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Anti-Fat Attitudes and Psychological Distress: The Role of Psychological Flexibility Among Stigmatizers

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ANTI-FAT ATTITUDES AND PSYCHOLOGICAL DISTRESS: THE ROLE OF PSYCHOLOGICAL FLEXIBILITY AMONG STIGMATIZERS

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ABSTRACT

As the population of people struggling with obesity has grown, so has the discrimination and stigmatization of obese individuals. Psychological flexibility has been found to partially mediate the relationship between stigmatizing attitudes and psychological distress for those who hold stigmatizing attitudes toward individuals struggling with mental illness, such that high stigmatizing attitudes about individuals with psychological disorders is associated with low psychological flexibility and low psychological flexibility is associated with high psychological distress. Currently there is no research in the extant literature regarding the relationship between anti-fat attitudes, psychological distress, and psychological flexibility. As such, the present study examined the relationship between anti-fat attitudes and psychological distress, and psychological flexibility as a possible mediator of the relationship. A total of 300 participants were recruited via Amazon's Mechanical Turk, the final sample size consisted of 265 subjects. Upon consent participants answered demographics questions and then completed the Acceptance and Action Questionnaire-II (AAQ-II), the Antifat Attitudes Questionnaire (AFAQ), and the Depression, Anxiety, and Stress Scale (DASS-42). Data were analyzed in SPSS via AMOS using structural equation modeling to examine the relationship between anti-fat attitudes and psychological distress and the relationship between anti-fat attitudes and psychological flexibility. If there was a relationship between anti-fat attitudes and psychological distress, then psychological flexibility was planned to be examined as a potential mediator of this relationship.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Being obese comes with very serious health problems, which contribute to 2.8 million deaths annually (WHO, n.d.). Physical issues that are related to obesity include increased blood pressure, heart disease, diabetes and stroke (Must et al., 1999). Obese individuals are two times more likely to become physically disabled than those of normal weight (Walter et al., 2009). The odds of losing quality years without the burden of being physically disabled increases with body mass index (BMI; Jinks et al., 2006). Unfortunately, society, in general, holds a negative view of obesity and those who struggle with it, leading to negative stereotypes, prejudice, and discrimination against the obese (Puhl & Suh, 2015). Experiencing the anti-fat attitudes of society adds and additional burden to the already complicated lives of those struggling with obesity.

Anti-fat attitudes are the negative cognitions, emotions, and assumptions that an individual may hold about an overweight or obese individual (Crandall, 1994). An example of anti-fat attitudes would be when Dr. Geoffrey Miller, a psychology professor from the University of New Mexico, tweeted “Dear obese Ph.D. applicants: If you didn’t have the willpower to stop eating carbs, you won’t have the willpower to do a dissertation #truth” (Ingeno, 2013). Anti-fat attitudes have a harmful, enduring impact upon the physiological, psychological, and social aspects of the lives of obese individuals (Puhl & Heuer, 2010). For example, the obese who experience anti-fat attitudes have an increased

risk for depression (Wott & Carels, 2010), disordered eating (Davison et al., 2008), and self-esteem (Friedman et al., 2005). However, to the author's knowledge, no studies have examined whether holding anti-fat attitudes impacts individuals negatively. Research examining holding stigmatizing attitudes about individuals with mental illnesses has shown a positive correlation between mental health stigma and psychological distress (Masuda, Price, et al., 2009). Therefore, holding stigmatizing attitudes about other marginalized groups may be similarly related to increased psychological distress.

The absence of psychological flexibility, the ability to engage in purposeful, values-based action while being in contact with the present moment despite psychological suffering (Hayes et al., 2006), is associated with psychological suffering, poor physical health (Twohig & Hayes, 2008), and with stigma (Hayes et al., 2002). Among those holding mental illness stigma, lower levels of psychological flexibility was associated with higher stigmatizing attitudes and, in turn higher psychological distress (Masuda, Price et al., 2009); however, the relationship between psychological flexibility and anti-fat attitudes has not been studied. It is possible psychological flexibility will similarly mediate the relationship between holding anti-fat attitudes and psychological distress. The present study will examine the relationships between anti-fat attitudes, psychological flexibility, and psychological distress, in the interest of addressing the aforementioned gap in obesity stigma literature.

Obesity

In 2016, the World Health Organization (WHO, n.d.) reported that there was a worldwide obesity epidemic, with 1.9 billion people across the globe classified as overweight, and 650 million people classified as obese. In the United States, the adult

obesity rate is highest (i.e., at roughly 35%) in six states (Alabama, Arkansas, Iowa, Louisiana, Mississippi, Oklahoma, and West Virginia) and no state has less than a 20% obesity rate (Centers for Disease Control and Prevention [CDC], n.d.-a). The CDC (n.d.-b) estimates that 42% of adults in the U.S. will be obese by the year 2030 if the current trend continues. Abarca-Gómez et al. (2017) compiled 2,416 population-based studies measuring the weight and height of 128.9 million individuals 5 years of age or older between 1975 and 2016. The researchers used weight and height trends from 1975-2016 to predict future obesity rates. They found that globally the rates of obesity rose from .7% to 5.6% for girls and .9% to 7.8% for boys. If these trends continue, by 2022 there will be more obese children and adolescents than moderately or severely underweight children (Abarca-Gómez et al., 2017).

Demographic Characteristics of Obese Individuals

The U.S. Department of Health and Human Services reported that, in 2016, obesity was found to be more prevalent among adults aged 40-59 (42.8%) followed by adults aged 60 and over (41.0%), and adults aged 20-39 (35.7%; National Center for Health Statistics [NCHS], 2017). The rates of obesity for men and women followed the same pattern, with the highest prevalence seen in men and women aged 40-59 years old (40.8% and 44.7% respectively); men and women aged 20-39 (34.8% and 36.5% respectively), and aged 60 and over (38.5% and 43.1% respectively) have similarly lower rates. Overall, women seemed to be at a slightly higher risk for being obese than men, but not at significant rates (NCHS, 2017).

When examining the differences between racial and ethnic groups, Hispanic Americans had the highest obesity rate (47.0%), followed by African Americans (46.8%),

Whites (37.9%), and Asian Americans (12.7%; NCHS, 2017). Among men, Hispanic men had the highest rate of obesity (43.1%), followed by White men (37.9%), African American men (36.9%), and Asian American men (43.1%). Among women, African Americans had the highest obesity rate (54.8%), followed by Hispanic women (50.6%), White women (38.0%), and Asian American women (14.8%; NCHS, 2017).

Regarding obesity rates for children and adolescents, the highest rates were seen in the 12-19 age range (20.6%), followed by ages 6-11 (18.4%), and ages 2-5 (13.9%; NCHS, 2017). The highest rates for boys were for 6-11-year olds (20.4%), followed by 12-19 years (20.2%), and then 2-5 years (14.3%). For girls, the highest rates of obesity were at ages 12-19 (20.9%), followed by ages 6-11 (16.3%), and ages 2-5 (13.5%; NCHS, 2017). For children, the highest rates of obesity were for Hispanic Americans (25.8%), followed by African Americans (22.0%), Whites (14.1%), and Asian Americans (11.0%; NCHS, 2017). The highest rates among boys by race/ethnicity were Hispanic (28.0%), followed by African American (19.0%), White (14.6%), and Asian American (11.7%). For girls, the highest rates were among African Americans (25.1%), followed by Hispanics (23.6%), Whites (13.5%), and Asian (10.1%; NCHS, 2017).

Body Mass Index

One of the easiest and quickest ways to categorize people by weight is to calculate their body mass index (BMI). Obesity is calculated by taking an adult's weight in kilograms and dividing it by the square of their height in meters resulting in a body mass index (WHO, n.d.). BMI classification categories are as follows: 18.5 or less is classified as underweight, 18.5 to 24.9 is classified as being average weight, 25 to 29.9 is overweight, and 30 or greater is obese (National Heart Lung, and Blood Institute

[NHLBI], n.d.-a; n.d.-b). Within the obese category, BMIs of 30 to 34.9 are considered class I obese, 35 to 39.9 class II obese, and 40 and above is class III obese. Calculating BMI for children and adolescents, often referred to as BMI-for-age, is similar but more difficult as there are age and biological sex differences that are taken into consideration (CDC, n.d.-a).

The BMI categorical system is used widely across the world as a method to determine if one is at an increased risk for disease and mortality such that increased BMI has become synonymous with poor health. However, some argue that BMI is an unreliable method of indicating the presence of fat on the human body (Murphy, 2004). Abdominal fat is an indicator of increased risk for disease and mortality but BMI cannot distinguish between abdominal fat and fat that is spread out equally across the body. Additionally, BMI may not actually apply equally to men/boys and women/girls, nor does it take into account racial differences (Murphy, 2004). Further, as BMI cannot distinguish between fat and muscle, some people with high BMI are very fit individuals, as is the case with professional athletes (Nuttall, 2015).

Body mass index and health. Romero-Corral et al. (2006) examined 40 studies (N = 250,152) that looked at the association between obesity, mortality risk, and cardiovascular events in patients with coronary artery disease (CAD). Results indicated that patients with a lower BMI had an increased risk of total mortality (i.e., mortality due to any cause), and mortality from cardiovascular issues as compared to patients with a BMI in the overweight and obese categories. Patients with a BMI in the overweight and obese category had the lowest risk of mortality from cardiovascular issues as compared to participants with a BMI in the normal category. Participants with BMIs in the severely

obese range were at highest risk for cardiovascular mortality as compared to any other BMI category. Similarly, Oreopoulos et al. (2008) conducted a meta-analysis on research studies (N = 28,209) that looked at the effect of obesity on all-cause mortality (e.g., diabetes, cancer, cirrhosis of the liver) and cardiovascular mortality. They found that when compared to participants of average weight BMI, participants of overweight and obese BMI had lower all-cause and cardiovascular mortality (Oreopoulos et al., 2008). Specific protective factors associated with the overweight and obese BMI categories are unclear, but these studies suggest using BMI to measure health is inappropriate due to inaccuracy.

Negative side effects may arise from a focus on weight loss as the only path to health. Reduced self-esteem, weight stigmatization, weight discrimination, food and body preoccupation, weight cycling, and distraction from factors other than fat accumulation that may affect one's health have all been noted as a byproduct of the "war on obesity" (Bacon, 2010). The very behaviors considered dangerous and indicative of an eating disorder when observed in a thin person are applauded and used as evidence of willpower when observed in an overweight or obese person. Instead of continuing to focus on pounds lost, an alternative model for public health, the Health at Every Size (HAES) initiative, has been suggested. HAES highlights self-acceptance and healthy practices that allow individuals to flourish regardless of the amount of weight they may or may not have lost (Burgard, 2009, p.41-53). This model appears to be relatively successful, with improvements in depression symptomology and binge eating behaviors, decreases in weight-related self-stigma, and increases in self-esteem and quality of life following HAES interventions (Berman et al., 2016; Gagnon-Girouard et al., 2010).

Stigma

Stigma is “an attribute that is deeply discrediting,” managing to reduce the stigmatized individual from a “whole and usual person to a tainted, discounted one” (Goffman, 1963, p. 3). Stigmatization begins with the human tendency to categorize the surrounding world (Link & Phelan, 2001). This tendency to categorize one’s surroundings is considered to be an innate part of human learning and is generally benign (Hayes et al., 2001), but may become problematic when it results in negative or inaccurate stereotyping, or if it leads to people focusing on one characteristic as justification for discrimination. For example, people of color may be perceived as dangerous (Chaney & Robertson, 2015), people with mental illnesses may be considered unstable (Rüsch et al., 2005), and people who have HIV/AIDS may be thought of as contagious (Crandall & Coleman, 1992). This kind of stereotyping lays the foundation for stigmatization and discrimination (Fiske, 1998, p. 357-411).

Obesity Stigma

The literature about weight-related bias, discrimination, and stigma uses multiple terms including sizeism, weight bias, obesity stigma, and anti-fat attitudes, all of which are similar yet distinct (Chrisler & Barney, 2017; Crandall, 1994; Puhl & Heuer, 2010; Washington, 2011). Sizeism refers to discrimination against an individual on the basis of their body size or body weight (Chrisler & Barney, 2017). Weight bias refers to the tendency to base illogical and irrational judgments about a person on their weight (Washington, 2011). Both sizeism and weight bias can be applied to an overweight/obese individual or an underweight individual.

Obesity stigma refers to the culpability society places on overweight/obese individuals for their excess weight and can be viewed as an indicator of their status as victims of society's prejudice and bias (Puhl & Heuer, 2010). The term anti-fat attitudes will be used for the purposes of this study as it refers to prejudice against fat people, is descriptive in nature, and does not refer to a vague normative measure (e.g., overweight) or a medical condition (e.g., obese; Crandall, 1994). Although the use of the term "fat" has negative connotations, fat acceptance advocates, such as the National Association to Advance Fat Acceptance (NAAFA), are attempting to destigmatize the term and urge its use (Dickins et al., 2011). NAAFA's mission is to advocate for a focus on accepting one's body, part of which includes embracing the term "fat", while denouncing the popular assertion in society that being fat is not just unacceptable but disgusting.

Anti-Fat Attitudes

As the obesity population has grown, so has the discrimination and stigmatization of obese individuals (Andreyeva et al., 2008). Research suggests that between 1995 and 2006 the occurrence of discrimination and stigmatization of the obese has doubled (Andreyeva et al., 2008). In fact, discrimination and stigmatization of the obese is so strong that even after losing weight, the individual is stigmatized by society such that targets in vignettes who were described as currently being obese or having lost weight after being obese received increased stigma compared to those who had never been obese (Latner et al., 2012). This residual stigmatization suggests that obesity is considered to be unacceptable to such a high degree that ever having been obese leaves a metaphorical mark on the individual as a whole, regardless of current weight status.

