


3-24-2016

Anti-Fat Attitudes and Weight Bias Internalization: An Investigation of How BMI Impacts Perceptions, Opinions and Attitudes

Laurie Schrider

University of South Florida, lschrider@mail.usf.edu

Follow this and additional works at: <http://scholarcommons.usf.edu/etd>

 Part of the [Kinesiology Commons](#), [Medicine and Health Sciences Commons](#), and the [Psychology Commons](#)

Scholar Commons Citation

Schrider, Laurie, "Anti-Fat Attitudes and Weight Bias Internalization: An Investigation of How BMI Impacts Perceptions, Opinions and Attitudes" (2016). *Graduate Theses and Dissertations*.
<http://scholarcommons.usf.edu/etd/6382>

This Thesis is brought to you for free and open access by the Graduate School at Scholar Commons. It has been accepted for inclusion in Graduate Theses and Dissertations by an authorized administrator of Scholar Commons. For more information, please contact scholarcommons@usf.edu.

Anti-Fat Attitudes and Weight Bias Internalization: An Investigation of How BMI Impacts
Perceptions, Opinions and Attitudes

by

Laurie Schrider

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science
Department of Educational and Psychological Studies
College of Education
University of South Florida

Major Professor: Marcus Kilpatrick, Ph.D.
Candi Ashley, Ph.D.
John Ferron, Ph.D.
Christy Greenleaf, Ph.D.

Date of Approval:
March 25, 2016

Keywords: Obesity, anti-fat attitudes, stigma, weight bias

Copyright © 2016, Laurie Schrider

Table of Contents

List of Tables	iii
Abstract	iv
Chapter I: Introduction.....	1
Problem Statement	3
Study Variables	3
Hypothesis.....	4
Operational Definitions.....	4
Assumptions.....	5
Limitations	5
Delimitations.....	5
Significance.....	5
Chapter II: Review of Literature.....	7
Obesity	7
Weight Stigma	8
Weight Stigma and Social Discrimination.....	9
Psychological Effects of Weight Stigma	11
Weight Stigma's Impact on Eating Behaviors and Weight Management	13
Anti-Fat Attitudes	14
Weight Bias Internalization	15
Chapter III: Methods.....	17
Participants.....	17
Survey	18
Sociodemographic Variables	18
Physical Activity and Diet Behavior.....	18
Instruments	19
Anti-Fat Attitudes	19
Weight Bias Internalization Scale.....	19
Procedures.....	20
Planned Analysis	20
Chapter IV: Results.....	22
Sample and Scale Description	22
Anti-Fat Attitudes and Body Weight Categories	23
Weight Bias Internalization and Body Mass Index	24

Chapter V: Discussion	26
References.....	32
Appendix A: Survey	39
Appendix B: IRB Letter of Approval	43

List of Tables

Table 1:	Sample Demographics	22
Table 2:	Scale Reliability	23
Table 3:	Comparison of anti-fat attitudes among overweight and normal weight groups.....	24
Table 4:	Relationship between weight bias and body mass index	24
Table 5:	Perception of individual weight compared to BMI values in participants	25

Abstract

Americans hold negative and judgmental attitudes towards obese and overweight individuals and these anti-fat attitudes and weight stigma have become a damaging form of discrimination. The internalization of weight bias and anti-fat attitudes contributes to negative health outcomes including: feelings of devalue, self-hate, anxiety, depression, body dissatisfaction and eating disturbances. The purpose of this study was to investigate weight bias internalization in individuals who perceive themselves as overweight as well as to examine differences in anti-fat attitudes among normal and overweight individuals. A sample of 202 male and females completed an online survey that assessed anti-fat attitudes via the Anti-Fat Attitudes Scale (AFAS). Individuals classified as overweight also completed an assessment of bias via the Weight Bias Internalization Scale (WBIS). A one-way analysis of variance indicated no significant difference on the AFAS between individuals categorized as normal and overweight ($p = 0.10$). Follow-up analyses based on gender indicated a significant difference for females ($p = 0.004$) but no difference for males ($p = 0.93$). Correlation analysis of BMI and WBIS scores among individuals categorized as overweight yielded a weak and nonsignificant correlation coefficient ($p = 0.06$) for the entire sample and separate analyses of males and females. Contrary to the study hypothesis, current findings indicated those who perceived themselves as overweight or obese, regardless of their BMI, internalized the weight bias stigma similarly, thus not supporting this study's hypothesis. Evidence from this study suggests bias and anti-fat attitudes

not only come from those who are underweight or normal weight, but that overweight and obese individuals have the same negative opinions, stereotypes and prejudice against their peers.

Chapter I: Introduction

Approximately three fourths of adults in the United States are either overweight or obese (Hebel et al., 2008). Recent reports indicated that 17% of youth and 35% of adults in America are obese (Odgen et al., 2012). The incidences of obesity in our children and those under the age of 20 have more than doubled since the 1970's (Wang & Beydoun, 2007). The United States has been labeled an "obesogenic environment." The suggestion is that America as a society promotes weight gain and produces obesity (Wang & Beydoun, 2007). Due to the continual rise in obesity rates, this disease is now considered a national health crisis (Wang & Beydoun, 2007). This epidemic is the underlying cause of 28 million deaths worldwide (Bastien et al., 2014) and in America alone, obesity has contributed to an estimated 400,000 deaths per year (Ashraf & Baweha, 2013). Obesity is the fastest growing cause of death and morbidity in the United States (Ashraf & Baweha, 2013).

Obese individuals are often the target of prejudice and due to their weight are considered part of a "socially devalued group" (Ratcliffe & Ellison, 2013, p.240). Obesity, although a medical epidemic, is now often a characteristic that is commonly and strongly stigmatized (Link & Phelan, 2001). This prejudice is now known as weight stigma or weight bias. Over the past decade, the prevalence of weight discrimination has increased by 66%, with these rates being comparable to racial discrimination (Andreyevna et al., 2008). Weight prejudice is seemingly the last socially acceptable form of prejudice (Ratcliffe & Ellison, 2013). This particular form of

stigma places the blame for the excess weight solely on the obese individual. The attitude behind weight stigma implies the overweight or obese individual is the only one responsible for their condition (Puhl & Brownell, 2006), with no consideration of predisposing and environmental factors. The ideology of blame that promotes weight discrimination implies that overweight and obese populations deserve the psychological, social and physical consequences of their condition. Those outside the stigmatized group feel that this discrimination may be the motivational factor that the individuals need in order to lose the weight and adopt an overall healthier lifestyle (Klaczynski et al., 2004). Research suggests that one facet of this stigma involves individuals within our society feeling as though obese people are “architects of their own ill health, personally responsible for their weight problem because of laziness and overeating” (Klaczynski et al., 2004).

People within any stigmatized group are more likely to be victimized compared to others (Link & Phelan, 2001) and often face multiple disadvantages in a wide variety of life domains. Some of these domains include: employment, social relationships, structural discrimination (e.g. availability of resources) and psychological well-being (Link & Phelan, 2001). Those suffering from disease for which they were perceived to have little responsibility (e.g. Alzheimer’s disease) were viewed more sympathetically and elicited stronger intentions for others to help (Ratcliffe & Ellison, 2013). On the contrary, those individuals who were thought to be highly responsible for their condition (e.g. obesity) provoked feelings of dislike, blame and low intentions to help (Ratcliffe & Ellison, 2013). These negative stereotypes, attitudes and perceptions that create stigma eventually lead the individual internally processing the stigma they have experienced. An individual believing these stereotypes to be true of themselves, is known as weight bias internalization. Current research suggests not only do obese and overweight

people hold these beliefs about themselves, they also hold stigmatizing beliefs about their peers who are also overweight or obese (Hebel et al., 2008). This could be due to the fact that those stigmatized may eventually begin to believe that the attitudes, beliefs and assumptions of those who placed the judgment are true.

