usual provider, but report lower levels of satisfaction than non-obese patients for their most recent ambulatory care appointment. This could suggest that when obese patients choose a provider, they find someone who does not exhibit a high level of anti-fat attitudes. Also, despite satisfaction with general medical care, overweight and obese patients report less satisfaction with physician assistance with weight loss/maintenance (Anderson & Wadden, 2004; Wadden et al., 2000). Heavier patients generally report greater satisfaction with weight management than people who are less overweight (Anderson & Wadden, 2004). This again suggests that physicians do not provide weight management for patients who are overweight.

### Consequences of Anti-fat Attitudes in Healthcare

In addition to holding negative attitudes about obese people, the treatment physicians provide differs based on obesity status of the patient. Hebl and Xu (2001) asked physicians to recommend treatment for a patient with migraine pain. All physicians were provided with



a description of one patient; all descriptions were identical except for weight status of the patient. Physicians recommended more procedures for overweight and obese patients compared to non-overweight patients, though extra procedures were related to testing for comorbidities of obesity (e.g. measuring cholesterol levels, measuring glucose levels). Despite recommending extra procedures, physicians reported that they would spend less time with overweight and obese patients. This suggests that physicians may not take adequate time in discussing treatment with overweight and obese patients.

Bertakis and Azari (2005) also examined the relationship between BMI and patient care. They videotaped and analyzed 509 patient appointments with 105 different physicians. They found that appointment duration did not differ according to obesity status, but that appointment content did. Specifically, BMI was positively related to time spent on technical behaviors and discussing exercise and negatively related to time spent on health education. While spending more time discussing exercise with people who are obese versus non-obese seems appropriate, spending more time on technical behaviors and less time on health education could suggest negative stereotypes. Presumably, physicians spend time on what they feel will be useful to their patients. If physicians believe that obese patients are less intelligent, lazier, and less compliant than non-obese patients they may not believe their patients will benefit from health education, which could result in less time spent on health education.

### Medical Students

Medical students appear similar to physicians in their attitudes toward obesity. Medical students tend to rate obese patients negatively on personality traits (e.g., happy vs.

sad), humanistic qualities (e.g., valuable vs. worthless), body image (beautiful vs. ugly), and medical management (easy to manage vs. difficult to manage) (Blumberg & Mellis, 1985; Wigton & McGaghie, 2001). Assessed longitudinally, attitudes did not change after a clerkship that required frequent contact with obese patients (Blumberg & Mellis, 1985; Wiese, Wilson, Jones, & Neises, 1992). Medical students report making fun of patients whom they blame for their condition, including patients with obesity (Wear, Aultman, Varley, & Zarconi, 2006).

Medical residents do not seem to be adequately trained to treat obesity. In a study by Block, DeSalvo, and Fisher (2003), almost all residents understood the medical consequences of obesity and the importance of treating obesity, but few were familiar with methods of diagnosing obesity. Of the medical residents, 60% did not know the minimum BMI for diagnosing obesity, 39% inaccurately reported their own BMI, and 69% did not know that waist circumference is a measure of obesity. Less than half of residents felt that they were qualified to treat obesity and less than one third reported success in treating obesity. Approximately one third of the medical residents thought that obesity treatment was pointless. In another study, medical students predicted that obese people would be unable to make needed lifestyle changes, be less compliant and responsive to counseling, and blamed patients for their obesity (Wigton & McGaghie, 2001).

A study by Wigton and McGaghie (2001) asked medical students to view videotapes of patients complaining of abdominal pain then recommend treatment. Students either viewed a video of a non-obese confederate or a video with a confederate wearing padding to make him/her appear obese. Findings suggested that there was no difference in recommended treatment other than the addition of treatments appropriate for obesity when

students were viewing the video of the confederate with padding. This suggests that, though medical students have negative view of obese people, treatment does not vary by obesity status.

### Nurses

Another group of people who have a large impact on the comfort of patients during medical appointments is nurses. In a study by Brown and Thompson (2007), most of the nurses did not endorse environmental or medical factors as causes of obesity, rather they indicate that family history and personal choices about food and exercise cause obesity. In this study, nurses were also inclined to believe that a lack of will power causes obesity. Overall, it seemed that this sample of nurses did not believe that external factors are relevant to the development of obesity, which could indicate that nurses hold anti-fat attitudes. Additionally, nurses reported that their patients are not motivated to lose weight. A similar study by Hoppe and Ogden (1997) showed like findings. In that study, nurses felt that lifestyle factors were the main cause of obesity. They believed that obese patients are noncompliant and because of this, weight loss treatment would not be effective. Despite this, the nurses felt confident in creating weight loss interventions. Nurses with low BMI's thought that obesity was preventable and were less likely than heavier nurses to give specific weight loss advice (e.g., more likely to say eat less rather than follow a calorie controlled diet).

Nurses appear to be aware of obesity stigma. They perceive obesity as a sensitive issue (Brown & Thompson, 2007). Thin nurses are more anxious than heavy nurses about

discussing obesity and heavy nurses worry that they are poor role models (Brown & Thompson, 2007).

Nurses perceive that treating obese patients is different from treating non-obese patients. They feel empathy for obese patients, yet they struggle with treating them (Brown et al., 2006; Rager Zuzelo & Seminara, 2006). Nurses report being overwhelmed by the extra workload required by obese patients and admit being concerned that they may hurt themselves in helping obese patients (Rager Zuzelo & Seminara, 2006).

### Dieticians

Compared to other health professionals, dieticians seem to hold more positive attitudes toward obese patients and obesity treatment. Most dieticians believe that obesity has negative health consequences, that weight loss should not be the focus of obesity management, and that preventing obesity is more profitable than managing it (Barr, Yarker, Levy-Milne, & Chapman, 2004). Over half advise their patients not to weigh themselves (Barr et al., 2004). Most dieticians think that they have the best obesity management training of any healthcare professionals, but report a desire to learn about behavioral and motivational techniques for treating obesity (Barr et al., 2004). In contrast to the above findings, a study by Oberrieder, Walker, Monroe, and Adeyanju (1995) found that dieticians do hold anti-fat attitudes. This inconsistency could be explained by the use of different measures of attitudes toward obesity. Barr and colleagues used a measure that focused more on views of obesity treatment, while the study by Oberrieder and associates used an anti-fat attitudes scale.

Dietetic students also hold anti-fat attitudes (Oberrieder et al., 1995). A study by Berryman, Dubale, Manchester, and Mittelstaedt (2006) found that dietetic and non-dietetic students were similar in level of anti-fat attitudes. In this study, almost one third of dietetic students agreed that obese patients are weak, approximately half agreed that obese patients are lazy, unattractive, self-indulgent and lacking in willpower, over half agreed that obese patients have poor self-control, lack endurance, are insecure, are shapeless, and have low self-esteem, and most believed that obese patients like food and overeat. Similarly, in a study by Harvey, Summerbell, Kirk, and Hills (2002) dietetic students perceived obese clients as unhealthy, unattractive, and lacking in self-esteem. In this study, obese people were rated more negatively than overweight people.

Similar to dietitians, dietetic students believe that they have an important role in obesity management and have the best obesity management training of any health professionals, however, they felt their training was poor (Campbell & Crawford, 2000). They reported a lack of faith in weight management, though the weight management techniques they learn do correspond with published research studies (Campbell & Crawford, 2000). Additionally, they feel that overweight clients are unable to set realistic goals for weight loss and are ambivalent about clients' ability to follow a treatment plan (McArthur & Ross, 1997). Also, they tend to blame clients for their obesity. They report believing that obesity is caused by emotional problems, inactivity, eating habits, repeated dieting, and interpersonal factors (Harvey et al., 2002; McArthur & Ross 1997).

## Psychotherapists

Despite one of the core values of therapists being nonjudgmental, they also hold anti-fat attitudes. Psychotherapists who are younger than 40-years-old believe that their heavier clients exert less effort in therapy and women and younger clinicians expect overweight clients to have a worse therapeutic outcome than non-overweight clients (Davis-Coelho, Waltz, & Davis-Coelho, 2000). Clinicians are more likely to diagnose severe symptoms in obese clients compared to non-obese clients (Young & Powell, 1985). Provisional eating disorder diagnoses are more common among overweight clients, while provisional adjustment disorder diagnoses are more common among non-overweight clients (Davis-Coelho et al., 2000). This suggests that therapists are more likely to blame external factors when their client is not overweight. Anti-fat bias is seen less in men, older clinicians, and overweight clinicians (Young & Powell, 1985).