The thin ideal. There is an overwhelming belief in Western culture that there is a body size that is "just right." Chrisler and Barney (2017) refer to this as the "Goldilocks rule," in which there is a body that is too big, one that is too small, and one that is just right. However, there is no universally agreed upon "just right" (Chrisler & Barney, 2017). It seems that much like Justice Potter Stewart's claim of "I know it when I see it" with regards to pornography (Jacobellis v. Ohio, 1964), a perfect body size/shape is one that the collective "we" will know when we see it.

With regards to body size and shape, in general, Western culture's ideal body size/shape is thin. For women, this means that the ideal body is one that is free of body fat and has well defined muscle tone (Erchull, 2015, p. 161-178). The ideal body for men is a "V-shape", including broad shoulders, a thin waist, and well-defined arm and abdomen muscles (Murnen, 2011). These ideal body types are often difficult or impossible to achieve for many people. Despite this body shape and size being an unrealistic expectation, the thin ideal is widely portrayed in the media in a way that communicates that this ideal is the norm and erroneously suggests that fat is abnormal (Erchull, 2015, p. 161-178).

While the thin ideal predominately affects adult women, studies have shown that there are influences on young girls as well. Lowes and Tiggemann (2003) sampled 135 young girls ages six, seven, and eight, and found that 59% of them wanted to be thinner. In a sample of 43 girls aged three and a half to five and a half years old, Worobey and Worobey (2014) read a set of adjectives and asked the children to identify to which of three different sized Barbie dolls (thin, average-sized, and fat) the adjective applied. The results indicated that the participants significantly attributed positive adjectives (e.g.,

"helps others" or "looks pretty") to the thin Barbie over the average and fat Barbies. The participants were also found to have significantly attributed all six of the negative adjectives ("no friends", "looks tired") to the fat Barbie over the thin or average Barbie.

Harriger et al. (2010) sampled 55 girls aged three to five and asked them to identify to which of three different sized figures (thin, average, and fat) a list of adjectives applied. They also asked the children to select with which figure they would most like to be friends. The children were significantly more likely to attribute positive adjectives to the thin and average-sized figures as compared to the fat figure and more often attributed the negative adjectives to the fat figure. Results also indicated that the children were more likely to want to have the thin figure as a friend as compared to the average or fat figure. In order to measure the children's thin-ideal internalization the researchers also asked the children to select a game piece to be played with board games such as Candy Land. The game pieces were all similar in appearance and dress except one was thin, one was average-sized, and one was fat. The children were significantly more likely to select the thin game piece over the average-sized or fat game piece. In order to assess the children's emotional attachment to the thin-ideal, the researchers asked the children if they would switch the game piece they selected for the one that the researcher held. The children were significantly more likely to refuse to switch game pieces if they had selected the thin game piece and the researcher held the fat game piece. Researchers noted that when refusing to switch some of the children made comments such as "I don't want to be her; she is fat and ugly," and, "I hate her because she has a fat stomach" (Harriger et al., 2010). This research demonstrates that children begin developing body image, adopting the thin ideal and becoming aware of body issues (i.e.,

how others attempt to control body size) at a young age (Smolak, 2011, 67-75). Adoption of the thin ideal is learned by social comparison, following role models (i.e., at a young age role models usually are the child's parents), and by accepting the behavior and expectations of their peers as being "normal" (Smolak, 2011, 67-75). The occurrence of adopting the thin-ideal not only guides the thoughts and feelings children hold about their own bodies but may set the stage for holding anti-fat attitudes.

Controllability. Protestant values, closely associated with United States (U.S.) culture, hold hard work and self-determination as key determinants of success in life (Crandall, 1994). Crandall theorized that this recipe for success was a major contributor to the development of weight bias. Crandall (1994) theorized that anti-fat attitudes were similar to racist attitudes, in that anti-fat attitudes were based on Protestant work ethic (i.e., virtues such as hard work, discipline, and self-reliance) and are correlated with measures of intolerance. In a study of undergraduate students, participants in five groups completed a measure of anti-fat attitudes, measuring participants' evaluations of the overweight/obese (Dislike), beliefs about the controllability of weight (Willpower), and personal concerns about their weight (Fear). Each group completed one additional measure related to what the researchers termed Protestant values: group one (n =113) completed a measure of just world beliefs; group 2 (n = 105) completed a measure of authoritarianism beliefs; group 3 (n = 543) completed a measure about racist beliefs; group 4 (n = 279) completed a measure assessing if the participants held the values inherent in Protestant ethic and group five (n = 74) completed the measure of just world beliefs plus one item that assessed the participants' beliefs about the cause of poverty. Results suggested that the Dislike and Willpower subscales were positively correlated

with just world beliefs and authoritarianism suggesting anti-fat attitudes may be rooted in the Protestant work ethic (Crandall, 1994).

Using 42 undergraduate psychology students Crandall (1994) looked at changing participant's beliefs about the causes of obesity. He had participants split into two groups: The Persuade condition, where participants would read a two-page persuasive essay about weight being controlled by genetics and metabolism; and the control group where they read a two-page essay about how psychological stress affects illness. After reading the essays, participants in each group were given a "fact sheet," which contained essential facts of the essays that had been read. After reading the fact sheet, participants in both conditions were asked to complete a questionnaire packet that contained factual questions about the essays and questions measuring participants' evaluations of the overweight/obese (Dislike) and beliefs about the controllability of weight (Willpower). Results indicated that participants in the Persuade condition scored lower on the Willpower and Dislike than those in the control condition, which suggests that they were persuaded by the arguments about obesity being caused by genetic and metabolic factors (Crandall, 1994).

Crandall's (1994) theory that anti-fat attitudes are based on the belief that the overweight and obese are to blame for their condition because being fat is controllable has been supported numerous times. The controllability theory is widespread in society, with most people believing that the obese can control their body weight (Crandall, 1994; Ebneter et al., 2011; Musher-Eizenman et al., 2004; Puhl & Heuer, 2010; Puhl et al., 2010). Tiggemann and Anesbury (2000) sampled 96 children aged eight to twelve and asked them about negative obesity stereotypes and controllability beliefs about weight in

relation to obese and normal weight targets. The results indicated that the children believed that obesity was under the target's control, and the degree of control was positively correlated with negative obesity stereotypes, such that children who held strong beliefs about the controllability of obesity also endorsed more negative stereotypes (Tiggemann & Anesbury, 2000).

Domoff et al. (2012) sampled two groups of undergraduate college students and asked them to complete a series of questionnaires regarding controllability of weight, dislike of overweight individuals, and obesity stereotypes, and to complete the Implicit Association Test (IAT). After one day, Group 1 watched a 40-minute clip of a reality television show in which obese contestants compete against one another to lose the most weight with diet and exercise, Group 2, the control group, watched a 40-minute clip of a nature television show that follows the lives of a family of meerkats, and both groups completed the measures for a second time. The results indicated that after exposure to the weight loss competition there was a significant difference in pre-test and post-test controllability scores such that participants that were low in controllability at pre-test were higher in controllability at post-test (Domoff et al., 2012). For those initially high in controllability, there was no significant difference between pre- and post-test results. Participants that were exposed to the weight loss competition demonstrated greater belief in the controllability of weight and greater dislike of obese individuals than participants in the control group (Domoff et al., 2012).

Quinn and Crocker (1999) asked a group of female college students (N = 257) to rate their perceived weight status, and complete measures of Protestant ethics (i.e., The Protestant Ethic Scale), controllability of weight and dislike of overweight others, and

self-esteem. They found that higher belief in protestant ethics was associated with stronger belief in the controllability of weight, which in turn was associated with more dislike of overweight individuals. For participants who perceived themselves to be very overweight, as protestant ethics increased, self-esteem decreased (Quinn & Crocker, 1999). For participants who perceived themselves to be of normal weight, as protestant ethics increased so did their self-esteem. These results suggest that depending on ones' perceived weight status, holding protestant ethic values (i.e., if you work hard enough you will succeed), may predict the level of self-esteem (Quinn & Crocker, 1999).

Stereotypes. When obesity stigma is directed at targets it can be expressed in numerous stereotypes including perceptions that obese individuals are lazy, unattractive, unintelligent, self-indulgent, bad, worthless, low in self-esteem, and lacking in will power and self-control (Puhl et al., 2008; Schwartz et al., 2003; Wolf, 2010). Further, Schwartz et al. (2003) found that the idea of being obese is considered to be so deplorable that people are willing to make significant personal trade-offs to theoretically avoid being obese. For example, participants reported they would be willing to give up 10 years or more of their life to avoid being obese. Others reported being willing to be divorced, unable to have children, or severely depressed instead of being obese (Schwartz et al., 2003). The overarching societal message is that obese individuals are subpar when compared to thin or average weight individuals. Unfortunately, this leads to stigmatization in workplace, school, housing, and medical setting, as well as with family and friends (Puhl & Brownell, 2003).

Sources of Anti-Fat Attitudes

Despite the rising numbers of U. S. adults being classified as being obese, obesity is widely stigmatized by society (Latner et al., 2008). Individuals who are obese encounter anti-fat attitudes in nearly every domain of life, including from the media, the weight loss industry, employers, coworkers, landlords, teachers, doctors, nurses, psychologists, strangers, and family members (Heuer et al., 2011; MacCann & Roberts, 2013; Puhl & Brownell, 2006; Schwartz, et al., 2003; Teachman & Brownell, 2001; Wolf, 2010). These stigmatizing experiences place them at a genuine disadvantage when it comes to education (Jussim & Harber, 2005), employment (Baum, & Ford, 2004), healthcare (MacCann & Roberts, 2013), and relationships (Puhl & Brownell, 2006).

Media. The media is a primary source of weight bias, often exacerbating stigmatization of the obese. Society is immersed in the "thin is in" mindset that it seems to be almost impossible for an obese individual to be portrayed in a positive light by the media. Heuer, et al., (2011) searched five major news websites (i.e., MSNBC, CNN, ABC news, CBS news, and FOX news) for articles about obesity with accompanying photographs (N = 549). They found that 72% of overweight and obese individuals in online news stories were photographically depicted in a way that seemed biased or stigmatizing. For example, photos of overweight and obese individuals were more likely to have the individual's head cropped off, to be shown from the back or the side, to have only their stomach and abdomen shown or to be partially clothed than non-overweight or obese individuals. Overweight and obese individuals were three and a half times more likely to be shown consuming food than non-overweight individuals. While some may argue that these individuals are photographed this way to protect their identity, Heuer et

al. (2011) suggested that these photos were edited in a way that dehumanized the subject as a result of inherent bias in society. Heuer et al. (2011) also noted that while there was an abundance of negative portrayals of obese individuals there were very few positive (e.g., overweight or obese individuals seen wearing professional clothing as journalists or healthcare providers) ones in comparison.

Weight bias from the media is not just limited to anonymous headless bodies but also applies to overweight/obese individuals in the public eye. In September of 2011 an online news site (www.gothamist.com) ran an article titled "Is Chris Christie too fat to squeeze into the oval office?", which focused on whether America was ready for a fat President (Del Signore, 2011). In April of 2012, Campanile (2012) of the New York Post wrote an article online about Chris Christie's trip to the Wailing Wall in Israel that was titled "The Whale at the Wall." This article focused on Christie's visit to the Wailing Wall and speculated about a future run for President, neither of which had anything to do with his weight. Nevertheless, the article's author took a jab at Christie's weight with the title and then continued to poke fun at his weight with comments like "New Jersey Gov. Chris Christie made a huge impression at Israel's Western Wall…" (Campanile, 2012, para. 1).

Television programs and film are also equally likely to stigmatize obese individuals. Television shows are a common source of stigmatization as the obese or overweight characters are often ridiculed for their weight (Fouts & Burggraf, 1999, 2000). Unfortunately, this is not relegated only to adult programming. Children's programming regularly exposes children to this same weight bias. Klein and Shiffman (2006) examined cartoon characters spanning 1930 to the mid-1990's (N = 4,313) and

found that overweight characters were three times more likely to be drawn unattractive than their normal weight and underweight counterparts. Underweight characters were two times more likely to be drawn attractive than normal and overweight characters. Robinson et al., (2008) looked at non-animated sitcom episodes on the Disney channel, Nickelodeon and Discovery Kids (N = 76) and found that overweight characters were more likely to be depicted as being unattractive and friendless than characters that were normal or underweight. The common thread in these studies is that overweight characters are clearly associated with socially undesirable negative characteristics while normal or underweight characters are associated with socially acceptable positive characteristics.

Weight loss industry. The weight loss industry (e.g., Weight loss programs like Weight Watchers and Nutrisystem, gyms such as 24-Hour Fitness, and supplement and vitamin manufacturers whose products are claimed to increase metabolism) reinforce the ideals involved in weight bias. In 2013, the weight loss industry grossed over $60 billion (The U.S. Weight Loss Market: 2014 Status Report and Forecast, n.d.). The weight loss industry is founded upon the notion that diet and exercise, specifically a reduction in caloric intake and an increase in caloric output is all that is needed to lose weight. The Centers for Disease Control and Prevention focus on the importance of adopting healthier eating habits and increasing physical activity without educating the public about the genetic issues involved with obesity (CDC, n.d.-c). New research has suggested that diet and exercise are important to weight loss but a host of genetic issues are intricately involved when obese individuals lose weight (Lippa & Sanderson, 2012). Roughly 80 to 95% of obese individuals who have lost weight do not maintain their weight loss, which may indicate genetic and/or behavioral influences are involved in weight regain (Ochner

et al., 2015). As individuals gain weight and move from being average weight to obese biological adaptations occur that serve to maintain a high bodyweight (Ochner et al., 2015). As the individual reduces caloric consumption and exercises more, there is biological pressure to return to the highest bodyweight in an attempt to protect the body from starvation. These biological mechanisms are just two of many that make weight loss difficult and in some cases, impossible, for the obese.