Problem Statement

Weight bias and stigma have become a damaging form of discrimination in today's society and the negative effects of anti-fat bias and stigma are becoming more prevalent. It is often assumed that overweight or obese individuals lack will power, are lazy, unintelligent, undisciplined and lack all motivation to change their current condition (Ratcliffe & Ellison, 2013). The negative stereotypes, attitudes and perceptions that create stigma lead the stigmatized individual to eventually begin internalizing the stigma that they have experienced (Quinn et al., 2015). This can potentially lead to physical and psychological distress. This study was designed to investigate the level of anti-fat attitudes and weight stigma present amongst underweight, normal weight, overweight and obese populations. In addition to analyzing the presence of weight stigma and anti-fat bias, the degree to which the overweight and obese populations internalized this prejudice was measured.

Study Variables

The independent variable for this research study was the Body Mass Index (BMI) of the participant in the study. The first dependent variable in this study was the level of weight bias and stigma within the sample population, measured by the Anti-Fat Attitudes Scale (AFAS). The second dependent variable in this study was the level to which an overweight or obese individual personally internalized the weight bias. This was assessed using the Weight Bias Internalization Scale (WBIS).

Hypothesis

Null Hypothesis (Ho): An individual's BMI does not have any effect on their level of anti-fat attitudes and weight bias internalization.

Research hypothesis (H1): Individuals who have a lower or normal BMI will report a greater score on the Anti-Fat Attitudes Scale (AFAS).

Research Hypothesis (H2): Individuals with a higher BMI will have greater scores on the Weight-Bias Internalization Scale (WBIS).

Operational Definitions

Stigma: a negative label placed on individuals with certain characteristics that differ from societal norms (Anderson et al., 2015).

Weight Stigma: prejudice within a society against the overweight and obese population (Ratcliffe & Ellison, 2013).

Weight-Bias Internalization: Individuals that hold negative stereotypes and beliefs against themselves because of their weight (Latner et al., 2014)

Body Mass Index (BMI): a person's weight in kilograms divided by the square of their height in meters. (National Center for Chronic Disease Prevention and Health Promotion, 2015)

Underweight: BMI less than 18.0

Normal Weight: BMI within the range of 18.0 - 24.9

Overweight: BMI within the range of 25.0 - 29.9

Obese: BMI over 30.0

Lower or Normal BMI: BMI between 17 and 24

Higher BMI: BMI above 25

Assumptions

The major assumption for this study was that all the questionnaires were filled out in an impartial way and that the answers were an authentic and accurate depiction of that individual's thoughts, opinions, beliefs and attitudes.

Limitations

One limitation of the study was the nature of self-reporting, which could have created biased responses on the survey. Due to the research design of this study (survey-based), one limitation of this study was how accurately the questions reflected and represented that individual's true level of weight stigma and anti-fat attitudes. Although the survey was open to all adults over the age of 18, with no exclusion criteria based on demographics, the research sample may not have been representative of the general population. The survey was only open for one month and this availability could have placed a limitation on the number of participants in the study.

Delimitations

The surveys, the Anti-Fat Attitudes Scale and Weight-Bias Internalization Scale are closed-ended Likert Scale responses that could have posed a limitation on the accuracy of an individual's level of weight stigma and weight bias internalization.

Significance

Weight stigma and anti-fat attitudes towards the overweight and obese population have serious ramifications. Even if the weight is lost, the serious consequences of weight stigma and bias will continue to affect the individual. Changing an individual's self-worth is in many ways much more difficult than changing the weight on the scale. However, with more research in this

field, the general population will become more aware of weight stigma and discrimination and see how prevalent and damaging this prejudice can be.

Chapter II: Review of Literature

Obesity

The increasing rates of obesity within the United States are so alarming that this epidemic has been deemed a national public health crisis. Today, more than two-thirds of the adults in the United States and one-third of the children and adolescents are considered overweight or obese. Much of the obesity problem can be linked to a combination of excess calorie consumption and inadequate physical activity (Wang & Beydoun, 2007). However, obesity is a multifaceted disease with many contributing factors. Some of these factors that are out of an individual's control include: socio-economic status, genetics and environmental factors (Wang & Beydoun, 2007).

In 2013, the American Medical Association declared obesity a disease. They used a set criteria to define this disease. The criteria stated obesity was an impairment to normal functioning of some aspect of the body, it had characteristic signs and symptoms and causes harm or morbidity. Because of the many health complications linked to this disease, much research has gone into the negative physical consequences of obesity. Having abnormal levels of body fat or excess body fat can impair one's health and cause serious health consequences including: cardiovascular disease, diabetes, dyslipidemia, respiratory problems, sleep apnea and some cancers including endometrial, breast, prostate and colon cancer (Ofei, 2005). An often over-looked adverse effect of obesity is the psychological distress this disease can cause. One

study examined the psychological distress among those individuals that were formerly overweight and those who were still considered overweight or obese. It was found that the formerly overweight group was at significantly greater risk of any anxiety disorder, depressive disorder and suicide attempts than the consistently normal-weight and subsequently overweight groups (Levy & Pilver, 2012).

Other psychological issues caused by an individual's struggle with weight include hostility and low self-esteem which can in turn can lead to the future development of depression and mental illness (Sun-Chang et al., 2012). It has become apparent that the prevalence of issues associated with obesity are not only related to the medical field. Not only are there health consequences associated with obesity, evidence reveals that there are many social consequences now making obesity a social disease (Hebel et al., 2008). It has been shown through empirical research that heavy individuals are seen as less desirable in both work and social situations, and are less often selected in colleges, relationships and ultimately all social groups (Hebel et al., 2008). Along with the diagnosable physical and psychological disorders, a new prejudice has developed within the United States, weight discrimination and bias. This discrimination against overweight and obese populations can cause serious self-esteem and self-image issues that take longer to process and work through than the weight loss itself (Levy & Pilver, 2012).

Weight Stigma

There is sufficient evidence and research that show Americans hold negative and judgmental attitudes towards obese and overweight individuals (Carr & Friedman, 2005). Obese individuals are aware of this stigma, and are able to recognize multiple forms of this discrimination that in turn have detrimental effects on the individual's psychological well-being (Carr & Friedman, 2005). Physical barriers (e.g. not fitting in a chair), nasty comments and

constantly being stared at in public are the most common forms of stigma experienced by obese and overweight individuals (Friedman et al., 2008). Weight bias, discrimination and overall stigmatization was found to be experienced at all levels of high BMIs. However, as the weight of the obese individual increases, so does the frequency of stigma experienced. Those who struggled with weight earlier in life, tend to report more experienced stigma.

Weight Stigma and Social Discrimination

Weight stigma is present in multiple areas of an obese person's life including the work place, social gatherings, their home, and even within the health care system. Within every stage of an overweight or obese employee's career, they are often evaluated more negatively than their normal-weight co-workers (Hebel et al., 2008). Overweight adults are 12 times more likely to experience employee discrimination than their normal weight coworkers (Roehling et al., 2007). Obese individuals have reported being treated poorly by coworkers and employees and are 37 times more likely to experience employee discrimination. In some cases those stigmatized based off their weight have been denied jobs and promotions (Puhl & Brownell, 2006). In some workplaces, overweight employees make less income than their normal-weight coworker, even with equal qualifications and experience (Roehling et al., 2007).