Obesity status of the therapist can also impact the therapeutic relationship. McKee and Smouse (1983) surveyed students seeking treatment at a university counseling center concerning perceived counselor attractiveness, expertness, and trustworthiness. Participants were given a description of a counselor, which included a photo of either an obese or non-obese person and described the counselor as either a highly trained Ph.D. (high status) or as a trainee (low status). When participants were told that a counselor was of low status, non-obese counselors were perceived as more expert and trustworthy than obese counselors (McKee & Smouse, 1983). No difference was found when participants were told that the counselor was of high status.

### Fitness Professionals

Weight bias has been seen in fitness professionals as well. Physical fitness instructors commonly criticize weight during physical activity and among children, weight is negatively correlated with sports enjoyment and perceived activity compared to peers, and positively correlated with mild-intensity leisure activity (Faith et al., 2002). Exercise science students hold strong implicit anti-fat attitudes, linking obesity with ‘bad’ and ‘lazy’ (Chambliss, Finley, & Blair, 2004). They explicitly rate overweight people as lazier and less intelligent than non-overweight people (Chambliss et al., 2004). Anti-fat attitudes are stronger in women that are Caucasian, thin, from rural areas, who do not have obese friends, and who perceive that obesity is controllable (Chambliss et al., 2004).

### Obesity Specialists

Even people working in the field of obesity show anti-fat attitudes (Schwartz et al., 2003). They show an implicit bias by pairing the words bad, lazy, stupid, and worthless with fat people more frequently than the words good, motivated, smart, and valuable (Schwartz, et al., 2003; Teachman & Brownell, 2001). They show an explicit bias as well, rating fat people as more lazy, stupid, and worthless than thin people (Schwartz et al., 2003; Teachman & Brownell, 2001). Finally, professionals in the field of obesity rated fat people lower than thin people on a scale from “very bad” to “very good” (Schwartz et al., 2003). Despite this, obesity specialists showed lower levels of anti-fat attitudes than the general population (Teachman & Brownell, 2001).

Overall, the studies of weight discrimination in the medical field show that weight bias is pervasive among healthcare professionals. This could contribute to obese people

being unwilling to seek medical care. Avoidance of healthcare could be part of the reason that obesity is associated with so many physical and mental health problems. This indicates that more research on weight discrimination and how it develops is needed.

## Media

The media is an important source of information because it influences culture. Everyone views media daily and what the media says influences beliefs of the individuals who view it. On average, people spend over 150 hours per month watching television and almost 30 hours per month using the internet (Nielsen, 2009). Anti-fat bias is prevalent in many forms of media, including advertising, news, and entertainment.

### Advertising

Studies have shown that advertising promotes stigmatization of obese people. One study of weight bias in advertising addressed anti-fat attitudes in weight loss infomercials (Blaine & McElroy, 2002). This study showed that images of women are seen twice as often as images of men and that images of thin women outnumber images of obese women 3 to 1, which is interesting as obesity stigmatization is more prevalent among women than among men. This study also showed that obese people are portrayed as unhappy and unattractive. These findings suggest that advertisements communicate negative stereotypes about obesity.

An experimental study by Geier and associates (2003) investigated the impact of weight loss advertisements on a sample of healthy weight people. Prior to completing implicit and explicit measures of anti-fat attitudes, participants either viewed a before and after photo from a diet ad, the before picture, or the after picture as part of another



advertisement. All participants showed high levels of anti-fat attitudes, but those who viewed the before and after ad endorsed the belief that weight is controllable more strongly than participants in the other two conditions. This suggests that the media is influencing beliefs about obesity and promoting negative obesity stereotypes.

### News

Anti-fat attitudes are also prevalent in television and print news media. Most news coverage suggests that obesity is the responsibility of the individual who is obese (Bonfiglioli et al., 2007; Kim & Willis, 2007). Poor nutrition is the most commonly reported cause of obesity with 23-72% of articles citing unhealthy eating patterns as the primary cause of obesity (Bonfiglioli et al., 2007; Kim & Willis, 2007). Correspondingly, articles generally suggest that it is the individual's responsibility to lose weight through dieting, exercise, and medical interventions (Bonfiglioli et al., 2007; Kim & Willis, 2007). Little news coverage suggests that societal or genetic factors contribute to obesity (Bonfiglioli et al., 2007; Kim & Willis, 2007). In recent years, newspapers have begun to mention societal causes of obesity more frequently than in the past (Kim & Willis, 2007). Specifically, there has been an increase in the frequency of blaming the food industry and a small increase in blaming schools, but no changes in recognition of socioeconomic factors that contribute to obesity (Kim & Willis, 2007). Additionally, there have been increases in recommending changes to society such as regulating the food industry and making changes to schools, to lessen prevalence of obesity (Kim & Willis, 2007). There have also been decreases in the mentions of personal solutions to obesity, specifically medical treatments and increasing physical activity, but no changes in the mentions of dieting to lose weight (Kim & Willis,

2007). Despite this, television news still discusses personal causes of obesity more than societal causes (Kim & Willis, 2007). In sum, these content analyses suggest that the news media communicates the messages that obesity is bad, obese people are responsible for their obesity, and obese people are responsible for losing weight.

Though mention of obesity has increased in recent years, compared to other health conditions, obesity is underrepresented in newspapers and is frequently presented as a beauty dilemma rather than a health problem (Sandberg, 2007). When it is mentioned as a health risk, the health risks of obesity are often not the focus of the article. Additionally, articles concerning the health risks of obesity are generally small to medium in length, difficult to read, and rarely are found on the front page (Sandberg, 2007). When obesity is presented as a beauty dilemma the articles are larger, easier to read, and more entertaining than articles that focus on the health risks of obesity (Sandberg, 2007). The tone of articles about obesity is nearly equally likely to be alarmist or comforting, but the percentage of alarmist articles are increasing, while the percentage of comforting articles are decreasing (Sandberg, 2007). This suggests that articles discussing obesity likely contribute to it being viewed as a controllable problem and increase focus on body image and weight loss rather than increasing health, which can lead to unhealthy dieting and eating behaviors. Further, the fact that articles presenting the health risks of obesity are small and hard to read suggests that the general public is probably not receiving accurate information about the health risks of obesity.

Common news angles also suggest that obesity is unacceptable. Approximately half of news angles focus on how to lose weight (Bonfiglioli et al., 2007). Obesity has been discussed using natural disasters, plagues, crime, warfare, and parasites as metaphors

(Sandberg, 2007). Obese people are frequently stereotyped as ‘stupid’, ‘ugly’, ‘naïve’, ‘lazy’, ‘irresponsible’, ‘greedy’, ‘without manners’, and ‘repugnant’ (Sandberg, 2007). Articles focusing on people who have lost weight add to these stereotypes by highlighting how many negative aspects of a person’s life were changed by losing weight (Sandberg, 2007). Finally, there is a discrepancy between the way overweight is presented for men and women. Overweight men are presented much less negatively than overweight women (Sandberg, 2007). The focus of the news articles communicates not only that obesity and obese people are unacceptable, but that it is appropriate to stereotype and discriminate against people, especially women, because of their weight.

## Entertainment

### Adults

Most research on anti-fat attitudes in the media investigates entertainment media. In television, below average weight women are overrepresented and above average weight women and men are underrepresented (Fouts & Burggraf, 1999; Fouts & Burggraf, 2000; Fouts & Vaughan, 2002; Greenberg et al., 2003; White, Brown, & Ginsburg, 1999). There is less underrepresentation of overweight men than overweight women (Fouts & Vaughan, 2002).

When characters are overweight, they are shown to have poorer quality relationships than non-overweight characters. Compared to non-overweight characters, overweight characters are less likely to have positive interactions with others, to help others with tasks, to interact with romantic partners, and to be a leader in an interaction (Greenberg et al.,

2003; White et al., 1999). Overweight male characters are also less likely to interact with friends (Greenberg et al., 2003).

Overweight characters are also stereotyped. Compared to non-overweight characters, overweight female characters are less likely to be portrayed as attractive and to show physical affection, and overweight male characters are less likely to talk about dating and are more likely to be shown eating (Greenberg et al., 2003; White et al., 1999). Below average weight women receive more positive comments about their bodies than heavier women and heavier female and male characters have more negative comments directed to them (Fouts & Burggraf, 1999; Fouts & Burggraf, 2000; Fouts & Vaughan, 2002). Negative comments toward obese people are generally followed by a positive audience reaction like laughter (Fouts & Burggraf, 2000; Fouts & Vaughan, 2002). An analysis of movie and television scenes that stigmatize obesity showed that stigma is often verbal, directed toward another person, and presented directly in the presence of the overweight target (Himes & Thompson, 2007). Additionally, male characters are three times more likely than women to make comments that stigmatize obesity (Himes & Thompson, 2007).