Stigma in education. Weight-based stigma in educational settings may involve explicit experiences like being teased by one's peers and being treated differently by teachers and staff, or more implicit experiences such as being held to a different standard than average weight peers. Neumark-Sztainer et al., (1999) sampled 115 junior high and high school staff members such as science, health, and physical education teachers, school nurses, and school social workers to examine their perspectives about obesity. The participants completed measures that asked about their beliefs about obesity, personal weight issues, and support for school programs that would focus on preventing and treating obesity. Results indicated that participants viewed obese students as being less likely to succeed in their chosen career, more emotional, more likely to experience family issues, and considered to be dirtier than their average-weight counterparts (Neumark-Sztainer et al., 1999).

Weight-based stigmatizing attitudes may become more deeply held as students move through more specialized training programs after college. A study of 344 physical education (PE) and psychology students at a New Zealand university were administered the Implicit Associations Test (IAT) along with questionnaires asking the students about their explicit anti-fat attitudes, social dominance orientation, personal body esteem, and

importance of physical attributes (O'Brien et al., 2007). Results showed that the PE students displayed higher levels of implicit anti-fat attitudes, as compared to psychology students, and these attitudes were associated with more social dominance and lower levels of body esteem. PE students also displayed higher levels of the explicit belief that obese people lack will power than psychology students and significant differences between PE students and psychology students across different years of training were found on implicit measures of bias. PE students that were close to the end of their training exhibited greater implicit bias than PE students in their second week of the training program. Overall PE students exhibited greater implicit bias than psychology students regardless of their year of training (O'Brien et al., 2007).

These results indicate that particular types of training may lend themselves to implicit weight bias. Perhaps a focus solely on physical health may lead to greater levels of implicit weight bias than does a focus on psychological health.

The adoption of implicit and explicit views of weight-based bias by teachers and peers may explain why overweight and obese students have been found to earn lower grades than students of average weight (MacCann & Roberts, 2013). In a study of 383 eighth-grade students from five regions across the United States, students were given standardized vocabulary and math tests from which intelligence quotient (IQ) was derived. Students' grades and SES were also gathered. Results indicated that there were no significant differences between the IQ of obese and average-weight students but obese students had lower grades as compared to average-weight students. MacCann and Roberts (2013) repeated the study with 1,036 university and community college students and found the same results, suggesting that obese students receive lower grades than their

average weight peers. It is unclear if these results are due to educators holding negative views about obese students (Neumark-Sztainer et al., 1999), although research on teacher expectations suggests that the negative views held about obese students may lead to self-fulfilling prophecies, especially for students in stigmatized social groups (Jussim & Harber, 2005). It is also possible that obese students are receiving lower grades than their average-weight peers due stressors including bullying by peers or exclusion from interactions with peers due to their weight (Puhl et al., 2011).

Stigma in the workplace. Obese individuals applying for jobs have been found to be less likely to be hired. A study of 100 university students were given six different resumes of prospective candidates for a managerial position along with a photo of the candidate (O'Brien et al., 2008). Participants were administered the IAT and asked to complete a number of measures that assessed each candidate's suitability for the position and participants' weight-related biases. Results showed that obese applicants received lower ratings in areas such as predicted success and leadership ability than their average-weight counterparts. Furthermore, there was a gender difference such that male participants reported greater dislike of fat people than female participants.

Roehling (1999) reviewed nine studies about obesity stigma in the workplace and reported that the most common stereotypes about obese employees were lazy, incompetent, unstable, and lacking in self-discipline. Disadvantages for obese employees include how they are viewed by others but also how they are valued by their employers. Research suggests obese employees earn lower wages. Using data from the National Longitudinal Survey of Youth that ran from 1979 to 1994, Baum and Ford (2004) found

that adult obese men earned 3.2% lower wages than adult non-obese men. Adult obese women earned 5.8% lower wages than adult non-obese women.

In addition to earning less, average-weight employees are 4.6 times more likely to be promoted to a supervisory position than an obese employee (Giel et al., 2012). Roehling et al., (2007) asked 2,838 participants, 65-years-old or less, from the MacArthur Foundation National Survey of Mid-Life Development about their experiences with weight-related employment discrimination. Participants were asked if they had experienced any of the following: were they not hired, were they not given a promotion that they earned, and were they fired from a job. Additionally, participants were asked if they identified their weight as a reason why they had experienced any of the three situations. Results showed that obese individuals were 37 times more likely than their average-weight peers to report weight-related discrimination in the workplace while morbidly obese individuals were 100 times more likely to report such discrimination. Women were 16 times more likely to report weight-related discrimination in the workplace than men (Roehling et al., 2007).

Stigma from healthcare professionals. In a study of 84 health care professionals (e.g., doctors, nutritionists, nurses, psychologists) who currently work with obese patients, participants were asked to complete the IAT and an explicit measure of fat/thin bias (Teachman & Brownell, 2001). Results showed strong implicit anti-fat bias on both implicit attitude and implicit belief scales. On explicit measures, participants expressed the belief that thin people were more motivated than overweight people (Teachman & Brownell, 2001).

Wolf (2010) administered the Fat Phobia Scale to 110 students in a Physician Assistant Program. Over half of students agreed with the statement that obese individuals are self-indulgent, have low self-esteem and poor self-control, and are lazy. This is problematic given that the perception of weight-related stigmatization from a healthcare provider has been shown to significantly decrease the odds that obese individuals will make appointments in the future (Hebl & Xu, 2001). Therefore, anti-fat attitudes among health care professionals may result in the deterioration of obese individuals' health.

Stigma in interpersonal relationships. Family and friends have been identified as the greatest source of stigmatization for obese individuals as compared to educators, employers, coworkers, and health care providers (Puhl & Brownell, 2006; Puhl et al., 2008). Using a sample of 2,449 adult women recruited from a national non-profit, non-commercial weight loss support group, Puhl and Brownell (2006) asked participants to answer questions about stigmatizing situations they have encountered, how they coped with those situations, their attitudes and beliefs about obese individuals, their eating and weight patterns, and interpersonal sources of weight stigma. Results showed that 72% of obese people reported experiencing weight stigma from their family, while among married participants 47% reported experiencing weight stigma from their spouse. Furthermore, many of these weight-related stigmatizing experiences increased as the individual's BMI increased (Puhl & Brownell, 2006).

In a study of 318 adults, participants were asked about their worst experience of weight stigmatization (Puhl et al., 2008). The results indicated that the 61.4% of participants encountered their worst experience of weight stigmatization as adults by another adult using verbal insults. The highest identified source of weight stigma came

from a peer or friend while the second highest came from a family member. The highest identified location of weight stigma was in the home and the second highest occurred in a public place (Puhl et al., 2008).

It remains unclear if the increase in weight stigma associated with higher BMI found by Puhl and Brownell (2006) may be a prevalent enduring acceptability of weight stigma in society or a misguided, desperate attempt to encourage loved ones to lose weight to improve their health. It is possible that criticism from family may stem from the strain of living with someone who is overweight/obese (i.e., having to alter one's own diet or being required to provide personal or medical care for the obese family member) or that negative comments are perceived as harsh because they come from a loved one, in turn making it more painful to receive as compared to strangers or peers (Puhl et al., 2008).

Effects of Anti-Fat Attitudes

Physiological consequences of anti-fat attitudes on the obese. Physically, perception of weight-based stigma has been found to be related to high blood pressure, decreased regulation of glycemic controls, and oxidative stress (Puhl & Suh, 2015). Furthermore, encountering weight stigma has been found to increase cortisol production (Tomiyama, 2014). An increase in cortisol production has been found to promote the storage of excess energy as fat tissue (Björntorp, 2001) and to stimulate a desire for foods that are high in fat and sugar (Adam & Epel, 2007).

Experiencing obesity stigma has been found to increase levels of stress, which in turn increases blood pressure, leading to poor cardiovascular health. Major et al., (2011) asked women enrolled in a local university (N = 99) to give a speech outlining why they

would make a good dating partner. Half of the women were asked to make the speech while being videoed (weight visible condition) and the other half were asked to make the speech being audio taped (weight not visible condition). During the speech researchers measured their blood pressure and, after completion of the speech, were given a Stroop color naming task to assess their cognitive depletion and a questionnaire to assess their emotions experienced during the speech (Major et al., 2011). For the participants in the weight visible condition, participants' BMI was positively correlated with their blood pressure and negatively correlated with their Stroop task performance, suggesting that when videotaped participants with a higher BMI experienced a higher stress reaction and cognitive exhaustion. The participants in the weight visible condition also reported experiencing significantly more negative emotions during their speech. These results were not found for the participants that were in the weight not visible condition, suggesting the higher the BMI of the individual, the more physiologically strenuous weight-related stigmatizing experiences become (Major et al., 2011).

Psychological effects of anti-fat attitudes on the obese. Experiencing obesity stigma increases symptoms of numerous psychological illnesses such as depression (Friedman et al., 2005; Wott & Carels, 2010), phobic anxiety (Friedman et al., 2008), and self-esteem (Friedman et al., 2005; Matz et al., 2002). These psychological symptoms generally exacerbate the individual's body image dissatisfaction and disordered eating behaviors. The combination of these disorders, often comorbid, increases the individual's chances of weight cycling (Mather et al., 2009).

Body image dissatisfaction. An individual's body image is an all-encompassing relationship with one's body and how they perceive their body (Cash, 2004). This

relationship is comprised of the physical reality of the individual's body, their attitudes about themselves, and their thoughts, feelings, behaviors, and beliefs about their body shape and weight. Body image can become problematic when the individual begins to compare themselves to social standards for how a body should look. Ferreira et al. (2016) found that 85.24% of female participants with a normal BMI reported dissatisfaction with their current body weight while 69.49% reported being unsatisfied with their body shape.

A study of 79 obese women who were in a weight management program were asked questions about their body image construct, self-esteem, internalization of sociocultural appearance standards, and perceptions of being teased as a youth and adult for their weight (Matz et al., 2002). Results suggested that for obese women, evaluations of their physical self and their overall self are closely related to one another, making both important factors in their self-evaluation (Matz et al., 2002). Experiencing weight-based stigmatization as an adult and deviating from the current societal standard of body shape and weight both lead to increased dissatisfaction with one's body image.

A study of 878 overweight and obese adult men and women were asked questions about their body image, appearance, lifetime discrimination experiences, internalization of weight bias, current weight, and desired goal weight (Jung et al., 2017). Results indicated that as internalized stigma increased, so did weight discrepancy. In other words, the more weight stigma that was internalized, the more extreme the weight loss goal. Additionally, increased lifetime weight discrimination experiences and increased body dissatisfaction were related to more extreme weight loss goals (Jung et al., 2017).

Stevens et al. (2017) examined a sample of 299 female undergraduate students and administered measures for eating and weight patterns (to determine childhood

weight), lifetime stigmatizing experiences, current BMI, depression, and body image dissatisfaction. Results suggested that the relationship between weight (current BMI and childhood weight) and psychological health variables (depression and body image dissatisfaction) were mediated by lifetime weight stigmatization. Specifically, increases in current BMI were associated with increases in lifetime weight stigmatization experiences and, in turn, increased depressive symptomology and body image dissatisfaction. Increases in childhood weight were associated with increases in lifetime weight stigmatization experiences, which, in turn, increased depressive symptomology and body image dissatisfaction. Additionally, results indicated that being overweight in childhood was positively correlated with experiencing weight stigma throughout life (Stevens et al., 2017).

Disordered eating. The experience of obesity stigma is associated with disordered eating behaviors (Davison et al., 2008). For obese individuals, there is a higher prevalence of Binge Eating Disorder (BED) than among non-obese individuals, likely because the very symptoms that comprise BED are the behaviors that lead to obesity. However, not all obese individuals meet criteria for a clinically diagnosed eating disorder and instead engage in some disordered eating behaviors (e.g., eating to cope with emotions, overeating; Darby et al., 2007).

Binge eating disorder (BED). BED is defined as eating more food in a discrete period of time than is typical and generally occurs in the absence of dieting attempts (American Psychiatric Association [APA], 2013). People with BED diagnoses often report a lack of control over eating, eating faster than one normally would, eating until

feeling uncomfortably full, eating alone, and feeling embarrassed by how much was consumed (APA, 2013).

The prevalence of episodic binge eating (i.e., binge eating that does not meet criteria for BED) is higher in the obese population than in the non-obese population (de Zwaan, 2001). BED is more common among obese women that are seeking weight loss treatment than those not seeking treatment (Spitzer et al., 1993). In fact, binge eating behaviors are seen in roughly 30% of the obese in a weight loss program and roughly 70% of the obese in Overeaters Anonymous (Spitzer, et al., 1993).

Wott and Carels (2010) asked 49 obese individuals to complete questionnaires that measured how often they had experienced weight-related stigma or discrimination, current depressive symptoms, and their binge eating behaviors. The results showed that increased stigmatizing experiences, regardless of whether they were from a social source or internalized stigma, were positively associated with greater baseline levels of binge eating behaviors (Wott & Carels, 2010).

Unhealthy eating habits. A study of 1,361 boys and girls in grades 9-12 were assessed regarding weight-based victimization (WBV), the experience of being teased or bullied due to excess weight, at school by measuring frequency and location of WMV, affective response, and coping strategies involving increased food intake and binge eating (Puhl & Luedicke, 2012). Results indicated that the more that boys experienced WBV in locations like bathrooms and locker rooms, as compared to other locations like the cafeteria classrooms, or the school bus, the more likely they were to cope by increasing their food intake or by binge eating. For both boys and girls, the more that the youth

reported negative affect in response to WBV, the more likely they were to cope by increasing their food intake or by binge eating (Puhl & Luedicke, 2012).

Neumark-Sztainer et al., (2010) sampled 356 girls in grades 9-12 who were involved in a school-based program for girls who were overweight or at risk for being overweight. Researchers assessed aspects of family discussions about dieting and unhealthy weight control behaviors like fasting, eating very little, skipping meals, smoking cigarettes, dieting, and vomiting. Results suggested that increased use of unhealthy and extreme weight control behaviors was positively correlated with participants' mother's dieting behaviors, talking about their weight, and encouraging her daughter to diet. Furthermore, the results indicated that weight teasing by family members was positively correlated with increased body image dissatisfaction, the use of unhealthy and extreme weight control behaviors, and binge eating (Neumark-Sztainer et al., 2010).