Federal laws are in place to prohibit any discrimination against an employee based on gender, age, race or sexual orientation. However, there is no law that keeps the employer from discriminating against an individual because of their weight (Puhl & Heuer, 2011). This was publically shown when a hospital instituted a weight limit for all potential jobs. No one with a BMI over 35 was allowed to be hired at that hospital (Warren & Smalley, 2013). Their reasoning behind this weight limit was that employing overweight and obese individuals would create the wrong image for their health-focused organization (Warren & Smalley, 2013). This decision

was not based on the individual's fitness level or ability to complete the job at hand, it was strictly a decision based on appearance and the way others would perceive their organization.

These attitudes and beliefs regarding obesity are instilled early in childhood (Greenleaf et al., 2006). At the early age of three years old, children classified their obese peers as stupid, sad and lonely. Weight bias and the stigma associated with being heavy does not discriminate based on BMI. Weight stigma was found to be experienced at all levels of high BMIs. An adult is considered to have a high BMI if their body mass index is equal to or above 25. Even those at a lower level BMI experienced as much stigma as those who are more obese and in the higher BMI categories.

In a classic study, children were asked to rank pictures of different children in order of desirable friendships. The six pictures included: an average weight child with no disabilities, an overweight child with no disabilities, a child in a wheelchair, a child using crutches, a child with an amputated hand and a child with facial disfigurement. Overwhelmingly, the overweight child was ranked last and labeled by the children as the least desirable friend (Warren & Smalley, 2013). Overweight children report they receive differential treatment from peers and society (weight stigmatization) and state this is the most immediate consequence of their weight (Warren & Smalley, 2013).

The health care industry is not exempt from weight stigma and bias. One of the most overlooked and least recognized bias occurs in health care providers (Khandalavala et. al., 2014). These health care professionals have been found to hold similar attitudes and beliefs associated with weight stigma. Overweight and obese individuals tend to avoid clinical care and are less likely to seek out treatment and preventative care services because of this felt bias and discrimination from health care professionals (Amy et al., 2006). This avoidance stems from the

fear of mistreatment or embarrassment. Those obese individuals that experience weight stigma in the health care system place a lower value on overall health (Phelan et al., 2015). Along with health care professionals, both fitness professionals and regular exercisers have been found to have strong weight discrimination attitudes and beliefs towards obesity as well as the overweight or obese individual (Roberston & Vohora, 2008). These stigmatizing attitudes and beliefs suggest that obesity is a state and a personality characteristic of that individual and their condition is simply a matter of personal control.

Psychological Effects of Weight Stigma

Weight stigma causes numerous psychological health consequences and the feeling of being stigmatized is linked to several mental health disorders. People who were or currently are overweight have a higher likelihood of developing personality disorders. Studies have shown that this stigma is so influential that society has begun to expect a certain personality from overweight individuals. The “jolly fat” personality hypothesis states that obese individuals often begin to develop a jolly personality to help buffer themselves against the psychological effects of ridicule based on their weight (Warren & Smalley, 2013). Often times, obese people are portrayed as funny. Not only are they looked upon as comedians where their job is to make people laugh but it is also widely accepted to make fun of obese people and portray these individuals as the tagline of a joke (Warren & Smalley, 2013).

Overweight and obese individuals are much more likely to end up in the mental health-care system compared to the normal weight population (Stanley et al., 2012). The feelings of shame, rejection and negative criticism associated with weight stigma result in the individual viewing themselves the same way others see them. This idea implies that the way an obese individual perceives themselves often times mirrors the way they are viewed by others (Ratcliffe &

Ellison, 2013). This concept links the attitudes, beliefs and opinions of weight stigma to how the obese population will interact with others and the environment.

Components of self- evaluation including self-worth, self-acceptance and personal value are all negatively affected by weight discrimination. Overweight and obese individuals tend to devalue themselves because they know they are part of a stigmatized group (Klazynski et al., 2004). The mistreatment and stigmatization the individuals have experienced led to reported low levels of self-acceptance within the obese population (Carr & Friedman, 2005). In a sample of obese adolescent girls, researchers found that the girls scored highly on a scale assessing stereotyped beliefs about being fat. These young girls had significantly lower global self-worth, low scores of perceived attractiveness and also had more maladaptive eating behaviors (Davidson et al., 2012).

Evidence supports the notion that obesity is both a cause and consequence of depression (Atlantis & Baker, 2008). Nearly 90% of obese patients have clinical levels of depression with 25% of those cases being classified as severe. Compared to normal weight-adults, obese individuals are more likely to be on antidepressants (Warren & Smalley, 2013). The presence of depression only makes the individual less successful at weight loss and unfortunately more likely to regain any weight that had been lost. Individuals with lower levels of depression were shown to have greater odds of success in maintaining weight loss and avoiding weight regain (Wing & Phelan, 2005). In addition to low self-esteem and depression, there is a strong relationship between stigma experiences and phobic anxiety. Those who are overweight feel afraid to travel, self-conscious with others, uneasy in crowds and even develop patterns of social avoidance (Friedman et al., 2008). This anxiety is continually reinforced by the repetition of weight stigma experiences.

Weight Stigma's Impact on Eating Behavior and Weight Management

Eating behavior is significantly impacted by weight stigma experiences. In a study of obese individuals, 25% of the sample met the criteria for a binge eating disorder (Friedman et al., 2008). Weight stigmatization is associated with a three-fold increase in the diagnosis of binge eating disorder. Binge eating is often triggered by negative mood states such as anger, anxiety and depression, all of which are linked to the effects of weight bias and stigmatization (Phelan et al., 2015). One common theory behind these unhealthy eating behaviors, is that the act of bingeing serves as an escape by allowing the food to distract the individual from their current mood state. Obese individuals are also extremely susceptible to unhealthy eating behaviors including higher caloric intake during weight loss programs and often show greater symptoms and characteristics of eating disorders (Mesinger et. al., 2016).

Inappropriate diet and eating behaviors (i.e. binge eating, skipping meals) have been found to stem from the internalization of fat stereotypes in order to prevent any association with the stigmatized group (Davison et al., 2012). Associated with binge eating, one of the most common coping mechanisms of weight stigma is to simply eat more. Exposure to the stigma has been linked to increased food intake (Vartanian & Porter, 2016). Overweight and obese individuals report eating more and intentionally avoiding diets in order to protect themselves from the psychological effects of this stigmatization (Tomiya, 2014). Current research reports more than three fourths of an obese adult study sample reported using 'eating more food' as a coping mechanism. Those individuals who had to answer stigmatizing questions had a higher drive to eat unhealthy, high-calorie foods versus when they had to answer the control questions (Tomiya et al., 2013).

Negative weight stigma can directly impact an individual's participation in physical activity. Research suggests that those who have high levels of weight stigma internalization, report lower engagement in physical activity (Mesinger et al., 2016). There is a positive correlation between weight stigma and avoidance of exercise (Vartanian & Novak, 2011). It was found that those who reported more frequent experiences of weight stigma also reported greater avoidance of exercise. In addition to overall avoidance of exercise, those who felt they may be judged by other people stated they felt embarrassed or uncomfortable going to a gym (Vartanian & Novak, 2011). The combination of disordered eating (e.g. binge eating) and the avoidance of physical activity as a result of weight stigma leads to reduced engagement in weight management strategies, thus leading to increased weight gain and a greater prevalence of obesity (Ratcliffe & Ellison, 2013).

