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Ideology, Thin-Ideal Internalization, and Social Comparison: An Examination of the Correlates of Weight Bias

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Ideology, Thin-Ideal Internalization, and Social Comparison: An Examination of the Correlates
of Weight Bias

by

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A THESIS

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Abstract

Although a history of research and social action has led to progress in the areas of race and gender bias, weight bias, or the negative attitudes and beliefs towards people with obesity, has been given considerably less focus. Given the increasing rates of obesity and the increase in the intensity and frequency of weight-bias, research is needed to elucidate factors associated with weight bias. This research quantitatively examined the relationship between three social ideologies, thin-ideal internalization, and social comparison processes in relation to weight bias. Participants were 153 adults from the United States recruited through Amazon.com's Mechanical Turk. The results suggested that, while social ideology remains significantly associated with weight bias, thin-ideal internalization and social comparisons are also significantly associated with both explicit and implicit weight bias. Future research may want to more closely align with body image research, and investigate the utility of body image interventions for weight bias.

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List of Abbreviations

ATOP: Attitudes towards Obese Persons scale

BAOP: Beliefs about Obese Persons scale

DACS: Downward Appearance Comparison Scale

HIT: Human Intelligence Task

IAT: Implicit Association Task

M-GUDS-S: Miville-Guzman Universality-Diversity Scale - Short

MTurk: Amazon.com's Mechanical Turk

RWA: Right-Wing Authoritarianism

SATAQ-3: Sociocultural Attitudes towards Appearance Questionnaire

SDO: Social Dominance Orientation

UDO: Universal-Diverse Orientation

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CHAPTER ONE: INTRODUCTION

Stigma is a potent phenomenon which discredits and diminishes an individual from a whole being, based on a particular attribute or characteristic (Crocker, Major, & Steele, 1998; Goffman, 1963; Major & O'Brien, 2005). Stigmatizing attitudes can be based on an individual's group membership, behaviour, or physical appearance and can affect the physical and psychological health of its victims (Major & O'Brien, 2005). Rather than being a phenomenon that originates and exists within an individual, stigmatizing attitudes occur within the social context (Major & O'Brien, 2005). Not only do stigmatized attributes or characteristics tend to be widespread within a society (Crocker et al., 1998), they become the foundation for social exclusion, stereotypes, and discrimination (Leary & Schreindorfer, 1998; Major & Eccleston, 2004). Brownell (2005) posited that stigma and "the discrimination it breeds are passed through generations, socialized through multiple channels, and often occur in people who believe themselves to be fair-minded" (p. 1). Stereotypes refer to specific beliefs about a group of individuals that can be positive or negative, correct or incorrect, that can be applied to a particular individual within the group (Kanahara, 2006). Finally, discrimination refers to unjust behavioural actions, which favour or reject an individual based on their affiliation with a stereotyped attribute or characteristic (Major, Quinton, & McCoy, 2002).

Over the last several decades, Western culture has placed an increased emphasis on the value of physical appearance and thinness (Kindes, 2006). Social norms, or rules for accepted and expected physical appearance in Western culture, prescribe that women ought to be thin, and men ought to be lean and muscular (Leit, Pope, & Gray, 2001; Myers & Spencer, 2006; Wiseman, Gray, Mosimann, & Ahrens, 1992). The growing strength of these norms for expected physical appearance has been implicated as a significant risk factor in body dissatisfaction, and

eating pathology, through the process of internalization (Grabe, Ward, & Hyde, 2008; Slevec & Tiggemann, 2011; Thompson & Stice, 2001). Thin-ideal internalization occurs when “an individual cognitively ‘buys into’ socially defined ideals of attractiveness and engages in behaviors designed to produce an approximation of these ideals” (Thompson & Stice, 2001, p. 181). The media has been largely blamed for creating and perpetuating these thin-ideal standards (Strahan et al., 2008). Cattarin, Thompson, Thomas, and Williams (2000) proposed that increased exposure to thin-ideal media images increases body dissatisfaction through social comparison processes; when individuals evaluate themselves through comparing themselves to others (Festinger, 1954).

In addition to influencing body dissatisfaction and eating pathology, the emphasis on physical appearance has created a plethora of consequences for overweight and obese individuals in the form of weight bias; the stigma toward, and negative stereotypes about, individuals with overweight and obesity (Brownell, 2005). Weight bias research has consistently supported the finding that people with obesity are stereotypically characterized as being lazy, weak-willed, physically and sexually unattractive, and gluttonous (Puhl & Brownell, 2001; Puhl & Heuer, 2009). These and other stereotypes are widely held and rarely challenged and as a result people with obesity are vulnerable to social injustice and impaired quality of life (Puhl & Brownell, 2001; Puhl & Heuer, 2009).