Exercise. When faced with stigma, obese individuals engage in less exercise. Participants from a weight management center (N = 76) were recruited and administered measures of weight stigma consciousness, perceived competence in physical activities, body esteem, and BMI (Schmalz, 2010). Results found that body esteem mediated the relationship between consciousness of weight stigma and perceived competence in physical activities. In other words, when positive feelings about one's body increased, so did the belief in physical competence and vice versa.

When obese individuals engage in physical activity, the stigma that they experience has a significant negative impact upon their caloric intake and calories burned. Wott and Carels (2010) found that the more stigmatizing experiences one had,

the fewer calories they burned through physical activity and the higher their caloric intake throughout the day. The effect of weight criticism during physical activity (WCA) for children can lead to negative attitudes about physical activity, putting them at risk for leading a sedentary lifestyle. Faith et al. (2002) asked 576 fifth through eighth grade students about incidences of weight criticism, how they coped with weight criticism, enjoyment of sports, level of physical activity, and WCA. WCA was negatively associated with enjoyment of sports and intensity of physical activity, suggesting that children who are teased about their weight are less likely to engage in physical activity (Faith et al., 2002).

Weight cycling. Experiencing obesity stigma has been linked to increased disordered eating behaviors thereby creating a cycle of unhealthy eating that leads to either maintenance of excess weight or an increase in the individual's weight. Weight cycling refers to the process by which an individual loses weight, only to later gain a similar or greater amount of weight, before repeating the cycle at a later time (Brownell & Rodin, 1994). Puhl and Brownell (2006) asked obese people how they coped with the weight-related stigma that they experienced and 79% of participants reported coping by eating more food. In other words, eating may function as a way that the stigmatized individual is able to remove themselves from the negative thoughts and feelings that are associated with stigma, in turn, perpetuating weight cycling.

Quality of life. Decreased quality of life (QoL) has been found to be negatively associated with experiences of obesity stigma (Jackson et al., 2015; Sarwer et al., 2008). Testa and Simonson (1996) defined QoL as a measure of the "physical, psychological, and social domains of, seen as distinct areas that are influenced by a person's beliefs,

expectations, and perceptions" (p. 835). Schwimmer et al. (2003) found that obese children and teens were 5.5 times more likely to report diminished health-related QoL than average-weight children. Furthermore, obese children and adolescents reported similar levels of QoL to their peers currently undergoing treatment for cancer. Similarly, Wee et al. (2013) found that among obese adults seeking bariatric surgery QoL scores were comparable to adults living with diabetes or laryngeal cancer. Given the seriousness of the physiological and psychological effects of obesity stigma, it is important to determine the source of this stigma in an effort to make inroads to decrease the prevalence.

Psychological effects of holding anti-fat attitudes on the stigmatizer. To date, it is unknown if holding anti-fat attitudes negatively affects stigmatizers (i.e., increases psychological distress). However, researchers have studied the effect of holding stigmatizing attitudes about mental illness on stigmatizers. Masuda, Price, et al. (2009) surveyed college students (N = 139) about their psychological health and stigmatizing attitudes toward people with psychological disorders. Results suggested that holding more stigmatizing attitudes about people suffering from psychological disorders was associated with lower psychological health. Masuda, Price et al., (2009) similarly surveyed another group of college students (N = 297) as to their stigmatizing attitudes about people suffering with psychological disorders, their feelings of anxiety, nervousness, unease, fear of physical harm when around someone with a psychological disorder, and the personal distress they experience during intense interpersonal interactions. Results suggested both measures of stigmatizing attitudes (i.e., the measure of stigmatizing attitudes towards individuals with psychological disorders and the

measure examining participants' feelings of anxiety, nervousness, unease, and fear of physical harm about an individual with a psychological disorder) were positively related to personal distress such that as stigmatizing attitudes increased, so did personal distress (Masuda, Price et al., 2009). Therefore, given obesity is similarly stigmatized, it is possible that anti-fat attitudes also have a negative impact on the psychological well-being of those who hold anti-fat attitudes.

Internalized Anti-Fat Attitudes

Obese people tend to internalize the stigma they experience, essentially blaming themselves for the poor treatment they receive from others (Vartanian & Novak, 2011). Obese individuals are negatively impacted by the internalization of negative messages received about their weight and/or size. Carels et al. (2009) asked 46 overweight/obese adults that were participating in a 16-week behavioral weight program to complete measures of explicit and implicit weight bias. Results indicated that obese individuals, like their average-weight counterparts, frequently adopt obesity stereotypes such as "lazy" or "stupid" (Carels et al., 2009).

Simply being labeled by others as being "overweight" results in distress for overweight and obese individuals. Essayli et al. (2017) weighed and measured a group of 113 female undergraduate students and then randomly assigned them labels of "Overweight" or "Normal weight" before asking them to complete questionnaires measuring eating disorder behaviors, their thoughts and feelings about their body, what size they perceived their body to be, affect, general health, and weight bias internalization. Overweight college women reported higher levels of internalized weight

stigma after being given the label of "Overweight" compared to their average-weight peers who received the same label (Essayli et al., 2017).

Effects of Internalized Anti-Fat Attitudes

The internalization of anti-fat attitudes comes with a range of costs. Internalization of anti-fat attitudes, or self-stigma, has been shown to lead to engaging in binge eating behaviors, decreased self-esteem, increased negative affect, and increased body dissatisfaction, exercise avoidance, and the perpetuation of obesity stigma (Davison et al., 2008; Durso & Latner, 2008; Lillis et al., 2011; Matz, et al., 2002; Puhl et al., 2007; Vartanian & Novak, 2011). Failure to adhere to a diet, exercise avoidance and disordered eating have been found to be primary strategies for coping with obesity stigma and self-stigma, making continued weight gain more likely (Puhl & Latner, 2007). As weight increases, so does sensitivity to stigmatizing experiences (Major et al., 2011), and severity of self-stigma (Lieberman et al., 2011), creating a self-perpetuating cycle of weight-related distress and counterproductive attempts to relieve that distress.

Disordered eating behaviors. Puhl et al. (2008) sampled 1,013 adult women and asked them to complete measures of internalization of obesity stereotypes, experiences with obesity stigma, coping with obesity stigma, and binge eating behaviors. Results showed that higher levels of internalization of obesity stigma was related to higher likelihood of binge eating behaviors and less ability to diet in the future. Belief in obesity stereotypes was also found to be associated with coping with stigma by refusing to diet (Puhl et al., 2008).

O'Brien et al. (2016) looked at more the specific disordered eating behaviors of emotional eating, uncontrolled eating, and the behavioral, cognitive, and euphoric aspects

of loss-of-control eating in relation to internalized weight stigma. They sampled 634 undergraduate college students and found that the relationship between weight stigma and those specific disordered eating behaviors was mediated by internalized weight stigma and psychological distress (i.e., depression, anxiety, and stress). This suggests that experiencing weight stigma leads to the internalization of weight stigma, which in turn is associated with increased experiences of symptoms of depression, anxiety, and stress, which in turn may lead to increased disordered eating behaviors.

Self-esteem. Research has shown that the internalization of obesity stigma leads to a negative view of the self. Pearl and Puhl (2016) asked 260 overweight/obese participants to read a vignette involving weight-based discrimination. They were then split into two groups: Experience group and Internalization group. In the Experience group the person in the vignette described the discrimination and discussed how it was unfair treatment. In the Internalization group the person in the vignette described the discrimination and discussed how they felt they were to blame for being treated poorly. After reading the vignettes participants in the Experience group were asked to write 2-3 sentences describing a time they were treated unfairly due to their weight while participants in the Internalization group were asked to write about a time they felt they were to blame for being treated unfairly due to their weight. Finally, they completed questionnaires assessing internalized weight bias, positive and negative affect, and self-esteem. Results showed that participants in the Internalization condition reported greater weight-related bias than those in the Experience condition. Additionally, participants in the Internalization condition reported greater negative affect, and greater body dissatisfaction, and lower self-esteem (Pearl & Puhl, 2016). This suggests that

internalizing weight-related bias may result in greater emotional and psychological damage than experiencing weight-related bias from others.

Exercise avoidance. A study with 111 adult participants recruited from the Northeastern part of the United States asked participants to identify their experiences with weight stigma throughout their lifetime and complete questionnaires that measured their anti-fat attitudes, internalized sociocultural attitudes toward people's appearance, exercise avoidance, exercise behaviors, body image dissatisfaction, drive for thinness, bulimic behaviors, and self-esteem (Vartanian & Novak, 2011). The results showed that for individuals that were high in internalized sociocultural attitudes of appearance and high in anti-fat attitudes, increased experiences with weight stigma was related to increased exercise avoidance. This may be due, in part, to perceived harsher judgments from others of their ability to participate in physical activity than someone of average weight or because they engage in harsher criticism of themselves so they are likely to view weight stigma as their own fault instead of as an injustice (Vartanian & Novak, 2011).

Perpetuation of obesity stigma. Social identity theory states that individuals within a group will consistently show ingroup bias while also discriminating against the members of the outgroup (Tajfel & Turner, 1979, p. 33-47). However, this does not hold true for individuals who are overweight or obese. Overweight or obese individuals have a tendency to show an outgroup bias, displaying a preference for average weight individuals (Rudman et al., 2002). This preference for the outgroup (i.e., average weight individuals) may be a result of internalized obesity stigma (Rudman et al., 2002).

Wang et al. (2004) conducted two different studies to examine anti-fat bias held by overweight individuals. In the first study they sampled 68 overweight participants from a university-based weight loss program and asked them to complete the IAT. Results indicated significant anti-fat bias among the participants. Furthermore, the effect size was similar to that of reported effect sizes of anti-fat bias among average weight individuals, suggesting that there is little variation in anti-fat bias regardless of weight category. Wang et al. (2004) second study sampled 48 overweight participants from a different weight loss program and examined ingroup bias again using the IAT and self-report questionnaires measuring feelings about fat and thin people. The results indicated "fat people" and negative qualities such as general worth ("bad"), stereotypes ("lazy" and "stupid"), and global self-worth ("worthless") were positively correlated, such that participants paired "fat people" and negative qualities more often and more quickly than they paired "fat people" and positive qualities. These results indicate that there is no preference for in group members (i.e., other overweight people; Wang et al., 2004).

Other studies have found that variables such as quality of contact play a role in how people of different BMI view the obese. Alperin et al. (2014) surveyed 1,176 adults online and asked them to report weight and height to calculate BMI (normal weight = low BMI; overweight and obese = high BMI), positive and negative contact with obese individuals, and their anti-fat attitudes. Increased negative contact predicted increased dislike of the obese. The relationship between negative contact and dislike was stronger for participants with a low BMI as compared to those with a high BMI. For low BMI participants, increased negative contact with the obese predicted increased attributions of weight issues being due to lack of willpower. This was not found among high BMI

participants. For low BMI participants increased positive contact with the obese increased their fears of becoming fat, although the opposite was true for high BMI participants (Alperin et al., 2014).

There have also been reported gender differences in internalized anti-fat attitudes and biases. Lieberman et al. (2011) sampled 411 undergraduate students and found that men with a higher BMI indicated more negative attitudes about obese individuals overall while the opposite was true for women. For women, the higher their BMI, the more positive their attitude was about obese individuals, the less overall bias toward the obese, the more positive their attitudes were about the attractiveness of the obese, and the more willing they were to come into contact socially with the obese.

Psychological Flexibility

Anti-fat attitudes have a harmful, enduring impact upon the physiological, psychological, and social aspects of the lives of obese individuals. This damaging impact is the driving force in the search for ways to reduce explicit and internalized anti-fat attitudes and biases involved in stigmatizing behaviors. Increased knowledge of the variables involved in anti-fat attitudes could lead to interventions designed to reduce suffering for the obese. Acceptance and Commitment Therapy (ACT) is a therapeutic orientation that uses acceptance, the present moment, and values-based behaviors to account for the contextual behavioral nature of human verbal language processes (Hayes et al., 2012). ACT targets psychological flexibility, a model of psychological health and well-being in which an individual is able to be in the present moment and engage in purposeful, values-based action regardless of any distress that they may be experiencing (Hayes et al., 2012). Values are defined as “verbally constructed global desired life

consequences" (Hayes et al., 2012, p. 206); for example, an individual may identify "being a loving mother" as a value.

Humans operate on primary reinforcers (e.g., food, water, shelter, sex, etc.) and secondary reinforcers (e.g., a dollar bill, a subway token, etc.) but are also able to respond to reinforcers that are distant with regard to time (Wilson et al., 2010). For example, a human may restrict their intake of carbohydrates in order to be healthier despite the immediate and strong reinforcement that accompanies eating carbohydrates (Wilson et al., 2010). The value in this example is the desire to be healthier; however, the reinforcer is committed action (i.e., restricting one's diet). The value is only meaningful for the individual when it is perceived to be a personal choice and is not being adopted out of guilt or social desirability (Hayes et al., 2012).

Orienting an individual's behavior with their chosen values not only provides motivation, but also makes improving their quality of life possible (Trindade et al., 2016). Valued living brings further benefits in the form of empowerment so that the individual is able to recognize, acquire, and employ their own resources to maintain desired change. The ability to engage in valued actions, or valued living, is a fundamental aspect of the ACT model (Hayes et al., 2012).

The ACT model is driven by a contextual approach, which focuses on the psychosocial situations that control the effect that cognitions and emotions have on human behavior (Zhang et al., 2018). For example, an individual may witness an obese individual eating quickly and have thoughts about the individual's gluttony. Witnessing this behavior may bring up numerous stereotypes about obesity leading to individuals assigning the obese person's behavior to their being "a fat pig". This thought may be

associated with a feeling of disgust, which may lead to the avoidance of coming in contact with obese individuals. A contextual approach would focus on interacting with these thoughts in a non-judgmental way instead of changing the person's negative thoughts. The individual would be encouraged to examine the thoughts without trying to get rid of them or decrease the frequency with which they occur. Instead of focusing on changing events (i.e., stereotypes of the obese), the model of psychological flexibility focuses on changing the relationship with cognitions, emotions, and bodily sensations (Zhang et al., 2018). Of the six core processes of psychological flexibility, research has consistently shown that individuals with decreased psychological flexibility exhibit increased cognitive fusion and experiential avoidance (Hayes et al., 2006).