Anti-Fat Attitudes

Measuring anti-fat attitudes and obesity stereotypes has become the focus of many current research studies. A large population that represented people from all BMI categories (underweight to extremely obese) were surveyed through an online system to measure anti-fat attitudes (Schwartz et al., 2006). Data indicated that all weight groups exhibited significant anti-fat bias, however there was an inverse relationship between the participant's own weight and the level of reported bias. Those participants who were thinner (lower BMI categories) were found to be more likely to associate negative attributes with fat people, prefer thin people and rate fat people as lazier and less motivated. With explicit weight bias, BMI played a significant role in the magnitude of bias present (Schwartz et al., 2006). The level of bias was lower among heavier individuals in comparison to leaner individuals, and obese and extremely obese participants showed low levels of explicit anti-fat attitudes and stereotypes (Schwartz et al., 2006).

In a similar study, volunteers took several weight bias and stigma surveys that measured the degree of anti-fat attitudes within a given population. Anti-fat attitude scores were greater in participants in the underweight and normal weight groups (BMI categories) compared to the overweight and obese participants (Flint et al., 2015). Those participants that were in the normal weight category were more inclined than the underweight and obese individuals to believe that obesity is more controllable (Flint et al., 2015).

Weight Bias Internalization

Internalization of weight-bias attitudes may play a role in contributing to negative health outcomes among those individuals who are overweight or obese (Pearl & Puhl, 2013). These negative health outcomes include: feelings of devalue, self-hate, anxiety, depression, greater body dissatisfaction, more severe eating disturbances and an overall lower quality of life (Hilbert et al., 2014). Bariatric surgery patients completed a survey that examined the level to which they internalize these negative stereotypes associated with weight stigma. Over 40% of the participants reported high levels of internalized weight bias (Lent, 2014). In a sample of overweight and obese women, 37% of the participants reported they believe the stereotypes of weight stigma to be sometimes true or always true. Those women who believed the negative stereotypes to be true were more likely to cope with stigma by refusing to diet (Puhl, 2007). Not only does weight stigma cause psychological issues in overweight and obese individuals, but this study supports the notion that it can also affect their dietary and exercise behaviors.

Another component of internalized weight bias, is the individual's self-perception of their own weight. In recent study, despite all the participants reporting a height and weight that indicated a normal or underweight BMI, a significant portion of the sample population believed themselves to be overweight (Schvey & White, 2015). Regardless of actual BMI, evidence

shows that those who perceive themselves to be overweight or obese had significantly higher weight bias internalization scores compared to those who accurately depicted their weight as normal. In addition to weight bias internalization being present in normal weight individuals, evidence suggests that those who have successfully lost weight, still internalize weight stigma (Schvey & White, 2015). Weight bias internalization is not just limited to overweight and obese individuals, those who have a healthy body weight can also internalize these negative stereotypes.

Chapter III: Methods

Participants

Participants were recruited through word of mouth and email. The sample size for this study included 247 male and female adults, over the age of 18. No upper age limit was placed on the inclusion criteria because the exclusion of older populations could affect the generalizability of this study's findings to the general population. A total of 15 individuals reported having a history of disordered eating or are currently struggling with an eating disorder, therefore they were excluded from the study. Due to incomplete data or inaccurate information, 28 individuals' responses could not be used. Two individuals did not read and agree to the study consent form, therefore excluding them from the study. This left a total of 202 participants for the study. The sample population (N=202) represented all BMI weight categories including: 1% underweight, 39% normal weight, 31% overweight, 19% obese and the remaining 11% of the sample population being severely obese (BMI >35). Based off of actual BMI calculations, 39% of the sample was of normal weight (BMI 17-24) and 61% was overweight or obese (BMI >25). However, based off of the self-perception question on the survey, it was reported that 52% of the sample population thought they were of normal weight and 48% perceived themselves as overweight.

Survey

Sociodemographic variables. The survey included demographic questions including the participant's gender, ethnicity, race, education, annual income and their self-reported weight and height (see Appendix A). All participants were asked if they have a history of disordered eating or if they currently struggle with disordered eating. The only exclusion criteria for this survey was any individual with a history of disordered eating or individuals currently struggling with an eating disorder. These individuals were not able to participate in this study due to the sensitive nature of some of the questions asked. Self-assessed weight status, or the individual's own perception of weight and BMI were determined by asking the participant, "Which of the following weight categories best describes your current weight status?" with the answer choices being "underweight," "normal weight," "overweight" and "obese."

Physical Activity and Diet Behavior. Two questions were developed to assess the participant's diet and exercise behaviors. These two global diet and exercise statements include: "Current physical activity guidelines recommend the accumulation of 150 minutes of moderate-intensity aerobic activity (i.e. brisk walking) or 75 minutes each week of vigorous-intensity aerobic physical activity (i.e. jogging or swimming laps) or an equivalent combination of moderate and vigorous-intensity aerobic physical activity every week and participation in muscle strengthening exercises on two or more days a week that work all major muscle groups" and "Current guidelines for dietary behavior recommend: balancing calories with physical activity to manage weight, consume more of certain foods and nutrients such as fruits, vegetables, whole grains, fat-free and low-fat dairy products and seafood and to consume fewer foods with sodium (salt), saturated fats, trans fats, cholesterol, added sugar and refined grains." After reading these two statements, the participant was asked to indicate how much he or she agrees or disagrees

with the following statement, “I have adhered to these guidelines over the past 3 months” using a 5-point Likert type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Instruments

Anti-fat Attitudes. The Anti-fat Attitude Scale (AFAS) is a survey that examines the participants’ individual levels of anti-fat attitudes (Morrison & O’Connor, 1999). The participants responded to each of the 5 items on the scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questions included, “Fat people are less sexually attractive than thin people,” “I would never date a fat person,” “On average, fat people are lazier than thin people,” “Fat people have only themselves to blame for their weight” and “It is disgusting when a fat person wears a bathing suit at the beach.” This scale measured the magnitude of anti-fat attitudes, with higher score representing stronger anti-fat bias. The AFAS has been found to have satisfactory internal consistency and construct validity (Morrison & O’Connor, 1999). This scale was found to successfully measure a single construct, avoiding the issue of ambiguity and difficult interpretation (Morrison & O’Connor, 1999).

Weight Bias Internalization Scale. The Weight Bias Internalization Scale (WBIS) examined the degree to which a respondent believes that the negative stereotypes and negative self-statements about the overweight and obese population apply to him or herself (Durso & Latner, 2008). The participants responded to each of the 19 items on the scale ranging from 1 (strongly disagree) to 5 (strongly agree). This was used instead of the 11 item questionnaire on a scale of 1 (strongly disagree) to 7 (strongly agree). Examples of the WBIS questions included: “I am less attractive than most other people because of my weight,” “my weight is a major way I judge my value as a person” and “because I am overweight, I do not feel like my true self.”

Overall, the WBIS was confirmed to have good psychometric properties and construct validity (Durso & Latner, 2008).

Procedures

The survey for this cross-sectional study was made available through the Qualtrics™ online survey system. Qualtrics™ is a provider of online survey software and was used as the platform for this study's survey. Before launching the official survey, a pilot survey was conducted to test any methodological or formatting flaws that could occur. A group of 11 individuals completed the survey and provided immediate feedback to the researchers. After the pilot test was completed researchers evaluated the information received from this preliminary phase of data collection, determined what changes were necessary and made improvements accordingly. The survey was open and made available for all individuals interested and willing to complete the survey from January 12th, 2016 through February 8th, 2016. The survey included demographic questions (age, gender, ethnicity, SES etc.), self-reported weight and height, perceived weight, eating behavior status, weight change status, two health behavior questions (dietary and physical activity habits), the pre-existing Anti-Fat Attitudes Scale and the Weight Bias Internalization Scale.