Recently, obesity has become the focus of several reality shows. Types of reality shows that focus on weight include weight loss competitions, personal stories of people attempting to lose weight through dieting or bariatric surgery, and programs focusing on helping children to lose weight (Stein, 2007). These shows frequently use scare tactics to encourage weight loss, blame bad outcomes on the obese individuals, and promote unhealthy weight loss (Stein, 2007). An example of a scare tactic is using software that predicts what children will look like as adults if their eating and exercise habits remain constant (Stein, 2007). Contestants from competitive weight loss shows report over-

exercising and engaging in severe caloric restriction and dehydration to lose weight (Stein, 2007). This results in unrealistic weight loss, that may distort views of successful weight loss in the general public (Stein, 2007). Finally, people who are “successful” from these reality television shows have experienced identity problems (e.g., problems with self-image) following weight loss (Stein, 2007). Reality shows communicate a skewed view of weight loss to the general public by making weight loss seem easier than it is and by not addressing the downsides to weight loss such as identity problems.

Another source of anti-fat attitudes in entertainment media are magazines. Nearly 80% of women’s magazines mention bodily appearance on the front cover and 94% feature a photo of a thin woman (Malkin, Wornian, & Chrisler, 1999). Additionally, 50% of the covers of men’s magazines show thin women (Malkin et al., 1999). Women’s magazines suggest that weight loss leads to a better life and 25% contain conflicting messages on dieting (Malkin et al., 1999). Men’s magazines tend to focus on increasing knowledge, entertainment, hobbies, and activities, while women’s magazines often focused on improving life through improving appearance (Malkin et al., 1999). Some types of magazines are more likely than others to encourage weight loss. Almost 60% of traditional magazines like *Family Circle* and 20% of fashion magazines like *Cosmopolitan* mention weight loss or body appearance, while modern magazines like *Ms.* rarely discuss weight loss or body appearance (Malkin et al., 1999). Most strategies for weight loss concern changing behavior (Mastin & Campo, 2007). Magazines marketed to African American women are more likely than mainstream magazines to suggest fad diets and relying on God for weight loss (Mastin & Campo, 2007).

## Children

In children's media, obese characters are uncommon, though the prevalence of obese characters in children's media does parallel the prevalence of obese children in the United States (Herbozo, Tantleff-Dunn, Gokee-Larose, & Thompson, 2004; Klein & Shiffman, 2005; Robinson, Callister, & Jankoski, 2008). Additionally, the prevalence of overweight characters has decreased in recent years, while the prevalence of underweight characters has increased (Klein & Shiffman, 2005).

Like adult's media, children's media contains anti-fat messages. Children's videos and books often contain messages that emphasize the importance of physical appearance and relay body stereotypes (Herbozo et al., 2004). These messages are more common in videos than in books (Herbozo et al., 2004). Overweight characters are commonly portrayed as evil, ugly, unfriendly, cruel, sad, angry, unloving, sedentary, unintelligent, or unpopular (Herbozo et al., 2004; Klein & Shiffman, 2005; Klein & Shiffman, 2006; Robinson et al., 2008). At the same time, physically attractive characters are portrayed as sociable, kind, happy, and successful (Herbozo et al., 2004). In comparing overweight and non-overweight characters, overweight characters are less likely than non-overweight characters to be employed or be good at their job, to compliment others, or to engage in prosocial behavior and are more likely to have physical problems, to engage in antisocial behavior, particularly violence, and to be shown eating (Klein & Shiffman, 2006).

Children's media also shows that overweight characters do not have as strong of relationships as non-overweight characters. Obese characters are commonly disliked by other characters (Herbozo et al., 2004). Also, overweight characters are less likely to be portrayed as attractive or to flirt or physically express love than characters who are not

overweight (Klein & Shiffman, 2005; Klein & Shiffman, 2006). Similarly, obese and slender characters are rarely paired as couples (Herbozo et al., 2004). Many storylines focus on men falling in love with women based on appearance alone, which suggests that appearance is the most important factor in romantic relationships (Herbozo et al., 2004). Finally, overweight characters are more likely than non-overweight characters to be friendless (Robinson et al., 2008). These findings show that children's media may be telling children that appearance is important to relationships and overweight people do not have good relationships, particularly romantic relationships.

As in adult media, there may be gender differences in how overweight is portrayed. Some studies show that male characters are more likely to be overweight than female characters and female characters are more likely to be underweight than male characters (Klein & Shiffman, 2005). Conversely other studies suggest that there are no overall gender differences in presentation of body weights. Among females, however, white characters are more likely to be underweight than Black characters (Robinson et al., 2008). Overall, there is less focus on men's physical attractiveness than on women's physical attractiveness (Herbozo et al., 2004; Klein & Shiffman, 2006).

The types of stigmatization seen in entertainment media mirror stigmatization seen in real life. Television shows that portray overweight characters as lacking strong relationships, particularly romantic relationships, corresponds with children being less willing to befriend overweight children and obese adults having less success in instigating romantic relationships. Portraying overweight characters as incapable, ugly, mean, unintelligent, sedentary, unfriendly, and sad, and frequently showing obese people eating reflect common stereotypes of obese people. Directing negative comments at obese characters followed by

positive reactions communicates that it is ok to ridicule obese people. The discrepancy in the way obesity is portrayed in men and women mirrors the idea that it is more acceptable for men to be obese than for women to be obese. Finally, dieting strategies provided by magazines reflect society's negative response to obesity, willingness to blame obese people for their obesity, and assumption that losing weight can fix most problems. The likeness between real life and the media suggest that the media could be influencing the way society views obesity.

### Media Exposure and Weight Bias

Recent studies have investigated the relationship between media exposure and anti-fat attitudes in children. A study by Latner and colleagues (2007) investigated the relationship between media consumption and attitudes toward obesity in 10 to 13-year-old children. Researchers showed children pictures of 12 children (6 boys) who looked to be around age 10 or 11 years. Each set of pictures contained one child who was not overweight or disabled, one child who was overweight, one child who was on crutches, one child in a wheelchair, one child who did not have a left hand, and one child who had a scar on his/her face. Children were asked to rank the children in order of who they liked best. Next, children rated an obese boy and an obese girl on level of intelligence, how much they liked the child, and how much they wanted to be like the child using a 100 mm visual analogue scale (VAS). Finally, media use was assessed by having children report how much time in the past week they had spent watching television, playing video games, and reading magazines. Overall media use was associated with VAS ratings of liking of the obese girl and boy such that greater media use was associated with less reported liking of the obese boy and girl.



Increased use of video games was associated with less liking of the obese girl. Increased magazine use was associated with higher rankings of the obese boy and girl compared to boys and girls with other disabilities meaning that the more time children spent reading magazines the less they liked the obese boy and girl in comparison to the other pictures. BMI was not associated with any measure of anti-fat attitudes. Collectively, these results show that the more media children are exposed to, the more likely they are to discriminate against overweight children.

In a similar study, Harrison (2000) also investigated the correlation between television viewing and weight bias in children. As a measure of anti-fat attitudes, participants rated line drawings of a thin boy, a thin girl, an obese boy, and an obese girl, presented in a random order, on several personality characteristics. Finally, children rated the importance of children having several characteristics including being thin and good-looking. Television viewing was positively correlated with stereotyping an overweight female and perceived importance of thinness among boys.

In another study addressing the relationship between media use and weight bias, Lin and Reid (2009) measured anti-fat attitudes and media use in undergraduate students. Anti-fat attitudes were assessed using the Anti-fat Attitudes Test. To assess media use participants were asked to estimate the amount of time they spent each week reading fashion magazines and watching television. Time spent reading magazines was correlated with anti-fat attitudes such that the more time participants spent reading magazines the stronger their anti-fat attitudes were.

Collectively the findings from these studies suggest that media exposure is positively correlated with level of anti-fat attitudes. This means that in both children and young adults, as level of media exposure increases, so do anti-fat attitudes.

### Limitations in the Literature

#### Assessment

Though high quality research has been done, there are limitations in the study of weight discrimination. Most research on anti-fat attitudes has utilized self-report, explicit measures. This is problematic because people might respond in a socially desirable manner, resulting in underreporting of anti-fat attitudes. Some studies have used the Implicit Associations Test (IAT) as an objective measure of anti-fat attitudes. The IAT is not an ideal measure either as some suggest that it may measure knowledge of stereotypes, rather than whether someone actually believes the stereotypes (Fiske, 2004). Due to the weaknesses of other past measures, this study will utilize an affect modulated startle paradigm to test implicit affect response to obesity stimuli, which is a proxy variable for objectively assessed anti-fat attitudes.