Correlates of psychological flexibility

Low psychological flexibility is associated with higher prevalence of psychological disorders and physiological disorders such as diabetes (Gregg et al., 2007), chronic pain (McCracken et al., 2013), obesity (Forman et al., 2009), depression and anxiety (Forman et al., 2007), and body image dissatisfaction (Timko et al., 2014). Psychological inflexibility has also been found to be negatively correlated with various kinds of stigma such as mental health stigma (Kenny & Bizumic, 2016), HIV stigma (Skinta et al., 2014), and substance abuse (Luoma et al., 2007). A six-hour Acceptance and Commitment Therapy (ACT) intervention for obese individuals resulted in greater levels of psychological flexibility through less psychological distress, improvement in quality of life, and lower levels of weight- related stigma (Lillis et al., 2009). Increased psychological flexibility may also reduce weight-bias among stigmatizers.

Cognitive Fusion

According to ACT, suffering develops from psychological processes that are based in human language (Hayes et al., 2012). This suffering is the result of cognitive fusion, which occurs when people believe their distorted cognitions (Hayes et al., 2012). When an individual is fused they may feel that their distorted cognitions are absolute truths or rules that must be followed (Harris, 2008). These distorted cognitions form personal cognitive stories that are taken as literal truths, which the individual has difficulty distinguishing from what is really occurring. These cognitive stories become the basis by which decisions are made.

An example of how cognitive fusion affects day to day life can be seen by looking at the experience of an individual that suffers from panic disorder (Hayes et al., 2012). Individuals with panic disorder experience anxiety and thoughts and fears of losing one's mind, losing control, and dying. A main goal for individuals with panic disorder is to attempt to preserve control, which may be accomplished by constant vigilance against any unwanted reactions. Maintaining vigilance leaves the individual examining their bodily sensations, thoughts, and emotions for any hint that control may be wavering. Although constant vigilance seems like a solution, from an ACT perspective vigilance is actually a problem as the individual is fused with the belief that experiencing an episode of panic will have terrible repercussions and survival depends on maintaining constant vigilance. Instead, ACT would encourage increased psychological flexibility by assisting the individual to examine their unwanted reactions instead of attempting to escape from them (Hayes et al., 2012).

Cognitive fusion does not just affect intrapersonal domains, but also affects interpersonal domains. For example, if an obese person is seen sitting while others are standing she may be perceived as "lazy" (Puhl & Brownell, 2001). From the perspective of the observer/society, this stereotype becomes not just a state that the obese individual occupies on occasion, but is integrated into the obese individual's identity as a characteristic trait (Hayes, 2004). Instead of taking a psychologically flexible approach by recognizing that sometimes a person is "lazy" while at other times they work hard and are not "lazy", the psychologically inflexible and cognitively rigid individual (i.e., observer/society) begins to believe that the thought "she is lazy" makes up the entirety of the obese individual's being (Hayes et al., 2012).

Consequences of cognitive fusion. Cognitive fusion has been found to be related to a number of psychological issues including anxiety, depression, stress, and posttraumatic stress (Bardeen, 2016), and health anxiety (Fergus, 2015). Gillanders et al. (2014) created and validated the Cognitive Fusion Questionnaire (CFQ), which was designed to measure an individual's entanglements with their thoughts. They sampled 133 people with multiple sclerosis (MS) and administered the CFQ to examine the adjustment to living with MS and found that cognitive fusion was a predictor of distress in people with multiple sclerosis (Gillanders et al., 2014).

Gillanders et al. (2015) sampled 105 adults with a diagnosis of cancer and assessed mental adjustment to cancer, ways of coping, self-compassion, hospital-related anxiety, quality of life, and general cognitive fusion (i.e., as opposed to cognitive fusion specifically with cancer). Results indicated that increased cognitive fusion was associated

with increases in anxiety, depression, and quality of life. They also found that cognitive fusion was a strong predictor of overall anxiety and health-related anxiety.

Trindade and Ferreira (2014) sampled 342 female college students and had them examine a set of silhouettes of differing body sizes. They were asked to select a silhouette that best represented their current body size, choose another that was their desired body size, and complete a set of questionnaires that measured social comparison based on one's perceived social rank, perceived social standing based on physical appearance, cognitive fusion, body image-related cognitive fusion, mindfulness characteristics, and attitudes and behavioral traits of eating disorder pathology. The results suggest that body image-related cognitive fusion was related to unfavorable perceptions about social rank both in general and when social rank was based on physical appearance. In other words, women who were fused with thoughts about their body image were more likely to perceive themselves as holding a lower social rank when they made social comparisons between themselves and others in general and when basing those comparisons on physical appearance (Trindade & Ferreira, 2014). Increased body-image related cognitive fusion was also associated with increases in body image dissatisfaction and disordered eating pathology. Furthermore, the severity of disordered eating pathology partially depended on how severely the individual was fused with thoughts about their body image (Trindade & Ferreira, 2014).

Experiential Avoidance

From the perspective of the psychological flexibility model, the immediate consequence of experiencing cognitive fusion is experiential avoidance (EA; Hayes et al., 2012). EA occurs when an individual becomes fused to specific negative thoughts which

leads them to avoid, suppress, or eliminate experiences that they deem to be distressing (Hayes et al., 2012). Avoidance of undesired thoughts and feelings may relieve distress in the short-term (Hayes et al., 1996). For example, when working in a crisis situation, it is useful that a paramedic be able to avoid their private thoughts and reactions. However, because EA works so well at helping an individual to avoid painful cognitions and emotions, it becomes arbitrarily applied in manners that are not advantageous (Hayes et al., 2012). The relief tends not to last and results in distress intensifying over the long-term. Furthermore, removing oneself from painful stimuli, and the subsequent absence of acute difficult emotions, reinforces EA. However, each time the painful stimuli returns it is experienced at greater intensity, leading to overlearning, and thus indiscriminate application to situations (Hayes et al., 2012).

Returning to the example of the individual cognitively fused with the stereotype that obese people are lazy, the rigidity of that stereotype may become so firmly held that the individual is unwilling to think about a particular situation from an obese person's perspective (Hayes et al., 2012). The belief that obese people are "lazy" is so tightly held that there is no reason to look at the situation from a different perspective (Hayes et al., 2012). The fusion to the concept of "lazy" leads to an avoidance of experiencing an alternate thought about the obese.

The use of stereotypes becomes problematic in that they are based on generalizations, which when applied to an entire group of people are inaccurate and misleading. Furthermore, many adopted stereotypes are longstanding and have been reinforced numerous times throughout an individual's lifetime, which may explain why attempts to adjust language around those stereotypes is generally met with resistance and

ultimately avoidance, as changes would require modification of the individual's view of the world (Hayes et al., 2012).

Consequences of EA. Increases in experiential avoidance have been found to be associated with increases in anxiety sensitivity and post-traumatic stress (Bardeen, 2015). Campbell-Sills et al. (2006) sampled 60 adults from the Center for Anxiety and Related Disorders and asked them to listen to an audio clip that instructed them to either control their emotions while watching a film clip (suppression group) or to experience their emotions during a film clip (acceptance group). The participants were asked to sit quietly for 2 minutes (anticipation) then complete a measure of positive and negative affect before watching the film clip. After watching the film clip the participants were asked to complete the same measure of positive and negative affect and rate how well they followed the instructions that were administered to them. They were then asked to sit quietly again (recovery) and complete the measure of positive and negative affect one last time. Throughout the study participants' cardiac and respiratory activity was monitored. Results indicated that for the suppression group there was an increase in heart rate from anticipation to exposure of the film. While both groups demonstrated an increase in negative affect as a response to the film, the suppression group demonstrated more difficulty than the acceptance group in decreasing negative affect. This suggests that suppressing (i.e., avoiding) emotions makes it more difficult to recover emotionally from negative affect than when emotions are fully experienced (Campbell-Sills et al., 2006).

Psychological Flexibility and Stigma

The theory of psychological flexibility holds that human behavior tends to be driven by inflexible verbal networks when humans are in a context that cultivates

cognitive fusion (Hayes et al., 2006). This same model views stigma as a verbal process that has been incorrectly applied (Hayes et al., 2001). Given that the current social context regarding body shape and size in the United States is one in which the verbal network highly reinforces “fat is bad” and “thin is good,” individuals are more likely to rigidly hold onto those inflexible verbal rules, manifesting in stigma against the obese. When confronted with exceptions to stereotypes about obese individuals, the psychological flexibility model contends that making changes to one’s world view may result in distress, which leads to experiential avoidance (Hayes et al., 2012).

Just as psychological inflexibility is associated with psychological suffering and issues with physical health, it is also associated with stigma, and mental health stigma in particular (Corrigan, 2004; Forchuk et al., 2006; Link, 1987; Perlick et al., 2001). Mental health stigma has significant and severe effects on the stigmatized individual, making it difficult to adjust to social norms (Perlick et al., 2001), and, in turn, issues with obtaining and maintaining employment (Link, 1987), finding safe and affordable housing (Forchuk et al., 2006) and utilization of therapeutic services necessary to cope with their illness (Corrigan, 2004).

Masuda and Latzman (2011) conducted a series of studies examining the impact that mental health stigma has on the stigmatizer. Study 1 looked at 591 undergraduate students and found that holding stigmatizing attitudes about people suffering from mental illness predicted increased psychological distress for the stigmatizer. Results also suggested that there are two components that make up mental health stigma: exclusion, negative emotions and cognitions that increase the chance of avoiding contact with the mentally ill, and course/origin, the adoption of negative beliefs about the course,

prognosis, and treatment of mental disorders. Study 2 looked at 573 undergraduate students and found that the relationship between stigma and distress was mediated by psychological flexibility but only for the Course/Origin component of stigma, indicating that holding negative beliefs about the course, prognosis, and treatment of the mentally ill predicts increased psychological distress but only for those who are low on psychological flexibility (Masuda & Latzman, 2011).

Among 27 undergraduate students, an ACT intervention focusing on improving psychological flexibility and mental health stigma resulted in increases in psychological flexibility and a reduction of mental health stigma (Masuda, Hayes et al., 2009). To date there has been no research conducted examining the impact that holding stigmatizing views about obese individuals has on the stigmatizer or the role psychological flexibility may play among people who hold anti-fat attitudes.

As previously discussed, Masuda, Price et al., (2009) examined the relationship between holding stigmatizing attitudes about mental health, feelings of anxiety and fear when around a person with a psychological disorder, psychological distress, and psychological flexibility among college students. The results indicated that stigmatizing attitudes about mental illness are negatively correlated with psychological flexibility such that higher stigmatizing attitudes were associated with lower psychological flexibility. The relationship between mental health stigma and feelings of anxiety and fear when around a person with a psychological disorder was found to be partially accounted for by psychological flexibility. This suggests that being psychologically inflexible (i.e., not being in the present moment and engaging in purposeful, values-based action regardless of any experienced distress) is valuable in understanding the association between mental

health stigma and psychological distress (Masuda, Price et al., 2009). To date, these relationships have not been examined in the context of anti-fat attitudes among stigmatizers or the stigmatized.

The Present Study

The purpose of the present study is to examine the impact that holding anti-fat attitudes has upon psychological distress and to explore psychological flexibility as a potential target variable in the reduction of anti-fat attitudes. While psychological flexibility has been targeted in interventions designed to reduce mental health stigma, it remains unclear if psychological flexibility is applicable in the reduction of anti-fat attitudes. Additionally, to the author's knowledge, there is no research in the extant literature examining participants' weight, or BMI, as a variable that may impact biases about the obese. Given the impact that anti-fat attitudes have upon obese individuals' physical and psychological functioning, it is imperative that researchers examine variables that may be useful in designing future interventions to reduce anti-fat attitudes. Furthermore, the ability to reduce stigmatizing attitudes about the obese may improve the quality of care provided to obese individuals by doctors, nurses, psychologists, therapists, and other helping professionals, as well as increase the likelihood that individuals who are obese access healthcare services (Teachman & Brownell, 2001). The current study seeks to provide information about the relationships between anti-fat attitudes (Disgust, Lack of Willpower, and Fear of Fat), psychological flexibility, and psychological distress.

Hypothesized Model

The current study examined a mediation model of the relationship between anti-fat attitudes and psychological distress (See Figure 1). It was hypothesized that anti-fat attitudes would be significantly positively related to psychological distress and that this relationship would be mediated by psychological flexibility, such that higher anti-fat attitudes would be associated with lower psychological flexibility and, in turn, higher psychological distress.

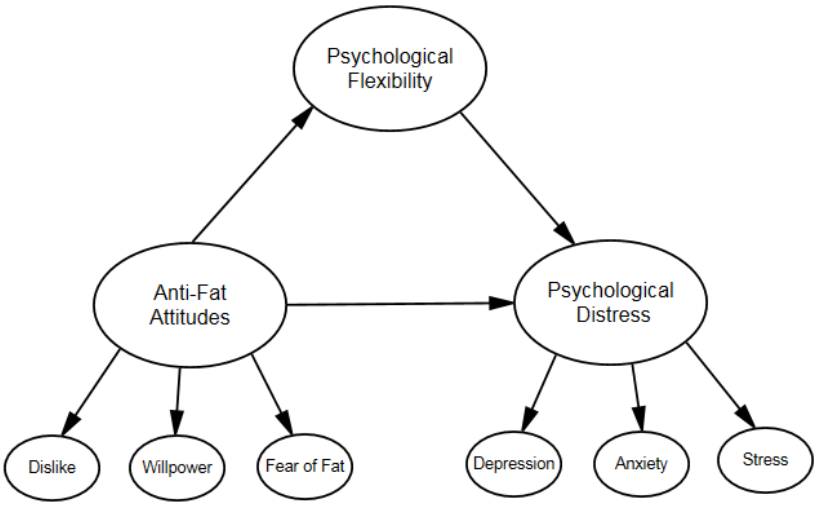

Figure 1: The hypothesized model

CHAPTER II

METHODS

Participants

Three hundred participants were recruited via Amazon's Mechanical Turk. Participants clicked on a web link to consent to participate, completed three surveys and one demographics questionnaire via an online survey platform, Psychdata. Participants completed a demographic questionnaire including questions about their current weight and height, and weight and dieting history. They then completed the following measures, which were presented in a randomized order: Acceptance and Action Questionnaire- II (AAQ-II; Bond et al., 2011), Antifat Attitude Questionnaire (AFAQ; Crandall, 1994), and Depression, Anxiety, and Stress Scales (DASS-42; Lovibond & Lovibond, 1995). Those individuals who completed all the surveys were compensated $0.25 via Amazon's Mechanical Turk.