Planned Analysis

Data were analyzed using SPSS and proceeded in three primary phases. The first phase included a descriptive analysis of the sample and responses to study scales and questions. The second phase included analysis of anti-fat attitudes among overweight and normal weight participants by way of analysis of variance and follow-up t-tests. The third phase investigated the relationship between body mass index and weight bias internalization by way of correlational analysis. Criterion for statistical significance was set at $p < 0.05$. Mean differences were utilized

to determine effect size differences (0.2, small effect; 0.5, medium effect; 0.8, large effect)
(Cohen, 1992).

Chapter IV: Results

Sample and Scale Description

The sample was varied with respect to demographic characteristics such as age, body mass index, gender, and race, but can be generally described as predominantly middle-aged, overweight, female, and white. Table 1 summarizes sample demographics. Scale reliability analysis by way of Cronbach's alpha indicates that the Anti-Fat Attitude Scale and the Weight Bias Internalization Scale exhibit values above 0.70, which suggests acceptable internal consistency. Table 2 summarizes scale internal consistency.

Table 1 Sample demographics

Variable	Statistic
Age	39 ± 15 (mean ± SD)
Body Mass Index	27 ± 6 (mean ± SD)
Body Mass Index Categories	1% Underweight 38% Normal Weight 31% Overweight 19% Obese 11% Severely Obese

Table 1 (Continued)

Variable	Statistic
Gender	36% Male
	64% Female
Ethnicity	7% Hispanic or Latino
	93% Not Hispanic or Latino
Race	1% American Indian
	5% Asian
	9% Black
	1% Native Hawaiian
	84% White

Table 2 Scale reliability

Anti-Fat Attitude Scale	0.73
Weight Bias Internalization Scale: 11-item	0.89
Weight Bias Internalization Scale: 19-item	0.84

Anti-Fat Attitudes and Body Weight Categories

A one-way analysis of variance with body weight category as the independent variable and scores on the Anti-Fat Attitude Scale as the dependent variable indicated no significant difference between normal BMI values when compared to overweight and obese BMI values ($p = 0.10$). Though a trend towards significance was noted by the associated p -value, a statistically

significant difference was not present. An inspection of the effect size value for this comparison yielded a similar finding, namely a small effect size of 0.24. Individual analyses based on gender by way of t-tests indicated that anti-fat bias was similar for normal weight and overweight males ($p = 0.93$), but also indicated that normal weight females demonstrated significantly higher anti-fat bias than overweight females ($p = 0.004$). Table 3 summarizes results of these analyses.

Table 3 Comparison of anti-fat attitudes among overweight and normal weight groups

	Total	Male	Female
Anti-Fat Attitude – normal weight	14.1 ± 3.1	14.7 ± 2.7	13.9 ± 3.2
Anti-Fat Attitude – overweight	13.3 ± 3.8	14.8 ± 3.4	12.1 ± 3.6
P-value	0.10	0.93	0.004
Effect Size (Cohen’s D)	0.24	0.03	0.52

Weight Bias Internalization and Body Mass Index

Pearson product-moment correlation analysis of BMI and scores on the Weight Bias Internalization Scale scaled yielded a weak correlation statistic of 0.06, a very small coefficient of determination of 0.04, and a p-value of 0.56 which sums to indicate no significant relationship between BMI and weight bias internalization. Individual analyses based on gender indicated similar statistical values for males ($r = 0.15$; $r\text{-square} = 0.023$; $p = 0.44$) and females ($r = 0.04$; $r\text{-square} = 0.001$; $p = 0.77$). Table 4 summarizes results of these analyses.

Table 4 Relationship between weight bias and body mass index

Variable	Total	Male	Female
Correlation	0.06	0.15	0.04
R-square	0.004	0.023	0.001

Table 4 (Continued)

Variable	Total	Male	Female
P-value	0.56	0.44	0.77
Mean (5pt Scale)	2.8 ± 0.8	2.7 ± 0.8	2.8 ± 0.8
Mean (7pt Scale) Transformed*	3.9	3.8	3.9

* Transformation was completed using rudimentary method outside of SPSS.

Table 5 Perception of individual weight compared to actual BMI values in participants

		Perception	
		Normal Weight	Overweight
Actual	Normal Weight	73	6
	Overweight	32	91

Chapter V: Discussion

This study examined body mass index (BMI), anti-fat attitudes and weight bias internalization using a cross-sectional design. The purpose of this study was to investigate weight bias internalization in individuals who perceives themselves as overweight as well as to examine differences in anti-fat attitudes among normal and overweight/obese individuals.

The first hypothesis of this research study predicted that individuals who have a normal BMI would score higher on the Anti-Fat Attitudes Scale (AFAS) than overweight or obese individuals. There was no significant difference between normal weight AFAS scores when compared to overweight and obese participant AFAS scores. Although there was a near trend towards significance noted by the associated p-value, a statistically significant difference was not present. However, follow-up tests were conducted looking at individual analyses based on gender by way of t-tests. These tests indicated that anti-fat bias was similar for normal weight and overweight males. Interestingly, these t-tests revealed that normal weight females demonstrated significantly higher anti-fat bias when compared to overweight females. A study conducted in the United Kingdom with a large sample size (N= 2380) and similar population demographics to the current study (predominately white, women, 18-65 years of age) found that anti-fat attitudes using the AFAS were greater in underweight, normal and even overweight individuals compared to obese participants (Flint et al., 2015). Another study surveyed a large online population of over 4,000 males and females on implicit and explicit anti-fat attitudes and

obesity stereotypes (Schwartz et al., 2006). This large sample consisted of 83% women and 85% white respondents, with a mean age of 35 and a mean BMI of 39, very similar to this current study except for average BMI, with our current study's mean BMI being 27. Based off of the study's results, the researchers suggested that the magnitude of anti-fat biases was significantly weaker among people with higher BMIs compared to those individuals with lower BMIs (Schwartz et al., 2006).

The second hypothesis of this study stated that individuals with a higher BMI will have a greater score on the Weight Bias Internalization Scale (WBIS) reflecting that the individual believes the common stereotypes about overweight and obese people to be true. However, the results of the current study indicated that an individual's BMI does not impact their level of weight bias internalization. Those who perceived themselves as overweight or obese, regardless of their BMI, internalized the weight bias stigma similarly, thus not supporting this study hypothesis. Furthermore, there was no correlation between an individual's BMI and the extent to which they believed the weight stigma and bias to be true of themselves. This suggests that those individuals who are slightly overweight as well as those who are considered morbidly obese internalize the weight bias and stigma similarly. In a study that examined the internalization of anti-fat bias among overweight individuals across a variety of anti-fat attitudes and stereotypes, researchers found that overweight individuals held these negative attitudes and stereotypes towards their peers (Wang et al., 2004), meaning that participants explicitly reported overweight people as being lazier than thin people (Wang et al., 2004). The results of their study found that overweight individuals hold strong, negative associations with their weight, further supporting our findings.

The average WBIS score in this current study was 3.9 compared to a mean of 3.9 ± 1.3 in the Durso and Latner study (2008). This current study's average score is comparable to other studies that examined weight bias internalization. Interestingly, the average WBIS score for the current study was similar to a study that surveyed obese adult women who were seeking treatment and participated in a healthy living weight management program (Mesinger et al., 2016).