#### Benefits of Objective/Startle Data

The startle reflex is a universal, cross-species reaction to unexpected and intense stimulation producing rapid muscle contraction (Grillon & Baas, 2003). The startle reflex can be elicited in humans by presenting a brief loud noise. Generally, the eyeblink component of the reflex is measured and used as the dependent measure. A large literature has demonstrated that the strength of an elicited startle eyeblink is modulated by the

emotional state of the participant at the time the eyeblink-eliciting stimulus is presented. Across a number of studies, researchers have elicited startle eyeblink responses from undergraduates while they view an intermixed series of pleasant/interesting pictures, neutral/dull pictures, and unpleasant/interesting pictures. The typical pattern of results obtained using this procedure is for startle eyeblink responses to be smallest during the viewing of pleasant/positive pictures and the largest during the viewing of unpleasant/negative pictures (Vrana, Spence, & Lang, 1988). Based on this pattern, the affect modulated startle paradigm has been proposed as providing an objective measure of affect. Lang and colleagues (1990) postulate that this response is the result of emotional priming. Unpleasant stimuli produce negative emotions which *augment* the startle response, while pleasant stimuli cause positive emotions which *inhibit* startle.

#### Use of Affective Startle Modulation in Studying Bias

Startle has been used in the past to evaluate racial discrimination. In these studies, participants viewed photos of Black and White faces (Amodio, Harmon-Jones, & Devine, 2003; Phelps et al., 2000). In a study by Amodio and colleagues, latency of eyeblink response was measured to determine if the bias was conscious. Short eyeblink latencies were associated with unconscious bias, while longer eyeblink latencies were associated with conscious bias. In a study by Phelps and colleagues, eyeblink magnitude was measured. Participants who had a larger eyeblink magnitude when viewing photos of Black faces compared to White faces were assumed to hold negative attitudes toward Black people. The current study will imitate the methodology used in the Phelps, et al. study. Magnitude of

eyeblink response while viewing photos of obese people will be used as the dependent variable.

### The Current Study

Studies on weight bias in the media have highlighted weight bias in entertainment media, news media, and advertising. Additionally, media exposure has been linked with anti-fat attitudes in children and young adults. Currently, however, most studies have focused on analyzing the content of media messages. The few studies that have measured the relationship between media exposure and anti-fat attitudes have correlative designs and, therefore, they cannot be used to determine causation. Finally, these studies use subjective measures of anti-fat attitudes that may be biased by social desirability. The current study will address these problems by investigating the relationship between media exposure and anti-fat attitudes (operationalized as eyeblink amplitude in an affect modulated startle paradigm) using an experimental design and implicit assessment of anti-fat attitudes. The purpose of the proposed study is to determine if exposure to media that exhibits weight bias is related to increased anti-fat attitudes, assessed implicitly (startle), in adults. Additionally, this study will investigate whether explicit (self-report) measures of anti-fat attitudes moderate this relationship.

## CHAPTER 3

### METHODS

#### Participants

Participants were 80 undergraduate students at the University of Missouri – Kansas City age 18 to 56 years ( $M = 22.70 \pm 5.36$ ). The sample was primarily female (75.9%). Of the participants 64.6% endorsed being White, 16.5% endorsed being Black, 6.3% endorsed Asian, 3.8% endorsed American Indian, and 7.6% endorsed being more than one race. Most participants reported completing some college (72.2%); 7.6% reported finishing high school, 15.2% reported earning their associates degree, and 5.1% reported earning a Bachelor's degree. BMI ranged from 13.35 to 46.53  $\text{kg/m}^2$  ( $M = 25.17 \pm 6.28$ ).

A description of the study containing basic information, including the purpose of the study and indication of what participation required, was posted on UMKC's online research participant recruitment system, SONA Experiment Management System. Undergraduates signed up to participate through SONA. Participants may have received course credit for completing the study at the discretion of their instructor.

#### Procedure

The purpose of this study was to determine if exposure to a stigmatizing media sample results in more negative affective responses while viewing images of obese people than exposure to a non-stigmatizing media sample. This study involved minor deception. Participants were told that the purpose of the study was to assess the influence of the media

on reactions to other people, but were not told of the focus on weight bias. Upon arrival, participants completed an informed consent document and the demographic questionnaire. Then participants were taken to a sound-attenuated testing room where they completed the startle procedure for the first time. Then they viewed the assigned media clip and completed the Manipulation Check Assessment. Next participants completed the startle procedure a second time. Then, participants completed a debriefing questionnaire that 1) asked participants to describe what they thought the purpose of the study was and to rate how stigmatizing they felt the clip they viewed was on a scale from 0 (not at all) to 9 (very) and 2) contained the modified AFAS. Finally, participants had their weight and height measured and were debriefed, which included being told the true purpose of the study.

### Media Exposure

Participants were randomly assigned to media exposure condition by flipping a coin. The experimental group viewed a clip from the television drama *House* depicting an obese person being stigmatized. The control group viewed a clip from the same television show that did not stigmatize obese people, but was similar in other ways (e.g., same major characters, depicted the main character making fun of someone, similar length, both stigmatized targets were Caucasian males). An attempt was made to contact the producers of *House*, to ask for permission to use these clips. The producers did not respond to this request.

### Weight Stigmatizing Clip

The weight stigmatizing clip was taken from the episode *Que Sera Sera*. It began with firefighters removing an obese man, whom they believe to be dead, from his apartment building. During this scene, the firefighters are making fun of the obese man for being obese. After discovering that man is alive, he is referred to Dr. House's team. Dr. House and his team also make fun of the man for being obese, while diagnosing him. This clip is 3 minutes 5 seconds long.

### Non-Stigmatizing Clip

The non-stigmatizing clip was taken from the episode *House vs. God*. It began with a faith healer who becomes ill while healing members of a congregation. His case is referred to Dr. House's team. While diagnosing the faith healer, Dr. House mocks him for believing that he can talk to God and that he can heal people. This clip is 3 minutes 7 seconds long.

### Startle Procedure

Recording sensors were placed below and at the corner of the participant's left eye. The sensors measured the activity of the orbicularis oculi, the muscle responsible for closure of the eyelid. A third sensor, the grounding sensor, was placed behind the participant's left ear on the mastoid process.

Participants were asked to watch a series of pictures as the sensors recorded data. The sequence of photos in each startle paradigm included 24 photos (See Appendix A). The photos were arranged in a random order with equal numbers of each photo type being shown before and after the media exposure. All participants viewed the photos in the same random

order, but counterbalancing was employed such that half the participants viewed one set of photos first, while the other half view the second set first. In each startle paradigm, 12 of the photos were of non-obese people (6 men, 6 women) taken from stock photo websites and 12 of the photos were of obese people (6 men, 6 women) taken from stock photo websites. All photos were of Caucasian people to reduce variability in the photos. Caucasian ethnicity was chosen because it was expected that the majority of participants in this study would be Caucasian. Photos were matched so that all categories (obese men, non-obese men, obese women, non-obese women) were similar concerning clothing type, activity the photo subject is engaging in, and body parts (e.g., just torso vs. full body) of the person photographed. Sixteen photos in each sequence (four in each category) were accompanied by a 105 dB white noise burst, 50 ms duration, rise time < 1 ms, presented binaurally through headphones presented 3000 ms following picture onset. After completing the startle procedure, the participants viewed their randomly assigned media clip and then completed the startle procedure for a second time.

For each startle stimulus presented, the resulting EMG response was rectified and integrated using a time constant of 5 ms. To score the startle responses, the researcher measured the peak amplitude for each startle response. For the purposes of this study, any increase in amplitude 20 to 80 ms after the presentation of a stimulus that is at least two times the prior 10 ms average was considered a response onset. Once a response onset was identified, the researcher identified the greatest EMG value 20 to 150 ms after the response onset. This measurement was the peak amplitude. The peak amplitudes for each picture category were then averaged and used as the dependent variable.