Tabachnick and Fidell (2013) recommend a minimum sample size of $N \geq 200$ when conducting SEM under ideal conditions: therefore, a minimum sample size of at least 200 participants was sought for the proposed study (Kline, 2011; Weston & Gore, 2006). Thirty-three participants who did not complete at least 80% of a given measure were removed. After examining univariate and multivariate outliers, two more participants were removed. During respecification of the measurement model during

primary data analysis, another 23 participants were removed, leaving a total number of 242 participants in the study.

Participant's ages ranged from 18 to 72 years old (M = 34.68, SD = 12.06). Seventeen percent of the participants identified as Asian or Asian-American (n = 45), 2.3% as biracial or multiracial (n = 6), 8.3% as Black or African-American (n = 22), 10.9% as Hispanic or Latin X (n = 29), , 1.9% as Native- American,(n = 5), 58.9 % identified as White (n = 156), .8% identified with a different identity (n = 2). Seven point nine percent of participants identified as bisexual (n = 21), 5.7% as gay/lesbian (n = 15), 86.7 % identified as heterosexual (n = 227), and 0.8% as a different identity (n = 2). Roughly one percent of participants attended high school without graduating (n = 3), 10.9% graduated high school (n = 29), 60.8% either attended college or graduated with a bachelor's degree (n = 161), 17% attended or graduated a master's program (n = 45), and 8.7% got an advanced degree like a doctorate (n = 23). Demographic characteristics are presented in Table 1.

Table 1
Sample Demographic Characteristics

Variable	*n*	%
Gender		
Female	111	41.9
Intersex	0	0
Male	153	57.7
Transgender	1	.4
Other	0	0
Race/Ethnicity		
Asian	45	17.0
Biracial/Multiracial	6	2.3
Black	22	8.3
Hispanic/Latin X	29	10.9
Native American	5	1.9
White	156	58.9
Other	2	.8
Sexual Orientation		
Bisexual	21	7.9
Gay/Lesbian	15	5.7
	227	85.7
Other	2	.8
Geographic Region		
Midwest U.S.	41	15.5
Northeast U.S.	38	14.3
Southern U.S.	78	29.4
Outside of U.S.	50	18.9
U.S. Territories	53	20.0
Western U.S.	5	1.9
Age Range		
18 - 24	55	20.8
25 - 34	110	41.5
35 - 44	46	17.4
45 - 54	30	11.3
55 - 64	17	6.4
65 & older	7	2.6
Education in Years		
0 - 11	3	1.1
12 years	29	10.9
13 - 16 years	161	60.8
17 - 19 years	45	17.0
20 and up	23	8.7

Instruments

Demographic Questionnaire

Participants completed a brief demographics questionnaire that included age, gender, annual household income, race/ethnicity, sexual orientation, geographical location, and level of education.

Acceptance and Action Questionnaire-II (AAQ-II)

The AAQ-II (Bond et al., 2011) is a 7-item self-report instrument that measures psychological flexibility. It is an updated version of the AAQ-I with improved psychometric properties. The AAQ-II is consistent with the original AAQ-I (r =.97; Bond et al., 2011), has high internal reliability (α = .84; Bond et al., 2011), and is acceptable in 3- and 12-month test-retest reliability with alphas of .81 and .79, respectively. In the current study, item parcels were created for the AAQ-II using balanced item parceling, where items are rank ordered based on the magnitude of their factor loadings before being sequentially assigned to one of three different parcels (See Table 3; Little et al., 2013). As such, each parcel measures psychological flexibility instead different constructs. The Cronbach's alpha for parcel 1 (items 1, 3, and 7) was .85, parcel 2 (items 2 and 4) was .88, and parcel 3 (items 5 and 6) was .78. Questions such as "I'm afraid of my feelings" and "It seems like most people are handling their lives better than I am." are assessed on a 7-point Likert scale that ranges from 1 (never true) to 7 (always true). Higher scores on the AAQ-II indicate greater levels of psychological inflexibility.

Anti-Fat Attitude Questionnaire (AFAQ)

The AFAQ (Crandall, 1994) is a 13-item self-report instrument that measures negative attitudes about overweight and obese individuals and is comprised of three

subscales: Dislike, Willpower, and Fear of Fat. Dislike (α =.85; O'Brien, Hunter, Halberstadt et al., 2007) assesses an individual's antipathy about fat people and is composed of 7 items like "I really don't like fat people". Higher scores on the Dislike subscale indicate greater antipathy about fat people. In the current study, Cronbach's alpha for Dislike was .93. Fear of Fat (α =.79; Crandall, 1994) measures an individual's concerns about their weight and being fat and is composed of 3 items like "I worry about becoming fat". Higher scores on the Fear of Fat subscale indicate greater personal concerns about one's weight and fear of becoming fat. In the current study, Cronbach's alpha for Fear of Fat was .85. Willpower (α =.82; O'Brien, Hunter, Halberstadt et al., 2007) measures an individual's beliefs about the controllability of weight and is composed of 3 items like "Some people are fat because they have no will power". In the current study, Cronbach's alpha for Willpower was .85. Higher scores on the Willpower subscale indicates greater beliefs about the controllability of weight. All items are assessed on a 10-point Likert scale ranging from 0 (Very Strongly Disagree) to 9 (Very Strongly Agree). The AFAQ has good convergent validity with Attitude Toward Obese Persons Scale, which measures anti-fat attitudes and the Beliefs About Obese Persons Scale, which measures beliefs about controllability of weight (r = .42; Allison et al., 1991). As the AFAQ does not offer a total score, scores for the three subscales will be reported.

Depression, Anxiety, and Stress Scale (DASS-42)

The DASS-42 (Lovibond & Lovibond, 1995) is a 42-item self-report instrument that measures depression, anxiety, and stress in the general population. Questions like "I found myself getting upset by quite trivial things" and "I just couldn't seem to get going"

are assessed on a 4-point Likert scale ranging from “Did not apply to me at all)” to “Applied to me very much or most of the time”. Higher scores indicate greater depressive, anxious, and stress-related symptoms. The DASS shows good internal consistency ranging from α of .97 for the Depression subscale, .92 for the Anxiety subscale, and .95 for the Stress subscale in the general population (Antony et al., 1998). In the present study the Cronbach’s alpha was .97 for the Depression subscale, .98 for the Anxiety subscale, and .97 for the Stress subscale. Convergent validity with the Beck Anxiety Inventory (r = .81) and the Beck Depression Inventory (r = .74) were both acceptable (Crawford & Henry, 2003)

CHAPTER III

RESULTS

Preliminary Analyses

Data were cleaned, missing data was addressed using expectation maximization as recommended by Tabachnick and Fidell (2013), and the assumptions of the general linear model were assessed prior to testing the significance of the proposed structural model. Participants who did not complete at least 80% of a given measure were eliminated. In order to determine if missing data were missing completely at random, Little's Missing Completely at Random (MCAR) test was conducted. The results of Little's MCAR suggested that the missing data were not MCAR ($\chi^2[3624] = 4126.296$, $p < .001$). As discussed in Tabachnick and Fidell (2013), missing data can be classified as MCAR, missing at random (MAR), or missing not at random (MNAR). Missing data for all items in the current data set fell below the recommended 5% missingness value (Tabachnick & Fidell, 2013). In the current study the expectation maximization method was used to replace missing data. This method has been found to be superior to other data replacement procedures as it is more efficient than other, more complex techniques while also providing unbiased parameter estimates (Pituch & Stevens, 2016; Tabachnick & Fidell, 2013).

A summary of scale means, standard deviations, alpha coefficients, and bivariate correlations is provided in Table 2. Depression, anxiety, and stress are highly correlated

with one another as expected. The means for each are in the "very severe" range (above 28 for depression, above 20 for anxiety, and above 34 for stress), indicating that the participants in the current study reported higher than average levels of depression, anxiety, and stress symptoms. The correlations between dislike and willpower and fear of fat and dislike were similar to those reported in the instrument's original validation study. However, originally, fear of fat and willpower were not correlated (r = .01; Crandall, 1994) but in the current study they are moderately correlated (r = .54). The means for dislike, fear of fat, and willpower are as expected. Bivariate correlations and means for AAQ parcels 1, 2, 3, and AAQ total are all as expected.

Table 2.
Bivariate Correlations Between Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	*M*	*SD*	α
1. Depression[a]	1.00	.95**	.95**	.38**	.23**	.14*	.71**	.69**	.67**	.73**	51.14	19.77	.97
2. Anxiety[a]		1.00	.96**	.32**	.29**	.14*	.76**	.75**	.72**	.78**	53.93	20.92	.98
3. Stress[a]			1.00	.37**	.29**	.13*	.74**	.74**	.73**	.78**	50.14	19.81	.97
4. Dislike[b]				1.00	.29**	.49**	.19**	.20**	.30**	.23**	26.50	15.65	.93
5. Fear of Fat[b]					1.00	.54**	.24**	.28**	.29**	.28**	16.92	7.67	.85
6. Willpower[b]						1.00	.08	.13*	.10	.11	17.62	7.28	.85
7. AAQ Parcel 1[c]							1.00	.90**	.82**	.97**	10.10	5.29	.86
8. AAQ Parcel 2[c]								1.00	.81**	.95**	6.57	3.58	.81
9. AAQ Parcel 3[c]								.	1.00	.91**	6.23	3.35	.85
10. AAQ Total										1.00	22.90	11.61	.94

Note. [a] Subscale of the Depression, Anxiety, and Stress Scale (Lovibond & Lovibond, 1995), [b] Subscale of the Anti-Fat Attitude Questionnaire (Crandall, 1994), [c] Acceptance and Action Questionnaire-II (Bond et al., 2011)
** $p < .01$; * $p < .05$

Assessing Assumptions

Preliminary exploratory analyses were conducted to determine if the data met the assumptions for the general linear model. These assumptions include independence of errors, absence of multicollinearity, homoscedasticity, normality of the residuals, absence of outliers, and linearity. The independence of errors assumption was assessed by examining the Durbin-Watson statistic for each dependent variable (Durbin-Watson = 1.663 for depression, 1.641 for anxiety, and 1.710 for stress). All of these statistics are considered to be acceptable, suggesting that the assumption of independence of errors was met (Tabachnick & Fidell, 2013). To examine the assumption of multicollinearity, the variance inflation factor (VIF) of the predictors for each dependent variable were calculated. VIF values ranged 1.318 to 1.706 and were below the suggested cutoff of 10 (Myers, 1990). The condition index values ranged from 1.00 to 7.663 and were below the suggested cutoff of 30 (Belsley et al., 1980). These results indicated that the assumption of multicollinearity was met (Tabachnick & Fidell, 2013).

To determine if the assumption of homoscedasticity was met a scatterplot of the standardized residuals was examined. Tabachnick and Fidell (2013) recommend that to meet the assumption, the data should not fall in a distinct pattern. Upon inspection it was determined that the residuals were not randomly dispersed throughout the range of the estimated dependent variables. Generally, this would indicate that the assumption was not met. However, heteroscedasticity among residuals can be due to a lack of normality or the presence of outliers so those assumptions will be assessed in order to determine if the assumption of homoscedasticity has been met (Kline, 2011).

To determine if the residuals were normally distributed, several analyses were conducted. All skewness and kurtosis values were between +/- 1.0, suggesting that the data is relatively consistent with a normal distribution (George & Mallary, 2010; Pituch & Stevens, 2016). To further assess normality, the Shapiro-Wilk and Kolmogorov-Smirnov statistics for all dependent variables were examined and found to be < .001, indicating that there was significant deviation from normality (Pituch & Stevens, 2016; Tabachnick & Fidell, 2013). Due to the differences in the various analyses, it may not be possible to confidently determine that the assumption of normality has been met.

To determine if the assumption of outliers had been met, the normal Q-Q plot, detrended Q-Q plot, and boxplots were examined and indicated that the distribution of residuals contained outliers, preventing the distribution from being normally distributed (Pituch & Stevens, 2016; Tabachnick & Fidell, 2013). The data were further examined for univariate outliers; one univariate outlier that exceeded the suggested cutoff of z = +/- 3.29 was found and removed. Several statistical tests were conducted to determine the presence of multivariate outliers. When compared to the chi square value of 16.27, the Mahalanobis distance maximum value of 16.15 was smaller, indicating there were no multivariate outliers in the data (Pituch & Stevens, 2016; Tabachnick & Fidell, 2013). Similarly, Cook's distance values for the dependent variables were all smaller than 1, suggesting no multivariate outliers in the data (Pituch & Stevens, 2016; Tabachnick & Fidell, 2013). The Hat value was .061 and was greater than the average Centered Leverage Value of .046, which indicated that there were multivariate outliers in the data (Pituch & Stevens, 2016; Tabachnick & Fidell, 2013). In an effort to identify and remove multivariate outliers in the data, the Mahalanobis distance values for each participant

were compared to a chi-square distribution and one case was removed due to χ^2 *p*-value being less than .001 (Tabachnick & Fidell, 2013). Analyses were run again but the centered leverage value remained at .061, indicating that the assumption of the absence of outliers was not met.