Current results suggest the possibility that level of anti-fat attitudes and the extent to which an overweight or obese individual believes the negative stereotypes to be true is not contingent upon an individual's BMI. These findings are in accordance with current research that suggests that the level of weight bias internalization is not dependent on the body weight scale or the extent to which a person is overweight (Roberto et al., 2011; Durso et al., 2011). In addition to the current research and the research conducted by Roberto and colleagues other studies have provided evidence that obese individuals may internalize stereotypes against their own groups, unlike other stigmatized or minority groups (Wang et al., 2004; Schwartz et al., 2006). Unlike other forms of bias or discrimination, weight-based discrimination is often accepted and has been observed in employment, housing and health care opportunities and even encouraged by society through media outlets (Roberto et al., 2011). Anti-fat attitudes and weight bias appearing more socially acceptable, could be a supporting factor as to why normal weight, overweight and obese individuals express strong negative attitudes and stereotypes towards obesity (Roberto et al., 2011).

Weight bias can lead to serious psychological issues including low self-esteem, body dissatisfaction and depression (Durso et al., 2011). If one feels he or she is overweight or obese, regardless of actual BMI, they are subject to the damaging effects of this stigmatization. One

could speculate this as a reason why weight stigma causes individuals to internalize the bias, independent of the person's weight. Despite the individual's actual BMI, if they feel they have experienced weight stigma, they will internalize these negative stereotypes and believe them to be true. Unlike other forms of discriminations (i.e. racial, gender, sexual orientation etc.), there is a widespread tolerance for these attitudes and stereotypes (Roberto et al., 2011). As such, it seems logical to conclude that repeatedly hearing "overweight people are lazy, lack will power, and are responsible for their weight" will result in those who are overweight or obese beginning to internalize these messages. This overgeneralization groups all overweight and obese individuals as one "population." Because there is no differentiation between BMI categories (i.e. overweight, obese, and morbidly obese) within the stigma, this could be an explanation for why the level of internalization is not dependent on the individual's degree of overweight.

In the current study, males with BMI levels classified as overweight or obese had similar anti-fat attitudes as reflected by similar scores on the AFAS when compared to those males in the underweight or normal weight category. This suggests that men, at all BMI levels, place these negative and judgmental attitudes towards obese and overweight individuals. However, when comparing the AFAS scores between the female normal weight group and overweight group, normal weight women has significantly higher ($p = 0.004$) anti-fat attitudes towards the overweight and obese population than those women who were overweight or obese themselves. Compared to men at all BMI levels and normal weight women, overweight women are more likely to have significantly lower levels of anti-fat bias. In turn, this weight stigma is internalized to the same extent for anyone who views him or herself as overweight or obese.

One limitation of this study was the nature of the self-reported survey. It was possible that this survey could have included skewed answers due to biased responses on the survey

which could be reflected in the individual's self-reported weight and height as well as their responses to the AFAS and WBIS. It was assumed that the questions reflected and represented each respondent's true level of anti-fat attitudes and the degree to which they internalize weight bias. Although it was a relatively large sample size, the sample population was not racially or ethnically diverse, with the majority of the participations being Caucasian/White (84%) and women (64%). As Kamumura and colleagues suggested, females have been found to have lower weight-related body esteem when compared to men (2014). Problematic body image issues are more prevalent among women than men (Franzoi et al., 2012). Research indicates that women have a much more critical view of their body weight, rely more on self-critical comparison strategies and tend to rate their current figure as significantly larger than their ideal weight. This could suggest a discrepancy in how women perceive themselves and their actual body size (Franzoi et al., 2012). It appears that many women pay greater attention to their body and are more likely to view their bodies from a more critical standpoint. This outlook on their appearance may be a factor in understanding why women have more negative body image in comparison to men (Franzoi et al., 2012). Because the majority of respondents in our study were female, it could be speculated that this more critical view, lower self-esteem and distorted self-image of women could account for the higher level of weight bias internalization across a wider range of BMI values.

Although this study has several limitations, this study's relatively large sample population represented all BMI categories, with significant numbers of individuals in the underweight, normal weight, overweight and obese BMI categories. This study was one of the first to use the AFAS and WBIS in the same research investigation. Our current research not

only examined anti-fat attitudes made towards others but it also investigated the relationship between an individual's BMI and the level to which they personally internalize weight bias.

In conclusion, this study's results revealed that anti-fat attitudes and weight bias affect a wide range of individuals within the population, regardless of BMI. There are serious consequences of weight bias and anti-fat attitudes that can negatively affect any individual, regardless of actual body weight. Evidence from this study suggests bias and anti-fat attitudes not only come from those who are underweight or normal weight, but that overweight and obese individuals have similar negative opinions, stereotypes and prejudice against their peers. Health care professionals and weight management programs need to utilize current research within the field in order to understand that combating the obesity epidemic and weight bias stigma starts with creating innovative health and wellness programs. A strategy for these programs should include reaching out to those who perceive themselves as overweight, not just the overweight and obese populations. This weight stigma will eventually lead to serious ramifications including greater levels of depression, anxiety, body dissatisfaction, unhealthy physical activity and eating behaviors and an overall lower quality of life if this issue is not addressed.

Future research should consider investigating the relationship between an individual's personal anti-fat attitudes and their weight bias internalization. Research should also examine how the internalization of weight bias affects the individual's outlook on weight loss efforts (i.e. dietary behavior, physical activity levels etc.). Anti-fat attitudes are present in all BMI categories with these negative attitudes and stereotypes contributing to a stigma that can negatively affect a person's psychological and physiological state, and lead to an overall lower quality of life.

References

- Amy, N., Aalborg, A., Lyons, P., & Keranen, L. (2006). Barriers to routine gynecological cancer screening for White and African-American obese women. *International Journal of Obesity*, 30, 147-155.
- Anderson, K., Jeon, A., Blenner, J., Wiener, R., & Hope, D. (2015). How people evaluate others with social anxiety disorder: A comparison to depression and general mental illness stigma. *American Journal of Orthopsychiatry*, 85(2), 131-138.
- Andreyeva, T., Puhl, R., & Brownell, K. (2008). Changes in perceived weight discrimination among americans, 1995–1996 Through 2004–2006. *Obesity*, 16, 1129-1134.
- Anselmi, P., Vianello, M., & Robusto, E. (2013). Preferring thin people does not imply derogating fat people. A rasch analysis of the implicit weight attitude. *Obesity*, 21(2), 261-265.
- Atlantis, E., & Baker, M. (2008). Obesity effects on depression: systematic review of epidemiological studies. *International Journal of Obesity*, 32(6), 881-891.
- Ashraf, M. J., & Baweja, P. (2013). Obesity: The 'huge' problem in cardiovascular diseases. *Missouri Medicine*, 110(6), 499-504.
- Bastien, M., Poirier, P., Lemieux, I., & Després, J. (2014). Overview of epidemiology and contribution of obesity to cardiovascular disease. *Progress in Cardiovascular Diseases*, 56(4), 369-381.