## Materials

The materials used in this study were a sound-attenuated testing room, a scale and stadiometer, a computer on which the pictures and media clip were displayed, headphones to play the white noise bursts, sensors to measure eye blink, and the following questionnaires (see Appendix B):

### The Demographic Questionnaire

The Demographic Questionnaire was constructed by the researcher specifically for this study to provide information needed for describing the sample. Participants were asked to record their age, gender, ethnicity, and educational level. Age, gender, and education level were important to record because the literature shows that prevalence/strength of anti-fat attitudes differs based on these variables. Specifically, women are more likely to hold anti-fat attitudes than men are, education is positively correlated with anti-fat attitudes, and age is negatively correlated with anti-fat attitudes (Holub, 2008; Latner & Stunkard, 2003; Robinson et al., 1993; Schwartz et al., 2003). Ethnicity was chosen because, though past studies have shown that ethnicity does not influence level of anti-fat attitudes, perception of ideal body size does differ according to racial status (Wang et al., 2004).

### Anti-fat Attitudes Scale (AFAS)

Explicit anti-fat attitudes were assessed using a modified version of the AFAS (Quinn & Crocker, 1999). Crandall (1994) created the original AFAS, then tested it in six studies. It consists of 13-items, answered on a 9-point scale, which make up 3 scales: dislike

(7 items;  $\alpha = .84$ ), fear of fat (3 items;  $\alpha = .79$ ), and willpower (3 items;  $\alpha = .66$ ). The dislike and willpower subscales are positively correlated with just world beliefs, racism, authoritarianism, and political conservatism, suggesting strong convergent validity as these constructs tend to be related to level of stereotypical and discriminatory behavior (Crandall, 1994).

Quinn and Crocker (1999) modified the AFAS by adding 5 questions to the willpower subscale and 3 items to the dislike subscale. Addition of these items increased the internal consistency of these scales to  $\alpha = .89$  and  $\alpha = .84$ , respectively. In the current sample internal consistency was as follows: total  $\alpha = .86$ , dislike  $\alpha = .87$ , fear of fat  $\alpha = .79$ , and willpower  $\alpha = .87$ . The modified scale is positively correlated with Protestant work ethic, another construct commonly associated with stereotyping and discrimination (Quinn & Crocker, 1999). Both scales were tested in college populations.

#### Manipulation Check Assessment

A quiz was constructed by the researcher and asked questions about the content of the clip the participants viewed. This quiz served two purposes. First, it increased cognitive processing of the media by prompting participants to think about the clip they had viewed. Second, it ensured that participants actually attended to the clip, while it played. Participants who answered fewer than three out of the five questions about their clip correct were excluded from the data analyses.

## Data Analysis

### Power Analyses

G-power was used for the power analysis. For the power analysis, a power of 0.80 was used as recommended by Cohen (1988). To detect a medium sized effect ( $f^2 = .15$ ) at  $\alpha = 0.05$  using linear multiple regression with two predictors, a sample of 68 participants is needed. To detect a medium sized within-between interaction ( $f = .25$ ) at  $\alpha = 0.05$  using ANOVA, a sample of 36 participants is needed.

### Dependent Variable Creation

The dependent variable for this study was the difference in startle amplitude when viewing pictures of obese people and when viewing pictures of non-obese people. To create this difference score, the researcher first averaged the peak startle amplitudes for every time a participant was startled while viewing a photo of a non-obese person in startle paradigm one, creating an average peak startle amplitude while viewing photos of non-obese people for each participant. Then, the researcher averaged the peak startle amplitudes for every time a participant was startled while viewing a photo of an obese person during startle paradigm one to create an average peak startle amplitude while viewing photos of obese people for each participant. Next, the researcher subtracted each participant's average peak startle amplitude while viewing photos of non-obese people from his or her average peak startle amplitude while viewing photos of obese people. The same procedures were followed to create difference scores for the second startle paradigm.

## Hypotheses

Hypothesis 1: There will be an interaction between time (pre vs. post) and media condition (weight vs. non-weight stigmatizing), such that participants exposed to the stigmatizing media condition will have a greater change in the difference score (between obese and non-obese photos) between the first and second startle paradigms than participants exposed to the non-stigmatizing media condition. To test this hypothesis, a 2 (testing time: pre-exposure vs. post-exposure) X 2 (media condition: stigmatizing vs. non-stigmatizing) mixed ANOVA was conducted. The independent variables were media condition (stigmatizing vs. non-stigmatizing) and testing time (pre-exposure vs. post-exposure) and the dependent variable was difference score between obese and non-obese photos. Alpha was set at  $p < 0.05$ . To assess this hypothesis the interaction between testing time and media condition on difference score was examined.

Hypothesis 2: Among participants who view the weight-stigmatizing clip, AFAS scores will moderate the relationship between testing time and difference score, meaning that there will be a difference in the way people with lower versus higher AFAS scores will react to obese and non-obese pictures before and after viewing a clip stigmatizing obesity. This difference could be in one of two directions: (1) participants with lower AFAS scores may show a greater change from pre-test to post-test than participants with higher AFAS scores because participants with higher AFAS scores may already hold a large amount of bias or (2) participants with higher AFAS scores may show a greater change from pre-test to post-test because they may be more susceptible to weight bias than people who do not hold anti-fat attitudes. Only data from participants who were assigned to view the obesity stigmatizing media clip were included in these analyses. To test this hypothesis moderated

multiple regression was used. Using the general linear model function from SPSS, time was entered as a between subjects predictor and AFAS score was entered as a covariate. A custom model was created to investigate the interaction between AFAS scores and time. The difference score between non-obese and obese pictures was the dependent variable. The interaction was examined to determine if AFAS score moderates the effect of time on difference score.

Hypothesis 3: There will be a three-way interaction between testing time, gender of obese stimulus, and media condition such that from pre to post assessment, the obesity stigmatizing clip, compared to the non obesity stigmatizing clip, will have a stronger influence on startle response while viewing photos of obese women than startle response while viewing photos of obese men.

To test this hypothesis, the difference scores between non-obese and obese were recalculated to create separate difference scores for photos of women and for photos of men. The average startle response while viewing photos of non-obese women was subtracted from the average startle response while viewing photos of obese women and the average startle response while viewing photos of non-obese men was subtracted from the average startle response while viewing photos of obese men to create two difference score variables (women difference score and men difference scores).

A 2 (media condition: stigmatizing vs. non-stigmatizing) X 2 (gender of photo subject: male vs. female) X 2 (testing time: pre-exposure vs. post-exposure) mixed subjects ANOVA was used to evaluate this hypothesis and research question. Media condition was the between-subjects variable and gender of photo subject and testing time were the within-subjects variables. Difference score was the dependent variable. Alpha was set at  $p < 0.05$ .

## CHAPTER 4

### RESULTS

#### Pre-Analysis

Prior to conducting analyses, the startle data were cleaned. Eight participants were non-responders, meaning that they did not blink when the noise burst played, and their data were deleted. Outliers were found and deleted for each photo. Outliers for startle data were considered to be any startle amplitude while viewing a given photo that was greater than 2.5 standard deviations away from the mean startle response while viewing that photo. Of the remaining participants, those who had valid responses for fewer than three of the four trials for each category of photos were deleted: obese male ( $n = 7$ ), obese female ( $n = 10$ ), thin male ( $n = 13$ ), thin female ( $n = 11$ ). One person was deleted for failing the manipulation check. Of the original 80 participants, a total of 49 participants had complete data. No other assumptions were violated. Means for the startle amplitudes while viewing each picture type are reported in Table 1 and mean and standard deviation for other important study variables are reported in Table 2.

Table 1

*Means and Standard Deviations for Startle Amplitudes*

	Experimental		Control	
	Pre M(s)	Post M(s)	Pre M(s)	Post M(s)
Obese Male	285.43 (209.67)	186.25 (127.13)	217.66 (122.94)	124.06 (84.20)
Obese Female	287.88 (204.69)	191.31 (114.96)	177.65 (100.20)	132.67 (89.84)
Thin Male	286.85 (207.53)	184.60 (125.02)	206.05 (137.70)	136.98 (76.61)
Thin Female	274.43 (175.34)	179.58 (130.43)	175.14 (83.39)	131.52 (98.33)

Table 2

*Descriptive Information for Important Study Variables*

	Experimental	Control	Total
AFAS M(s)	116.79(23.82)	124.23(26.81)	120.56(25.49)
Manipulation Check Score - Number Correct M(s)	4.79(.52)	4.45(.71)	4.62(.65)
How stigmatizing do you feel the clip that you viewed was? (0 not at all to 9 very) M(s)	6.38(1.97)	5.18(2.24)	5.77(2.18)
How frequently do you watch the television show <i>House</i> ?			
% Never/rarely	64.1	35.0	49.4
% Occasionally	20.5	32.5	26.6
% Frequently	7.7	22.5	15.2
% Regularly	7.7	10.0	8.9

In addition to data cleaning, preliminary analyses were conducted prior to evaluating the hypotheses to determine if any demographic variables were associated with pre-manipulation startle response while viewing photos of obese people and if explicitly assessed anti-fat attitude (i.e., score on the AFAS) was associated with pre-manipulation startle response while viewing photos of obese people. Analyses showed a positive correlation between score on the AFAS Willpower subscale and startle amplitude while viewing photos of obese people and a negative correlation between score on the AFAS Fear of Fat subscale and startle amplitude while viewing photos of obese people. No other significant relationships were found. Table 3 provides data for the above comparisons.