To determine if the assumption of linearity was met a scatterplot graph of the standardized residuals and a scatterplot matrix were created. For the assumption to be met, the bivariate scatterplot of the standardized residual and standardized predicted values should fall in an oval shape instead of a curvilinear shape (Pituch & Stevens, 2016; Tabachnick & Fidell, 2013). The scatterplot of residuals showed a distribution that was not oval shaped. Next, matrix scatterplots of the relationships between all variables were examined to further assess the linearity assumption. The scatterplot matrix did not show a linear relationship between the dependent variables (depression, anxiety, and stress) and the independent variables (dislike, fear, and willpower), suggesting that the assumption of linearity was not met.

To determine if the assumption of homoscedasticity was met, the scatterplot of the standardized residuals was examined. Tabachnick and Fidell (2013) recommend that to meet the assumption, the data should not fall in a distinct pattern. The scatterplots for all dependent variables showed a distinctive pattern, indicating a violation of the assumption of homoscedasticity. It is important to note that when the assumption of multivariate normality is met, the assumption of homoscedasticity will be met (Tabachnick & Fidell, 2013). Furthermore, if outliers are present in the distribution of residuals, as the centered leverage value indicates, the distribution will be non-normal (Pituch & Stevens, 2016; Tabachnick & Fidell, 2013). This suggests that the non-

normality of the data was the more serious violation that needed to be addressed and can often be rectified by transformation of the data (Kline, 2011; Tabachnick & Fidell, 2013; Weston & Gore, 2006). The current data were transformed using two different methods, square root transformation and logarithm transformation, both of which are recommended for use with positively skewed distributions. However, neither transformation improved the normality, linearity, homoscedasticity, or centered leverage values needed for the assumptions to be met. Normally, failed data transformation and violated assumptions would end data analysis, but for the purposes of the dissertation, examination of the factor structure was attempted.

Primary Analysis

After data cleaning, replacement, internal consistency, assumptions, and transformation were completed, the proposed structural model was tested using IBM AMOS (Version 27.0; Arbuckle, 2014). The predictor variable in the model was anti-fat attitudes, the criterion variable was psychological distress, and the mediator was psychological flexibility.

The measurement model was assessed first in order to confirm that the observed variables suitably defined the latent variables by conducting a confirmatory factor analysis (CFA). The following goodness of fit indices were used to determine whether the data fit the hypothesized model: chi square (χ^2), comparative fit index (CFI), root-mean-square of error of appropriation (RMSEA), and standardized root-mean-square residual (SRMR). χ^2 values should be non-significant, CFI values should be ≥ 0.95, RMSEA values should be $\leq .06$, and SRMR values should be $\leq .08$ (Hu & Bentler, 1999). When the CFA was run AMOS reported that the maximum iterations had been reached,

indicating that the χ^2 and fit indices were not to be valid. The model was identified for possible issues and the problem was found to be the psychological flexibility latent variable. It is recommended in SEM that each latent variable have at least three indicators (Byrne, 2010; Kline, 2011) so item parcels were created for the AAQ-II scale. An exploratory factor analysis (EFA) was conducted to examine the factor loadings and inter-correlations of each item. The balanced item parceling method was used for item parceling. The items were rank ordered based on the magnitude of their factor loadings before being sequentially assigned to one of three different parcels (See Table 3; Little et al., 2002). Item

Table 3.
Factor loadings for AAQ-II items

Item	Factor Loading
1	.805
2	.875
3	.879
4	.879
5	.862
6	.775
7	.812

parcel totals were calculated and included into the measurement model, replacing the original AAQ-II scale total. Separating the AAQ-II into three different parcels allowed the CFA to run. However, the results indicated that the hypothesized baseline model had a poor fit for the data, $\chi^2(24, N = 265) = 137.40$, $p = .000$, CFI = .957, RMSEA = .134, 90% CI: [.113, .156], SRMR = .0778. Poor fit suggests that the results do not support the hypothesis that is being tested. The obtained χ^2 value was not surprising given that it can be affected by large sample size and non-normality (Byrne, 2010; Kline, 2011). While CFI and SRMR values were considered acceptable, the value of RMSEA was too high.

Post-hoc analyses were conducted to further examine normality and outliers in the data set. Additionally, modification indices were used as a guide for respecification of the model. The model was respecified and the model fit after each specification is available in Table 4.

Table 4.

Measurement Model Specification and Fit Indices

Model	Comparison Model	χ^2	*df*	CFI	RMSEA	RMSEA 90% CI	SRMR	Δ*df*	Δχ^2	ΔCFI
Baseline	-	137.40	24	.957	.134	.113 - .156	.0778	-	-	-
Model 1	Baseline	98.88	23	.972	.117	.094 - .141	.0395	-1	- 38.53	+ .015
Model 2	Model 1	132.82	24	.960	.137	.115 - .160	.0805	+1	+33.95	- .012

Normality was examined by again looking at skewness and kurtosis, however when using SEM, kurtosis is more valuable in the assessment of normality since it severely affects tests of variance and covariance, which is what SEM is based on (DeCarlo,1997). Almost all of the critical ratios for kurtosis exceeded the suggested cutoff, indicating non-normality. Multivariate normality was examined using Mardia's coefficient, which like univariate normality should be in the +/- 1.96 range if the data is normally distributed (Byrne, 2010). Mardia's coefficient was well outside of the range at 19.58. Outliers were examined by looking at the Mahalanobis distance squared values calculated in AMOS, where values less than .001 were considered to be outliers and 23 outliers were detected and removed. Additionally, modification indices were examined, and the only suggestion that was theoretically justifiable was to include a covariance between error 4 (dislike) and error 5 (fear of fat). Since these are both subscales of the AFAQ, this was acceptable. As such, the covariance was added to the model and the CFA was run again. The modifications made improvements to the Model 1 χ^2 and model fit indices, χ^2 (23, N = 242) = 98.875, p = .000, CFI = .972, RMSEA = .117, 90% CI: [.094, .141], SRMR = .0395, but χ^2 and RMSEA were still not within an acceptable range. Kurtosis and Mardia's coefficient showed improvement but were still above the +/- 1.96 range and there were no additional outliers. However, the inclusion of the covariance between the error terms led to a covariance matrix that was not positive definite, so it was removed, and the CFA was run again. Removing the covariance led to worse fit indices for Model 2, [χ^2 (24, N = 242) = 132.820, *p* = .000, CFI = .960, RMSEA = .137, 90% CI: [.115, .160], SRMR = .0805] remaining outside of an acceptable range.

Given that the data had violated the assumptions of normality, homoscedasticity, absence of outliers, and linearity while also lacking model fit, data analysis could not move forward to examine the structural model. However, conducting the Bollen-Stine bootstrap has been recommended with non-normal models as rescaled χ^2 values have been found to be robust under non-normal conditions when $N \geq 200$ (Grønneberg & Foldnes, 2016; Nevitt & Hancock, 1998). The Bollen-Stine bootstrap tests the null hypothesis, which is that the model being tested is correct. It does not report a χ^2 and instead provides a *p*-value where $p \leq .05$ indicates that the null hypothesis should be rejected. The Bollen-Stine $p = .000$, indicating that the data was a poor fit for the model. These findings suggest that the three components of anti-fat attitudes did not significantly relate to the three components of psychological distress.

CHAPTER IV

DISCUSSION

The purpose of the current study was to examine a mediation model of the potential relationship between anti-fat attitudes and psychological distress. It was hypothesized that anti-fat attitudes would be significantly positively related to psychological distress and that this relationship would be mediated by psychological flexibility, such that higher anti-fat attitudes would be associated with lower psychological flexibility and, in turn, higher psychological distress. The results of the study were not consistent with the hypothesized relationships due to the overall model fit being inadequate. There are several potential explanations and factors that may have influenced this outcome. First, it may be that the tested model was too simple as it was comprised of only three variables. Although the current study was adapted from a study by Masuda, Price et al. (2009) which also examined the relationship between three variables, mental health stigma, psychological distress, and psychological flexibility, it may be that the variables utilized in the present study have a more complex relationship, and as such, the simplicity of the study design was not adequate to demonstrate the full picture of the potential relationships.

Another explanation for the results of the current study versus the Masuda et al. study may be due to the type of stigma being examined. Mental health stigma has been associated with depiction of those suffering from mental illness to be dangerous and

unpredictable with no blame being placed upon the individual because of their condition (Link & Phelan, 2006). However, obesity stigma is different as the focus is placed on a lack of effort to control eating behaviors and unwillingness to exercise (Black et al., 2014). As such, individuals who hold anti-fat bias may not experience psychological distress in a similar way to those who hold stigma about mental health issues due to the culpability placed upon overweight and obese individuals.

Strengths

The present study had several strengths, the first of which is that it is a unique contribution to the literature on obesity stigma. To the author's knowledge, psychological distress of individuals that hold anti-fat attitudes has not been studied before, nor has the involvement of psychological flexibility. The results of the current study suggest that there is likely not a relationship between anti-fat attitudes and psychological distress. Furthermore, psychological flexibility did not fully or partially mediate the relationship. This study lays the groundwork for future research into the personal experiences of those who hold anti-fat attitudes.

Another strength is that the sample collected for this study was more diverse than most of the samples in the current literature for this field of study (Masuda & Latzman, 2011; Masuda, Price et al., 2009). This is likely due to the use of MTurk to collect data, which usually allows for a significantly older, more educated, and ethnically diverse sample as compared to student samples (Chmielewski & Kucker, 2020). American undergraduate students supply the close to half of participants in behavioral science research due to convenience and cost-effectiveness (Anderson et al., 2019). These studies are mostly comprised of participants who fall into the following categories: they are from

a western country, educated, from an industrialized country, rich, and democratic, also known as WEIRD (Henrich, et al., 2010). More specifically, they are more likely to be white, women in the 18-24 age range. Unfortunately, there are substantial differences between WEIRD participants and their non-WEIRD peers, yet far too often, results from WEIRD participants are being generalized as if they universally apply to non-WEIRD peers (Henrich et al., 2010). In the current study, the sample consisted of more men (57.7 %) than women (41.9%). The racial and ethnic make-up of the current sample was also diverse with participants identifying as 58.9 % White, 17% Asian, 10.9% Hispanic, 8.3% Black, 2.3% Biracial/Multiracial, 1.9% Native American, and .8% Other. Compared to other studies (e.g., Masuda, Price et al., 2009), the present study included a broader age range, ranging from 18 to over 65 years old. The median age range was 25-34 (41.5%) and the mean age was 34.7 years old.

The use of a priori power analysis is another strength of the current study. The analysis recommended the use of a sample size of at least 200 participants for maximum power. Three hundred participants were initially collected and 242 participants were retained after data cleaning and the outliers were removed. Use of a larger than recommended number of participants allowed for maximization of power while minimizing the probability of the occurrence of Type I and Type II errors.

Limitations

Although there were several strengths of the present study, there were also some limitations. Not all of the assumptions of the general linear model were fully met, specifically in relation to the assumptions of homoscedasticity, linearity, normality, and absence of outliers. The presence of outliers in the present study may have contributed to

issues with linearity and non-normality, the latter of which can also result in the absence of homoscedasticity (Tabachnick & Fidell, 2013). Although failure to meet the assumption of homoscedasticity does not invalidate an analysis, it does weaken the predictability, which may have affected the power of the current model. Non-normality of the data can often be rectified by transforming the data (Kline, 2011; Tabachnick & Fidell, 2013; Weston & Gore, 2006). The current data were transformed using two different methods, square root transformation and logarithm transformation, both of which are recommended for use with positively skewed distributions (Tabachnick &. Fidell, 2013). Unfortunately, neither transformation improved the normality, linearity, homoscedasticity, or centered leverage values sufficiently for the assumptions to be met. It is likely that these violations limited the power and fit of the model.

The limited scope for statistical analysis may be considered a limitation. SEM has strict requirements, such as the need for three indicators, which in this study necessitated the need for item parceling of the psychological flexibility variable. If other statistical analysis methods had been used the various relationships in the model could have been examined individually, possibly by assessing the individual indicators of psychological distress (depression, anxiety, and stress) separately against the indicators of anti-fat attitudes (dislike, fear of fat, and willpower). Broadening the method of statistical analyses would have allowed for a deeper exploration of the relationships in the model.

There were several limitations regarding the study design that impacted the internal validity of the study. Since the study was all self-report, there is the potential for self-report bias, which may have resulted in participant responses being influenced by

social desirability. The study may also be limited due to mono-operation and mono-method biases as the data was collected using only one instrument to measure each variable and only one method to collect the data.

Another possible limitation may be the use of Amazon's Mechanical Turk (MTurk), an online crowdsourcing platform that allows individuals to complete computerized tasks, such as research studies, in exchange for payment. While MTurk was originally designed to gather marketing data, it became a popular and reliable option for data collection in social sciences as it allows researchers to gather data in a matter of hours versus other methods that may take weeks. Hauser and Schwarz (2016) found that MTurk participants perform better on attention checks than participants recruited through a university subject pool. However, starting in March of 2018, researchers began finding a notable number of random responses from the same GPS coordinates, suggesting that surveys were being completed by bots, computer programs that automatically complete surveys (Bai, 2018; Chmielewski & Kucker, 2020). As a result, when using MTurk to collect data it has been recommended to include validity checks and tools like reCAPTCHA, neither of which this study employed.

Implications for Research

There are several implications for future research based upon the strengths and limitations of the current study. Future research could repeat the current study using MTurk and snowball sampling from social media and/or a college population to further expand the demographics of the sample. Validity checks (i.e., multiple choice and open-ended questions) and reCAPTCHA should also be included to nullify the possible bot issues that have been reported from MTurk. This would allow the current model to be

tested again while comparing results across different collection samples. Additionally, determining if there are differences and/or similarities between anti-fat attitudes and mental health stigma would be beneficial. Anti-fat attitudes are generally embraced in society due to the culpability placed on the individual for their condition, while those struggling with mental illness are not viewed as being culpable for their condition. While the results of the current study suggest that there may be differences, confirmation is needed.