- Body Mass Index (BMI). (2015). Retrieved March 09, 2016, from <http://www.cdc.gov/chronicdisease/index.htm>
- Carr, D., & Friedman, M. (2005). Is obesity stigmatizing? Body weight, perceived discrimination, and psychological well-being in the United States. *Journal of Health and Social Behavior, 46*, 244-259.
- Cohen J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.
- Davison, K., Schmalz, D., Young, L., & Birch, L. (2012). Overweight girls who internalize fat stereotypes report low psychosocial well-being. *Obesity, 6*, S30-S38.
- Durso, L., & Latner, J. (2008). Understanding self-directed stigma: Development of the weight bias internalization scale. *Obesity, 16*(S2), S80-86.
- Durso, L. E., Latner, J. D., White, M. A., Masheb, R. M., Blomquist, K. K., Morgan, P. T., & Grilo, C. M. (2011). Internalized weight bias in obese patients with binge eating disorder: Associations with eating disturbances and psychological functioning. *International Journal of Eating Disorders, 45*(3), 423-427.
- Flint, S., Hudson, J., & Lavalley, D. (2015). UK adults' implicit and explicit attitudes towards obesity: A cross-sectional study. *BMC Obesity, 2*(31). doi:10.1186/s40608-015-0064-2
- Franzoi, S. L., Vasquez, K., Sparapani, E., Frost, K., Martin, J., & Aebly, M. (2011). Exploring Body Comparison Tendencies: Women Are Self-Critical Whereas Men Are Self Hopeful. *Psychology of Women Quarterly, 36*(1), 99-109.
- Friedman, K., Ashmore, J., & Applegate, K. (2008). Recent experiences of weight-based stigmatization in a weight loss surgery population: Psychological and behavioral correlates. *Obesity, 16*(2), S69-S74.

- Greenleaf, C., Chambliss, H., Rhea, D., Martin, S., & Morrow, J. (2006). Weight stereotypes and behavioral intentions toward thin and fat peers among white and Hispanic adolescents. *Journal of Adolescent Health*, 39, 546-552.
- Hebl, M., Ruggs, E., Singletary, S., & Beal, D. (2008). Perceptions of obesity across the lifespan. *Obesity*, (16), S46-S52.
- Hilbert, A., Baldofski, S., Zenger, M., Löwe, B., Kersting, A., & Braehler, E. (2014). Weight bias internalization scale: Psychometric properties and population norms. *PLoS ONE*, 9(1).
- Kamimura, A., Christensen, N., Al-Obaydi, S., Solis, S. P., Ashby, J., Greenwood, J. L., & Reel, J. J. (2014). The Relationship between Body Esteem, Exercise Motivations, Depression, and Social Support Among Female Free Clinic Patients. *Women's Health Issues*, 24(6), 656-662.
- Khandalavala, B., Rojanala, A., Geske, J., Koran-Scholl, J., & Guck, T. (2014). Obesity bias in primary care providers. *Family Medicine*, 46(7), 532-535.
- Klaczynski, P. A., Goold, K. W., & Mudry, J. J. (2004). Culture, obesity stereotypes, self-esteem, and the "thin ideal": A social identity perspective. *Journal of Youth & Adolescence*, 33(4), 307-317.
- Latner, J., Barile, J., Durso, L., & O'brien, K. (2014). Weight and health-related quality of life: The moderating role of weight discrimination and internalized weight bias. *Eating Behaviors*, 4, 586-590.

- Lent, M. R., Napolitano, M. A., Wood, G. C., Argyropoulos, G., Gerhard, G. S., Hayes, S., . . . Still, C. D. (2014). Internalized Weight Bias in Weight-Loss Surgery Patients: Psychosocial Correlates and Weight Loss Outcomes. *Obesity Surgery*, 24(12), 2195-2199.
- Levy, B. R., & Pilver, C. E. (2012). Residual stigma: Psychological distress among the formerly overweight. *Social Science and Medicine*, 75, 297-299.
- Link, B., & Phelan, J. (2001). Conceptualizing stigma. *Annual Review of Sociology*, 363-385.
- Myers, A., & Rosen, J. (1999). Obesity stigmatization and coping: Relation to mental health symptoms, body image, and self-esteem. *International Journal of Obesity*, 23, 221-230.
- Mensing, J. L., Calogero, R. M., & Tylka, T. L. (2016). Internalized weight stigma moderates eating behavior outcomes in women with high BMI participating in a healthy living program. *Appetite*. <http://dx.doi.org/10.1016/j.appet.2016.01.033>
- Morrison, T., & O'connor, W. (1999). Psychometric properties of a scale measuring negative attitudes toward overweight individuals. *The Journal of Social Psychology*, 139(4), 436-445.
- Ofei, F. (2005). Obesity- A preventable disease. *Ghana Medical Journal*, 39(3), 98-100.
- Ogden, C., Carroll, M., Kit, B., & Flegal, K. (2012). Prevalence of childhood and adult obesity in the United States, 2011–2012. *Survey of Anesthesiology*, 311(8), 206-206.
- Pearl, R. L., & Puhl, R. M. (2014). Measuring internalized weight attitudes across body weight categories: Validation of the Modified Weight Bias Internalization Scale. *Body Image*, 11(1), 89-92.

- Phelan, S., Burgess, D., Yeazel, M., Hellerstedt, W., Griffin, J., & Ryn, M. (2015). Impact of weight bias and stigma on quality of care and outcomes for patients with obesity. *Obesity Reviews*, 16(4), 319-326.
- Puhl, R., & Brownell, K. (2001). Bias, discrimination, and obesity. *Obesity*, 9(12), 788-805.
- Puhl, R., & Brownell, K. (2006). Confronting and coping with weight stigma: An investigation of overweight and obese adults. *Obesity*, 14(10), 1802-1815.
- Puhl, R., & Heuer, C. (2011). Public Opinions about laws to prohibit weight discrimination in the United States. *Obesity*, 19(1), 74-82.
- Puhl, R. M., Moss-Racusin, C. A., & Schwartz, M. B. (2007). Internalization of Weight Bias: Implications for Binge Eating and Emotional Well-being. *Obesity*, 15(1), 19-23.
- Quinn, D. M., Williams, M. K., & Weisz, B. M. (2015). From discrimination to internalized mental illness stigma: The mediating roles of anticipated discrimination and anticipated stigma. *Psychiatric Rehabilitation Journal*, 38(2), 103-108.
- Ratcliffe, D., & Ellison, N. (2013). Obesity and internalized weight stigma: A formulation model for an emerging psychological problem. *Behavioural and Cognitive Psychotherapy*, 43, 239-252.
- Roberto, C. A., Sysko, R., Bush, J., Pearl, R., Puhl, R. M., Schvey, N. A., & Dovidio, J. F. (2011). Clinical Correlates of the Weight Bias Internalization Scale in a Sample of Obese Adolescents Seeking Bariatric Surgery. *Obesity*, 20(3), 533-539.
- Robertson, N., & Vohora, R. (2008). Fitness vs. fatness: Implicit bias towards obesity among fitness professionals and regular exercisers. *Psychology of Sport and Exercise*, 9, 547-557.

- Roehling, M., Roehling, P., & Pichler, S. (2007). The relationship between body weight and perceived weight-related employment discrimination: The role of sex and race. *Journal of Vocational Behavior, 71*, 300-318.
- Schvey, N. A., & White, M. A. (2015). The internalization of weight bias is associated with severe eating pathology among lean individuals. *Eating Behaviors, 17*, 1-5.
- Schwartz, M., Vartanian, L., Nosek, B., & Brownell, K. (2006). The influence of one's own body weight on implicit and explicit anti-fat bias. *Obesity, 14*(3), 440-447.
- Stanley, S., Laugharne, J., Addis, S., & Sherwood, D. (2012). Assessing overweight and obesity across mental disorders: Personality disorders at high risk. *Social Psychiatry and Psychiatric Epidemiology, 48*(3), 487-492.
- Sung-Chan, P., Sung, Y., Zhao, X., & Brownson, R. (2012). Family-based models for childhood obesity intervention: A systematic review of randomized controlled trials. *Obesity Reviews, 14*(4), 265-278.
- Tomiyama, A. J. (2014). Weight stigma is stressful. A review of evidence for the Cyclic Obesity/Weight-Based Stigma model. *Appetite, 82*, 8-15.
- Tomiyama, A. J., Ahlstrom, B., & Mann, T. (2013). Long-term Effects of Dieting: Is Weight Loss Related to Health? *Social and Personality Psychology Compass, 7*(12), 861-877.
- Vartanian, L., & Novak, S. (2011). Internalized societal attitudes moderate the impact of weight stigma on avoidance of exercise. *Obesity, 19*, 757-62
- Vartanian, L. R., & Porter, A. M. (2016). Weight stigma and eating behavior: A review of the literature. *Appetite*. doi:10.1016/j.appet.2016.01.034