Table 3

*Relationships between Demographic Variables and Implicit (i.e., Startle Amplitude), and Explicit (i.e., AFAS Score) Measures of Weight Bias*

	<i>r</i>	<i>p</i>
BMI	-.38	.766
Age	-.48	.711
AFAS – Total	.163	.201
AFAS – Dislike	.161	.208
AFAS – Fear of Fat	-.280	.026*
AFAS – Willpower	.274	.030*
	Mean (SD)	<i>p</i>
Gender		.940
Male	245.75 (158.48)	
Female	242.10 (194.01)	
Race		.101
African American	182.75 (170.06)	
Caucasian	244.28 (76.61)	

\*  $p < .05$

### Hypotheses

Hypothesis 1: A 2 (testing time: pre-exposure vs. post-exposure) X 2 (media condition: stigmatizing vs. non-stigmatizing) mixed ANOVA was conducted to determine if participants exposed to the stigmatizing media condition had a greater change in the difference score (between obese and non-obese photos) between the first and second startle paradigms than participants exposed to the non-stigmatizing media condition. This



hypothesis was not supported as the interaction between testing time and media condition was not significant  $F(1, 50) = 0.37, p = .54$ , partial eta squared = .01.

Hypothesis 2: Moderated multiple regression was used to determine if, among participants who viewed the weight-stigmatizing clip, AFAS scores moderated the relationship between testing time and difference score. The hypothesis was not supported. There was no significant interaction between AFAS score and testing time  $F(1, 22) = 1.72, p = .20$ , partial eta squared = .07. The analyses were rerun using the subscales of the AFAS. The relationship between testing time and difference score was not moderated by the Dislike subscale  $F(1, 22) = 3.00, p = .10$ , partial eta squared = .12 or the Willpower subscale  $F(1, 22) = 2.53, p = .13$ , partial eta squared = .10. It was, however, moderated by the Fear of Fatness subscale  $F(1, 22) = 4.86, p = .04$ , partial eta squared = .18. As highlighted in Figure 1, in the experimental group, prior to the media exposure, Fear of Fatness was positively associated with difference score. After the media exposure, fear of fatness was negatively associated with difference score.

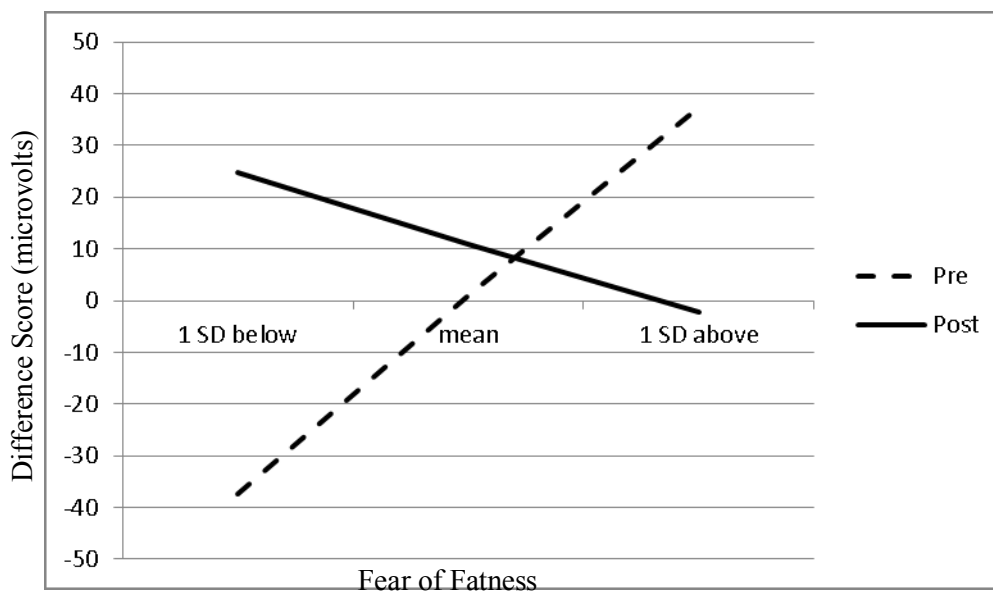


Figure 1. Fear of Fatness Moderates the Relationship between Time and Difference Score

Hypothesis 3: A 2 (media condition: stigmatizing vs. non-stigmatizing) X 2 (gender of photo subject: male vs. female) X 2 (testing time: pre-exposure vs. post-exposure) mixed subjects ANOVA was used to evaluate whether the obesity stigmatizing clip, compared to the non obesity stigmatizing clip, had a stronger influence on startle response while viewing photos of obese women than startle response while viewing photos of obese men. Again, the hypothesis was unsupported. There was no media condition by gender by testing time interaction  $F(1, 47) = .74, p = .394, \text{partial eta squared} = .02$ .

#### Exploratory Analyses

As it appeared that the manipulation was not effective for most of the study participants, analyses were conducted to determine if there were any differences between people for whom the manipulation had the expected impact (i.e., their startle response while viewing photos of obese people increased after viewing the experimental clip) and those for whom the manipulation was not effective. Five participants in the experimental group showed an increase in startle response post-manipulation and were compared to other participants in the study on study variables using t-tests. The results showed that participants whose startle responses increased scored lower on the AFAS Dislike subscale ( $M = 57.60$ ) than participants for whom the manipulation was ineffective ( $M = 73.55$ ),  $t(25) = 2.75, p = .01$ . Additionally, participants for whom the manipulation was effective had larger startle amplitudes while viewing all photo types prior to the manipulation. For detailed information see Table 4.

Table 4

*Comparison of People for Whom the Manipulation Was Effective to People for Whom the Manipulation Was Not Effective*

	Group	M	SD	Significance
BMI	Ineffective	23.7967	4.28010	.96
	Effective	23.9042	2.78878	
Age	Ineffective	22.41	3.362	.96
	Effective	22.50	5.066	
How stigmatizing they thought the clip was	Ineffective	6.3182	1.91203	.73
	Effective	6.0000	1.22474	
Frequency they watch House	Ineffective	.7273	1.12045	.89
	Effective	.8000	.83666	
AFAS Total	Ineffective	119.6818	18.88407	.12
	Effective	90.2000	33.73722	
AFAS Dislike subscale	Ineffective	73.5455	12.51942	.17
	Effective	57.6000	21.38457	
AFAS Fear of Fat subscale	Ineffective	10.0000	7.21110	.42
	Effective	12.8000	5.01996	
AFAS Willpower subscale	Ineffective	36.1364	11.80111	.01
	Effective	19.8000	12.91124	
Startle Amplitude: Obese Male Pre-Exposure	Ineffective	309.4678	191.32539	.005
	Effective	129.6000	82.06773	
Startle Amplitude: Obese Female Pre-Exposure	Ineffective	320.6307	193.31128	<.001
	Effective	120.4750	54.57302	
Startle Amplitude: Non-obese Male Pre-Exposure	Ineffective	308.4861	184.00755	.004
	Effective	145.5417	65.66408	
Startle Amplitude: Non-obese Female Pre-Exposure	Ineffective	302.5167	159.32517	.006
	Effective	157.0750	66.10312	
Startle Amplitude: Obese Male Post-Exposure	Ineffective	192.5549	132.06208	.57
	Effective	158.5250	110.96996	
Startle Amplitude: Obese Female Post-Exposure	Ineffective	194.8277	116.36658	.93
	Effective	200.4583	118.93373	
Startle Amplitude: Non-obese Male Post-Exposure	Ineffective	203.9524	127.47126	.24
	Effective	130.1083	100.96404	
Startle Amplitude: Non-obese Female Post-Exposure	Ineffective	198.4167	136.93385	.28
	Effective	126.7250	84.59616	