Another area for future research is to examine the experiences of individuals who hold anti-fat attitudes. If holding anti-fat attitudes has a negative impact on the stigmatizer, creating and providing interventions for the stigmatizers could be beneficial, not only for the stigmatizer but also for the stigmatized. Since interventions focusing on reducing the negative impact of obesity stigma for overweight and obese individuals have been shown to be useful (Levin, et al., 2018; Lillis et al., 2009), expanding interventions to include stigmatizers could serve as another way to reduce experiences of obesity stigma.

Examination of psychological flexibility in relation to reducing obesity stigma is another avenue for future research. Psychological flexibility has been found to reduce mental health stigma (Masuda et al., 2009), and as such, may be a viable mechanism to work toward the ultimate goal of reducing the occurrence of obesity stigma.

Practical Implications

Continued research regarding the effects of anti-fat attitudes is desperately needed to provide stigma-free experiences for overweight and obese individuals, especially when interacting with medical professionals, counselors, and psychologists. Schwartz et al.

(2003) found that healthcare professionals who work primarily with obese patients endorsed negative stereotypes such as “lazy” or “stupid” when asked about their patients. In particular, the stereotype “lazy” has been linked to belief that the obese are to blame for their condition due to a lack of self-control. Similarly, mental health professionals have been found to attribute more negative characteristics, increased severity of psychological symptoms, increased pathology, and lower levels of functioning to obese clients (Hassel et al., 2001).

These same anti-fat attitudes are also occurring in medical and mental health training programs. Burmeister et al., (2013) found that in a large university’s graduate psychology program, applicants with a higher BMI was correlated with having fewer requested interviews for admissions. In another training program, mental health trainees endorsed more negative characteristics (e.g., obese clients were rated as being more unattractive, having lower self-esteem, and lacking self-control) for obese clients compared to average weight clients (Pascal & Robinson Kurpius, 2012). Anti-fat attitudes such as these in healthcare settings and in training continue to place overweight and obese individuals at risk for high blood pressure and decreased regulation of glycemic control (Puhl & Suh, 2015); body image dissatisfaction (Ferreira et al., 2016); disordered eating (Davison et al., 2008); binge eating disorder (de Zwaan, 2001); unhealthy eating habits (Puhl & Luedicke, 2012); exercise avoidance (Faith et al., 2002); weight cycling (Brownell & Rodin, 1994); and decreased quality of life (Jackson et al., 2015). Reduction of anti-fat attitudes in society would theoretically reduce the negative weight-based experiences of the overweight and obese, which have contributed to the aforementioned physiological and psychological issues.

In conclusion, the present study was not able to confirm the proposed model, which leaves many unanswered questions regarding the psychological experiences of those who hold anti-fat attitudes. However, this lack of information indicates the need for additional research in this field to better understand potential factors that contribute to anti-fat attitudes, psychological distress, and psychological flexibility. Future research could focus on exploring if obesity stigma is similar to or different from other forms of stigma or the role that psychological flexibility may play in reducing anti-fat attitudes. Delving further into anti-fat attitudes is vital in order to create interventions that can reduce anti-fat bias, thereby reducing the negative impact obesity stigma has on the overweight and obese.

APPENDIX A

HUMAN SUBJECTS CONSENT FORM

HUMAN SUBJECTS CONSENT FORM

Note: Use the Human Subjects Consent form to briefly summarize information about the study/project to participants and obtain their permission to participate. Assure that subjects in protected classes (e.g. prisoners, pregnant women or human fetuses or neonates, children) are provided complete information about the risks and benefits.

The following is a brief summary of the project in which you are asked to participate. Please read this information before signing the statement below. You must be of legal age or must be co-signed by parent or guardian to participate in this study.

TITLE OF PROJECT: Psychological Flexibility and Attitudes about Fatness

PURPOSE OF STUDY/PROJECT: To explore the relationships between attitudes about fatness, psychological flexibility, and well-being among adults in the U.S.

SUBJECTS: Adults (18 years or older) that are currently residing in the United States.

PROCEDURE: Should you consent to participate, you will be asked to complete a demographics questionnaire and three self-report inventories, including surveys with items related to your perceptions of others' weight/size, psychological symptoms you may experience, and the way in which you think. Participation is voluntary and may be terminated at any time. Following this informed consent, you will be directed to follow a hyperlink to the survey platform in order to complete the study. Completion of all questions should require no more than 20 minutes.

BENEFITS/COMPENSATION: Individuals who agree to participate in this study will be compensated $0.25 for a completed survey via Amazon's Mechanical Turk. (MTurk). In order to receive payment participants must 1) enter their MTurk Worker ID on the final page of the survey and 2) enter, in MTurk, the survey code found on the final page of the survey. If their participation cannot be confirmed by Worker ID and survey code, no payment will be provided. If a survey response is deemed to have been provided by a bot, rather than a human, due to failure to answer a specified question or nonsense answers, compensation will not be provided. Worker ID's will be stored separately from participants' data to ensure that anonymity is upheld.

RISKS, DISCOMFORTS, ALTERNATIVE TREATMENTS: There is a potential risk of loss of confidentiality in all email, downloading, and internet transactions. Participants' personal identifying data will not be collected with the survey data. All data collected through Psychdata will be stored in a password protected electronic file. Participants will be given the option to provide their contact information if they would like to receive the results on the study. Participants' contact information will not be linked to survey responses, and will be kept in a separate electronic password protected file.

Participating in this study may result in the loss of the participant's time. The surveys have been created to be as short as possible to minimize the risk. The surveys should take 15- 20 minutes of a participant's time. Participants may choose to complete the surveys at a time and place of their choosing. Additionally, participants may take breaks as needed or withdraw their participation at any time.

There is a risk that answering questions related to one's mental health and discussing the body weight of self and others' may be uncomfortable for some participants. Participants are free to take a break without being penalized and may withdraw at any point of the study. If you experience any emotional discomfort after completing the study you are encouraged to visit APA's Psychologist Locator at http://locator.apa.org to find a mental health professional so you can seek services. Participants who are Louisiana Tech University students should call the Counseling Center on campus for free mental health services at (318) 257-2488.

I attest that I have read and understood the following description of the study, "Psychological Flexibility and Attitudes About Fatness", and its purposes and methods. I understand that my participation in this research is strictly voluntary and my participation or refusal to participate in this study is completely at my discretion. Further, I understand that I may withdraw at any time or refuse to answer any questions without penalty. I understand that the results of my survey will be confidential and accessible only to the principal investigators, myself, or a legally appointed representative. I have not been requested to waive nor do I waive any of my rights related to participating in this study.

Additionally, I am aware this server may collect information and my IP address indirectly and automatically via "cookies". I understand that Louisiana Tech is not able to offer financial compensation nor to absorb the costs of medical treatment should you be injured as a result of participating in this research.

If you do not wish to participate in this study, please decline participation by closing the window.

Contact Information: The principal investigators listed below may be reached to answer questions about the research, subjects' rights, or related matters.

Emily Squyres, (337) 258-4136 ers019@latech.edu

Dr. Dena Abbott, (318) 257-3515 dabbott@latech.edu

Members of the Human Use Committee of Louisiana Tech University may also be contacted if a problem cannot be discussed with the experimenters.

Dr. Richard Kordal, Director of Intellectual Properties
(318) 257-2484; rkordal@latech.edu

APPENDIX B

DEMOGRAPHICS QUESTIONNAIRE

Demographic Questionnaire

The questions on this page request personal information used to compare different groups of people. Please describe yourself honestly by filling in the blanks or checking your response.

1. Gender: (please check one)
   _____Male
   _____Female
   _____Transgender
   _____Intersex
2. Age: _____
3. Race/ethnicity (please mark the category that best describes your race/ethnicity):
   ___White/European American
   ___Hispanic/Latino(a)
   ___ Black/African/African American
   ___Native American
   ___Asian/Asian American/Pacific Islander
   ___Bi- or Multiracial/Ethnic (Specify all): _____
   Other: _____

4. In which of the following geographic regions within the U.S. do you currently reside?
   ___Northeast U.S. *(Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island,*
   New Jersey, New York, Pennsylvania, and Vermont)
   ___Southern U.S. *(Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, Washington, D.C., Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, Texas, and West Virginia)*
   ___Midwest U.S. *(Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota)*
   ___Western U.S. *(Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah,*
   Wyoming, Alaska, California, Hawaii, Oregon, and Washington)

5. Years of education (e.g., completing 8th grade is 8 years, a high school diploma is 12 years, an Associate's Degree is 14 years, a Bachelor's Degree is 16 years):
   _____

6. Sexual Orientation:
   ___Gay/lesbian
   ___Straight/heterosexual
   ___Bisexual
   ___Other (please specify):_____
7. Do you consider yourself financially:
   a. ___Dependent on family (I depend on financial support from parents/family)

a. If you consider yourself to be financially **dependent,** please select the range that best describes your family's annual income before taxes. If you fall in between categories (i.e., $23,500) please determine if your financial situation would be best described by rounding up or down:
___$19,000 and below
___$20,000-$23,000
___$24,000-$32,000
___$33,000-$60,000
___$61,000-$100,000
___$101,000-$150,000
___$151,000 and above

b. Independent from family (I do not depend on financial support from parents/family)
a. If you consider yourself to be financially **independent,** please select the range that best describes your annual income before taxes. If you fall in between categories (i.e., $23,500) please determine if your financial situation would be best described by rounding up or down:
___$19,000 and below
___$20,000-$23,000
___$24,000-$32,000
___$33,000-$60,000
___$61,000-$100,000
___$101,000-$150,000
___$151,000 and above

8. What is your current weight?
Weight (lbs.): _____
Height (feet/inches): _____
a. How long have you been your current weight?
_____Months
_____Years
b. Are you currently on a diet?
_____Yes
_____No
If yes, how much weight have you lost?_____
In what amount of time? _____
c. Have you ever lost a large amount of weight?
_____Yes
_____No
If yes, how much _____
At what time in your life?_____

d. Do you have a history of losing weight and gaining it back?
_____Yes
_____No

If yes, how many times over your life have you lost weight and gained it back?_____
On average, how many pounds did you gain back? _____

APPENDIX C

ACCEPTANCE AND ACTION QUESTIONNAIRE II

Acceptance and Action Questionnaire II

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	**very seldom true**	**seldom true**	**sometimes true**	**frequently true**	**almost always true**	**always true**

1. My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
2. I'm afraid of my feelings.	1	2	3	4	5	6	7
3. I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
4. My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
5. Emotions cause problems in my life.	1	2	3	4	5	6	7
6. It seems like most people are handling their lives better than I am.	1	2	3	4	5	6	7
7. Worries get in the way of my success.	1	2	3	4	5	6	7

APPENDIX D

ANTIFAT ATTITUDE QUESTIONNAIRE (AFAQ)

Antifat Attitude Questionnaire (AFAQ)

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

1. I really don't like fat people much.
2. I don't have many friends that are fat.
3. I tend to think that people who are overweight are a little untrustworthy.
4. Although some fat people are surely smart, in general, I think they tend not to be quite as bright as normal weight people.
5. I have a hard time taking fat people too seriously.
6. Fat people make me feel somewhat uncomfortable.
7. If I were an employer looking to hire, I might avoid hiring a fat person.
8. I feel disgusted with myself when I gain weight.
9. One of the worst things that could happen to me would be if I gained 25 pounds.
10. I worry about becoming fat.
11. People who weight too much could lose at least some part of their weight through a little exercise.
12. Some people are fat because they have no willpower.
13. Fat people tend to be fat pretty much through their own fault.

APPENDIX E

DEPRESSION, ANXIETY, AND STRESS SCALES (DASS-42)

Depression, Anxiety, and Stress Scales (DASS-42)

Please read each statement and select a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any one statement.

0= Did not apply to me at all 1= Applied to me to some degree or for some of the time 2= Applied to me to a considerable degree or for a good part of time 3= Applied to me very much or most of the time

1. I found myself getting upset by quite trivial things.
2. I was aware of dryness of my mouth.
3. I couldn't seem to experience any positive feelings at all.
4. I experienced breathing difficulty (e.g., breathlessness or excessively rapid breathing in the absence of physical exertion).
5. I just couldn't seem to get going.
6. I tended to over-react to situations.
7. I had a feeling of shakiness (e.g., legs going to give way).
8. I found it difficult to relax.
9. I found myself in situations that made me so anxious I was most relieved when they ended.
10. I felt that I had nothing to look forward to.
11. I found myself getting upset rather easily.
12. I felt that I was using a lot of nervous energy.
13. I felt sad and depressed.
14. I found myself getting impatient when I was delayed in any way (e.g., lifts, traffic lights, being kept waiting).
15. I had a feeling of faintness.
16. I felt that I had lost interest in just about everything.
17. I felt I wasn't worth much as a person.
18. I felt that I was rather touchy.

19. I perspired noticeably (e.g., hands sweaty) in the absence of high temperatures or physical exertion.
20. I felt scared without any good reason.
21. I felt that life wasn't worthwhile.
22. I found it hard to wind down.
23. I had difficulty in swallowing.
24. I couldn't seem to get any enjoyment out the things I did.
25. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).
26. I felt down-hearted and blue.
27. I found that I was very irritable.
28. I felt I was close to panic.
29. I found it hard to calm down after something upset me.
30. I feared that I could be "thrown" by some trivial but unfamiliar task.
31. I was unable to become enthusiastic about anything.
32. I found it difficult to tolerate interruptions to what I was doing.
33. I was in a state of nervous tension.
34. I felt I was pretty worthless.
35. I was intolerant of anything that kept me from getting on with what I was doing.
36. I felt terrified.
37. I could see nothing in the future to be hopeful about.
38. I felt that life was meaningless.
39. I found myself getting agitated.
40. I was worried about situations in which I might panic and make a fool of myself.
41. I experienced trembling (e.g., in the hands).
42. I found it difficult to work up the initiative to do things.

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