- Wang, Y., & Beydoun, M. (2007). The obesity epidemic in the United States--gender, age, socioeconomic, racial/ethnic, and geographic characteristics: A systematic review and meta-regression analysis. *Epidemiologic Reviews*, 29, 6-28.
- Wang, S. S., Brownell, K. D., & Wadden, T. A. (2004). The influence of the stigma of obesity on overweight individuals. *International Journal of Obesity*, 28(10), 1333-1337.
- Warren, J., & Smalley, K. (2013). *Always the fat kid: The truth about the enduring effects of childhood obesity*. London: MacMillan.
- Wing, R., & Phelan, S. (2005). Long-term weight loss maintenance. *Journal of Clinical Nutrition*, 82(1), 222-225.

Appendix A: Survey

1. I acknowledge I have read and understood the survey consent form that was provided in the e-mail along with the survey.
 - Yes, I have read and understand the survey consent form and wish to participate in this study
 - No, I have not read and understand the consent form and do not wish to participate in this study
2. Gender: (male/female)
3. Age: (free response box)
4. Do you have a history of disordered eating or do you currently struggle with disordered eating (i.e. Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder)
 - Yes (taken to a “Thank you” page)
 - No
5. Ethnicity/Ethnic Background:
 - Hispanic or Latino
 - Not Hispanic or Latino
6. Race:
 - American Indian or Alaska Native
 - Asian
 - Black or African American
 - Native Hawaiian or Other Pacific Islander
 - White
7. Education:
 - Less than a high school degree
 - High school degree or equivalent (GED)
 - Some college but no degree
 - Associate degree
 - Bachelor degree
 - Graduate degree
8. Income: How much did you earn, before taxes and other deductions during the past 12 months?
 - Less than \$20,000
 - 20,000 to \$34,999
 - \$35,000 to \$49,999
 - \$50,000 to \$74,999
 - \$75,000 to \$99,999
 - \$100,000 to \$149,999
 - \$150,000 or more

9. Participation in this survey provides you with the opportunity to win a Visa gift card. Your interest in being considered for this incentive will require that you provide your name, email, and phone number. As such, participation in the incentive would mean that your responses would not be anonymous. However, your responses would remain confidential because only the research team will review this information and it will not be shared. Please indicate below whether you would like to enter for a chance to win a Visa gift card.
- Yes, I want to be entered into the incentive lottery and give my consent for the researchers to gather my personal contact information
 - No, I do not want to be entered into the incentive lottery and wish to remain anonymous
10. Weight: (free response box)
11. Height: (free response box)
12. Which of the following weight categories best describes your current weight status?
- Underweight
 - Normal weight
 - Overweight
 - Obese
13. In the past three months have you been trying to change your weight?
- No
 - Yes, I have been trying to lose weight over the past 3 months
 - Yes, I have been trying to gain weight over the past 3 months
14. Current physical activity guidelines recommend the accumulation of 150 minutes of moderate-intensity aerobic activity (i.e. brisk walking) or 75 minutes each week of vigorous-intensity aerobic physical activity (i.e. jogging or swimming laps) or an equivalent combination of moderate and vigorous-intensity aerobic physical activity every week AND participation in muscle strengthening exercise on 2 or more days a week that work all major muscle groups. Please indicate how much you agree or disagree with the statement: I have adhered to these guidelines over the past 3 months.
- 1. Strongly disagree
 - 2. Disagree
 - 3. Neither agree nor disagree
 - 4. Agree
 - 5. Strongly agree
15. Current guidelines for dietary behavior recommend: balancing calories with physical activity to manage weight, consume more of certain foods and nutrients such as fruits, vegetables, whole grains, fat-free and low-fat dairy products and seafood and to consume fewer foods with sodium (salt), saturated fats, trans fats, cholesterol, added sugar and refined grains. Please indicate how much you agree or disagree with the statement: I have adhered to these guidelines over the past 3 months.

- 1. Strongly disagree
- 2. Disagree
- 3. Neither agree nor disagree
- 4. Agree
- 5. Strongly agree

Antifat Attitudes Scale (AFAS):

1. Fat people are less sexually attractive than thin people
2. I would never date a fat person
3. On average, fat people are lazier than thin people
4. Fat people have only themselves to blame for their weight
5. It is disgusting when a fat person wears a bathing suit on the beach

- 1. Strongly disagree
- 2. Disagree
- 3. Neither agree nor disagree
- 4. Agree
- 5. Strongly agree

Weight Bias Internalization Scale:

1. It is my fault that I am overweight
2. *As an overweight person, I feel that I am just as competent as anyone*
3. *I am less attractive than most other people because of my weight*
4. *I feel anxious about being overweight because of what people might think of me*
5. *I wish I could drastically change my weight*
6. If only I had more willpower I wouldn't be the weight that I am
7. *Whenever I think a lot about being overweight, I feel depressed*
8. I feel that being overweight doesn't interfere with my ability to be a good and decent person
9. *I hate myself for being overweight*
10. *My weight is a major way that I judge my value as a person*
11. *I don't feel that I deserve to have a really fulfilling social life, as long as I am overweight*
12. *I am OK being overweight*
13. As an overweight person, I feel that I am just as deserving of respect as anyone
14. It really bothers me that people look down on overweight people
15. *Because I am overweight I don't feel like my true self*
16. I feel that being an overweight person does not make me unworthy of an unloving relationship
17. *Because of my weight, I don't understand how anyone attractive would want to date me*
18. I believe that society's prejudice against overweight people is unfair
19. If other people don't treat me with respect, I should put up with it because of my weight

- 1. Strongly disagree
- 2. Disagree

- 3. Neither agree nor disagree
- 4. Agree
- 5. Strongly agree

Italicized questions indicate the WBIS 11-item scale

Appendix B: IRB Letter of Approval



RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-7091

1/5/2016

Laurie Schrider
Educational and Psychological Studies
4202 E. Fowler Avenue
Tampa, FL 33620

RE:

Exempt Certification

IRB#: Pro00024844

Title: The Association of Body Mass Index on Anti-Fat Attitudes and Weight Bias Internalization

Dear Ms. Schrider:

On 1/5/2016, the Institutional Review Board (IRB) determined that your research meets criteria for exemption from the federal regulations as outlined by 45CFR46.101(b):

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:

(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Approved Items:

[IRB Protocol](#)

Study Consent Form

As the principal investigator for this study, it is your responsibility to ensure that this research is conducted as outlined in your application and consistent with the ethical principles outlined in the Belmont Report and with USF HRPP policies and procedures.

Please note, as per USF HRPP Policy, once the Exempt determination is made, the application is closed in ARC. Any proposed or anticipated changes to the study design that was previously declared exempt from IRB review must be submitted to the IRB as a new study prior to initiation of the change. However, administrative changes, including changes in research personnel, do not warrant an amendment or new application.

Given the determination of exemption, this application is being closed in ARC. This does not limit your ability to conduct your research project.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

John Schinka, Ph.D., Chairperson
USF Institutional Review Board