## CHAPTER 5

### DISCUSSION

The purpose of this study was to determine how exposure to stigmatizing media impacts emotional response to obesity cues. Previous research suggests that exposure to media is related to increased weight bias. First, content analyses have shown that anti-fat attitudes are commonly expressed in advertising, news media, and child and adult entertainment media (Blaine & McElroy, 2002; Bonfiglioli et al., 2007; Fouts & Burggraf, 1999; Fouts & Burggraf, 2000; Fouts & Vaughan, 2002; Greenberg et al., 2003; Herbozo, Tantleff-Dunn, Gokee-Larose, & Thompson, 2004; Hime & Thompson, 2007; Kim & Willis, 2007; Klein & Shiffman, 2005; Klein & Shiffman, 2006; Malkin, Wornian, & Chrisler, 1999; Robinson, Callister, & Jankoski, 2008; Sandberg, 2007; Stein, 2007; White, Brown, & Ginsburg, 1999). Further, correlational studies imply a positive relationship between media exposure and anti-fat attitudes. For instance, Latner and colleagues (2007) found that, in 10 to 13-year-old children, ratings of liking for an obese child were negatively associated with the participant's exposure to media. As amount of time spent using media in the week prior to participation increased, ratings of the obese child tended to become more negative. Similarly, Harrison (2000) found that, among boys, stereotyping of an overweight female and perceived importance of thinness increased as television viewing increased. Finally, Lin and Reid (2009) found that the more time undergraduate women spent reading magazines per week the higher their levels of anti-fat attitudes were.

The hypotheses for the current study were 1) There will be an interaction between time (pre vs. post) and media condition (weight vs. non-weight stigmatizing), such that

participants exposed to the stigmatizing media condition will have a greater change in the difference score (between obese and non-obese photos) between the first and second startle paradigms than participants exposed to the non-stigmatizing media condition, 2) Among participants who view the weight-stigmatizing clip, AFAS scores will moderate the relationship between testing time and difference score, meaning that there will be a difference in the way people with lower versus higher AFAS scores will react to obese and non-obese pictures before and after viewing a clip stigmatizing obesity, and 3) There will be a three-way interaction between testing time, gender of obese stimulus, and media condition such that from pre to post assessment, the obesity stigmatizing clip, compared to the non obesity stigmatizing clip, will have a stronger influence on startle response while viewing photos of obese women than startle response while viewing photos of obese men.

Inconsistent with the hypotheses, a relationship between exposure to stigmatizing media and affective responses while viewing photos of obese people was not found.

Given that none of the hypotheses were supported, further analyses were conducted. First, analyses were conducted to determine if any of the subscales of the AFAS moderated the relationship between time and difference score among people in the experimental group. In these analyses, fear of fat was identified as a moderating variable. Prior to the media exposure there was a positive relationship between fear of fat and difference score, suggesting that as fear of fat increases, the difference between startle responses while viewing obese photos compared to non-obese photos also increases. Participants with higher fear of fat responded with greater startle amplitudes while viewing photos of obese people than while viewing the photos of non-obese people. Conversely, after the media exposure, there was a negative relationship between fear of fat and difference score, showing that as

fear of fat increased participants were less likely to respond with greater startle amplitudes when viewing photos of obese people compared to viewing photos of non-obese people than were participants with low levels of fear of fat. This could be due to social comparison. Participants who are afraid of becoming fat may have responded with greater startle amplitude to photos of obese versus non-obese people initially because the photos elicited fear that the participant would become fat. The clip featured a man who was considerably more overweight than any of the participants in this study. After comparing themselves to the man in the clip, the participants may have felt better about themselves and, consequentially, the photos may no longer have been intimidating.

Additionally, analyses were conducted to see if participants for whom the manipulation check was effective differed from other participants. These analyses showed that participants for whom the manipulation was effective reported less dislike of obese people than for participants for whom the manipulation was not effective. Given the post-hoc nature of this analyses and that multiple tests were conducted, this result needs to be interpreted with caution. It does, however, provide some evidence that participants low in anti-fat attitudes may be more influenced by obesity stigmatizing media than participant high in anti-fat attitudes.

This study was a first attempt to use the affective startle modulation paradigm in the assessment of anti-fat attitudes. As such, it had some limitations. First, the media exposure was short (approximately 3 minutes). Given the amount of biased media people are exposed to on a daily basis, this clip may not have been salient enough to generate a response. Previous studies investigating the relationship between media exposure and anti-fat attitudes have assessed current media use habits by having participants record time spent per week

utilizing media (Harrison, 2000; Latner et al., 2007; Lin & Reid, 2009). Additionally, these studies have assessed use of various types of media including television, magazines, and video games. As previous research has assessed overall media while this study focused on one brief media exposure from one media source (television), it is likely that previous studies had greater power to detect a relationship than the current study had.

In the race and media literature, studies have been conducted that are similar in design to this study in that the researchers have also exposed participants to different media clips. These studies have focused on whether media exposure causes negative attitudes toward minority groups. Studies that have concluded that media can prime emotions/opinions toward racial groups have utilized longer clips (approximately 5 to 20 minutes) than were used in this study (Dixon & Azocar, 2007; Gilliam, Iyengar, Simon & Wright, 1996; Gorham, 2006). This could suggest that the short clip used in this study was not powerful enough to prime an emotional response.

A second weakness of the study is that the sample was limited to college students. It was assumed that college students would be a good population to test as they are likely to hold strong anti-fat attitudes for several reasons including higher education level and younger average age compared to the general population. Additionally, it was expected that the sample would be primarily Caucasian, which is associated with high levels of anti-fat bias. At the same time, if people have high levels of anti-fat attitudes, which likely corresponds to a high level of media usage, a brief media exposure might not influence anti-fat attitudes, while it might influence such attitudes in people with lower levels of anti-fat attitude. It is possible that the levels of anti-fat attitudes did not vary enough in this sample to show a difference. Also, different age groups may have responded to the media clip

differently. For example, children whose attitudes and belief systems are malleable may have a stronger response to media than adults. In this sample, there was not a significant correlation between age and change in startle response after viewing media clip ( $r = .171$ ). However, given that the majority of participants in this study were between the ages of 18 and 30 years this should be reassessed with a sample that includes a broader age range. For example, studies comparing adults and children may find an impact of age on response to media clip.

Finally, during the startle paradigm, some degree of habituation to the startle stimulus is commonly seen. Habituation is a reduction in the response to the startle stimulus after repeated exposure (in this case, smaller eyeblink amplitude after repeatedly hearing the white noise burst). In this study participants exhibited a high level of habituation from pre stimulus to post stimulus startle procedures, which may have made identifying any differences caused by the exposure difficult. This conclusion is supported by the finding that participants who responded to the manipulation as predicted had greater startle responses initially. This study had relatively short time periods between photos (5-10 seconds), which could be responsible, in part, for the degree of habituation seen in this study. Future paradigms should be designed to minimize habituation. Such designs would have longer time periods between photos than this study (at least 10-15 seconds).

Further, the use of blocked designs can be helpful in analyzing data when there is a large degree of habituation. If this study would have utilized a blocked design, there would have been six blocks and each photo type would have shown once in a block. This would have ensured that photo types were equally distributed over the course of the startle paradigm compared to a random design (like this study) where one photo type may be



presented mainly toward the end or beginning of the startle paradigm. When using a blocked design, if a large degree of habituation does occur, responses during the first blocks can be compared as habituation will not impact those responses greatly. Future studies in this area should utilize blocked designs.

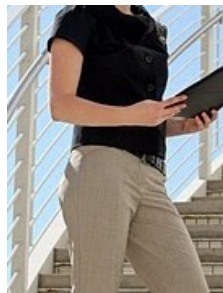
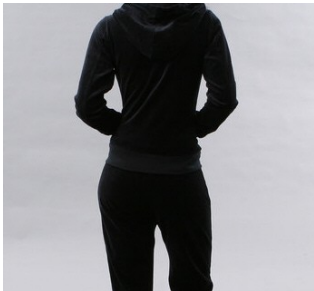
Future research should focus on determining if more salient media exposure (e.g. long video clip, different forms of media) can impact anti-fat attitudes. Similarly, studies should measure and control for typical media exposure by having participants report average time spent utilizing media per week. Additionally, research should study media exposure in broader populations. Studying children or people who have relatively little exposure to stigmatizing media may be most fruitful.

In sum, the results of this study did not support a causal relationship between brief media exposure and weight bias, measured with the affect modulated startle paradigm, though exploratory analyses show that this relationship should be investigated further. The lack of significant findings may be due to limitations of the study and future research should address these limitations to determine if, as suggested by current literature, exposure to stigmatizing media does increase anti-fat attitudes.

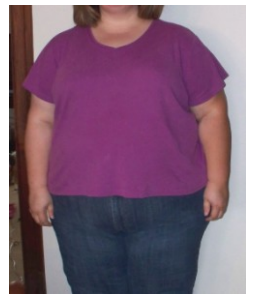
## APPENDIX A

### Stimuli

Photos of Non-obese Women

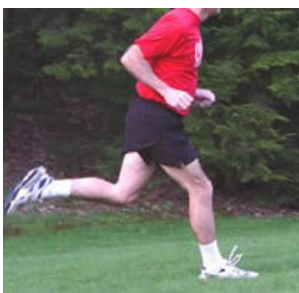
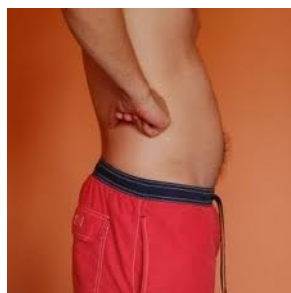
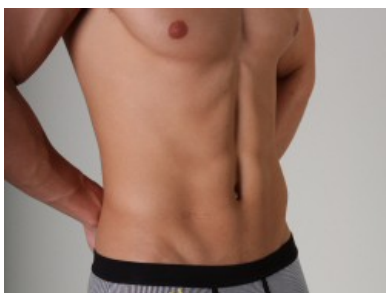
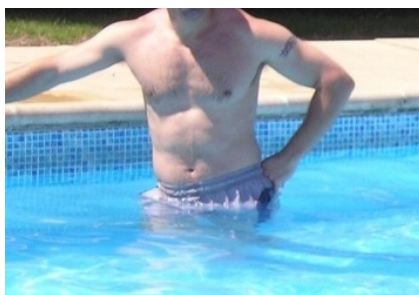


Photos of Obese Women

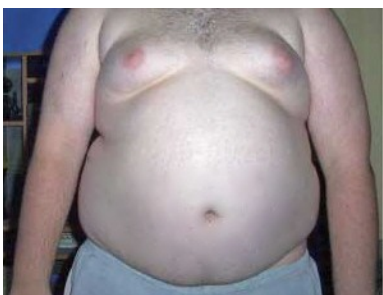




Photos of Non-obese Men



Photos of Obese Men



## APPENDIX B

### Questionnaires

## Demographic Questionnaire

### 1. Ethnicity

Do you consider yourself to be Hispanic or Latino? Select one.

*Hispanic or Latino.* A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race. The term “Spanish origin,” can be used in addition to “Hispanic or Latino.”

- Hispanic or Latino**
- Not Hispanic or Latino**
- Unknown**

### Race

What race do you consider yourself to be? Select one or more.

- American Indian or Alaskan Native.*** A person having origins in any of the original peoples of North, Central, or South America, and who maintains tribal affiliation or community attachment.
- Asian.*** A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, and Philippine Islands, Thailand and Vietnam. (Note: Individuals from the Philippine Islands have been recorded as Pacific Islanders in previous data collection strategies.)
- Black or African American.*** A person having origins in any of the black racial groups of Africa. Terms such as “Haitian” or “Negro” can be used in addition to “Black” or “African American.”
- Native Hawaiian or Other Pacific Islander.*** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- White.*** A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.
- More than one race.*** (It is preferred that this be selected in addition to the selection of the specific races listed above but may be solely selected.)



2. Date of Birth: \_\_\_\_\_

3. Gender (circle one):      Male              Female

4. Highest Education (circle one):

Some high school

High school graduate

Some college

Associates degree

Bachelor's degree

Graduate degree

### **Manipulation Check Assessment: A**

1. What problem does the faith healer fix for the old woman?
2. Why is the faith healer taken to the hospital?
3. Why does House think it would be arrogant of him not to talk to the patient?
4. Does House believe that the patient can talk to God?
5. Which team member was in the seminary?

### **Manipulation Check Assessment: B**

1. How do the firemen discover that the obese man is alive?
2. How much do the characters think the patient weighs?
3. Why can't the doctors accurately weigh the patient?
4. Which character is late for work?
5. Name one thing House compares the patient to.

## Characters



House



Chase



Foreman



Cameron



Cuddy

## Debriefing Questionnaire

We would like to ask you a final set of questions related to the experiment. Please answer to the best of your ability. Remember your answers will be kept confidential.

**1. Please describe what you believe was the purpose of this experiment.**

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**2. How stigmatizing do you feel the clip that you viewed was?**

**not at all**    0    1    2    3    4    5    6    7    8    9    **very**

**3. How frequently do you watch the television show *House*?**

never/rarely    occasionally    frequently    regularly

### AFAS – Modified

For each of the following statements, rate how strongly you agree/disagree with them by circling a number. **Circle only one number.**

**1. I really don't like fat people much.**

Agree 0 1 2 3 4 5 6 7 8 9 Disagree

**2. I don't have many friends that are fat.**

Agree 0 1 2 3 4 5 6 7 8 9 Disagree

**3. I tend to think that people who are overweight are a little untrustworthy.**

Agree 0 1 2 3 4 5 6 7 8 9 Disagree

**4. Although some fat people are surely smart, in general, I think they tend not to be quite as bright as normal weight people.**

Agree 0 1 2 3 4 5 6 7 8 9 Disagree

**5. I have a hard time taking fat people too seriously.**

Agree 0 1 2 3 4 5 6 7 8 9 Disagree

**6. Fat people make me feel somewhat uncomfortable.**

Agree 0 1 2 3 4 5 6 7 8 9 Disagree

**7. If I were an employer looking to hire, I might avoid hiring a fat person.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**8. I feel repulsed when I see a fat person.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**9. Fat people disgust me.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**10. I have an immediate negative reaction when I meet a fat person.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**11. I feel disgusted with myself when I gain weight.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**12. One of the worst things that could happen to me would be if I gained 25 pounds.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**13. I worry about becoming fat.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**14. People who weight too much could lose at least some part of their weight through a little exercise.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**15. Some people are fat because they have no willpower.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**16. Fat people tend to be fat pretty much through their own fault.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**17. Fat people can lose weight if they really want to.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**18. Through a combination of exercise and dieting, anyone can lose weight and keep it off indefinitely.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**19. The medical problems that overweight people have are their own fault.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**20. Overweight people are responsible for their own problems**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**

**21. Weight is something which is under a person's control.**

**Agree** 0 1 2 3 4 5 6 7 8 9 **Disagree**



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## VITA

Carrie Dianne Spresser was born on November 18, 1984 in Oberlin, KS. She was educated in the public school system in Atwood, KS where she graduated fourth in her class from Atwood High School in 2003. Carrie received several local scholarships including the Wayne and Edna Mineck Citizenship Scholarship, the Francis and Lucille Obert Trust Scholarship, and the Jr. Miss Scholarship.

Carrie Attended the University of Nebraska at Kearney where she received the Dean's Scholarship, the Non-resident Award, the Gerald Oswald Scholarship, and Clarice Reynolds Scholarship. She was a member of several organizations including the following honor societies: the Gold Torch Society, Psi Chi, Lambda Pi Eta, and Phi Eta Sigma. Carrie presented at several academic conferences and received the Nebraska Psychological Association Poster Competition Student Researcher Award and the Great Plains Student Psychology Conference Student Researcher Award. While Carrie was at UNK, she had a sole author publication in the Journal of Psychological Inquiry. Before graduating, Carrie was awarded three outstanding senior awards including the Student Alumni Foundation Outstanding Senior, Department of Communications Outstanding Senior, and Department of Psychology Outstanding Senior. Carrie earned her Bachelor of Science degree in 2006 and graduated Suma Cum Laude with a dual major of Organizational Communications and Psychology.

Prior to graduation from UNK, Carrie was accepted to the Clinical Health Psychology program at the University of Missouri – Kansas City. She started in the program in Fall 2006. Since that time Carrie has contributed to several poster presentations and nine



published works, including two first author publications. Additionally, she has served as an ad hoc reviewer for Psychophysiology. Carrie is currently a member of the International Neuropsychological Society, American Psychological Association Division 40, American Psychological Association Division 38, American Psychological Association, and the Association for Behavioral and Cognitive Therapies. In addition to research contributions, Carrie has also taught several sections of statistics. Currently, she is completing an internship at the Dwight D. Eisenhower VA in Leavenworth Kansas. Carrie has been accepted to the two year postdoctoral residency program in neuropsychology at the University of Oklahoma Health Sciences Center, which she will begin in September 2012.