Although an abundant history of research, advocacy, social action, and public policy has led to progress in the areas of race and gender bias, weight bias has been given much less focus (Brownell, 2005). Two decades ago, Crandall (1994) noted that weight biased attitudes seemed to parallel the state of racism in the 1950’s; arguing that it was “overt, expressible, and widely held” (p. 891). More recent research examining the rates of weight bias confirmed that weight

bias was comparable to the estimated rates of race and gender bias (Andreyeva, Puhl, & Brownell, 2008; Puhl, Andreyeva, & Brownell, 2008). Weight bias has also been observed in education, healthcare, employment, and interpersonal relationships (e.g., Puhl & Brownell, 2001; Puhl & Heuer, 2009). Despite this increase in weight bias, public health implications have largely been ignored, likely due to the acceptance of weight bias in North American society (Puhl & Heuer, 2010). Puhl and Heuer (2010) noted that, throughout history, stigma toward particular groups of people, for instance Irish immigrants, African Americans, and individuals with HIV/AIDS, has served to increase the suffering of disadvantaged groups and hindered public health intervention efforts. Despite this history, however, acts of bias towards individuals with obesity have been suggested as a positive motivator for weight loss and to control the obesity epidemic (e.g., Crister, 2003). In reality, research suggests that weight bias serves to increase unhealthy lifestyle behaviours associated with overweight and obesity (e.g., Puhl, Moss-Racusin, & Schwartz, 2007; Vartanian & Novak, 2011). Puhl and Heuer (2010) concluded that weight bias should not be considered a viable or valuable strategy for obesity reduction. Rather, they argued that weight bias ought to be considered a social justice issue that should be addressed in obesity interventions and public health campaigns (Puhl & Heuer, 2010). Despite research documenting the occurrence of weight bias in various life domains, research investigating the nature of weight bias and the factors associated with weight bias remains significantly limited. Recently, researchers have called for increased efforts to be placed on understanding the correlates of weight bias in order to better inform future interventions (Puhl et al., 2014).

The Current Study

The purpose of this research was to examine the factors that may contribute to the development and persistence of weight bias, with the hope that, by beginning to better understand these factors, more effective weight bias interventions can be developed and implemented. Four additional chapters comprise the remaining components of this thesis. Chapter two presents a review of the literature concerning the four main topics of concern in the current research: weight bias, sociocultural norms for ideal appearance, social comparison theory, and ideology. Chapter two of this thesis draws from the literature on stigma, body image, and weight bias, and aims to; (a) connect weight bias to literature examining three social ideologies, (b) examine the relationship between weight bias and social comparison, (c) examine the relationship between weight bias and thin-ideal internalization, and (d) combine these factors in an effort to increase our understanding of weight bias. Chapter three outlines the specific research questions, hypotheses, quantitative methods and statistical analyses used for the current study. Chapter four presents the results of the quantitative analyses conducted, and chapter five reviews and interprets these results in light of current research and presents possible directions for future research.

CHAPTER TWO: LITERATURE REVIEW

Although weight bias research has increased in recent years, researchers maintain that our understanding of the extent and impact of weight bias remains limited (Gearhardt et al., 2012). The vast proportion of existing weight bias research has focused on the settings in which weight bias occurs (e.g., Boyes & Latner, 2009; Puhl, Luedicke, & Heuer, 2011), as well as the attitudes and beliefs related to weight bias (e.g., Giel, Thiel, Teufel, Mayer, & Zipfel, 2010; Vartanian, 2010). Recent research examining the prevalence of weight bias has suggested that, between 1995 and 2008, the occurrence of weight bias had increased 66%, and was comparable to the estimated rate of racial discrimination in the United States (Andreyeva, Puhl, & Brownell, 2008; Puhl, Andreyeva, & Brownell, 2008). However, Andreyeva et al. (2008) argued that the dramatic increase in the occurrence of weight bias is unlikely to be explained solely by the increase in the incidence of obesity. Rather, they proposed that this shift may be better explained by increased media messages that body weight and obesity are controllable and, therefore, a personal responsibility (Andreyeva et al., 2008).

Recently, research efforts have also focused on interventions aimed at reducing weight bias (e.g., Diedrichs & Barlow, 2011; McVey et al., 2013). Results from these interventions are often mixed and researchers have found that intervention effects tend to wane over the long term (e.g., McVey et al., 2013; Swift et al., 2013). As a result, researchers have called for booster sessions, or guided participant self-reflection as a way to maximize long term attitude change (McVey et al., 2013; Swift et al., 2013). Taken together, the recent increase in the prevalence of weight bias and the findings from weight bias intervention research suggest that increased effort needs to be placed on understanding the factors which contribute to the development and persistence of weight bias; which is the focus of the current research.

This chapter begins with a general overview of weight bias literature. Specifically, the attitudes and beliefs related to weight bias will be examined, followed by a discussion of the pervasiveness of weight bias in four life domains and an examination of the physical and psychological health consequences of weight bias. Sociocultural norms for ideal body image will then be introduced and discussed through the lens of weight bias, with a focus on the dissemination of these messages through the media and social comparison processes. This will be followed by an overview of attribution theory as it relates to weight bias and the connection between attributions and ideology. Previous research examining the relationship between ideology and weight bias will be presented prior to an overview of the current research project.

Weight Bias

Weight bias encompasses a plethora of negative attitudes and beliefs about persons with overweight and obesity (Puhl & Brownell, 2001; Puhl & Heuer, 2009). Weight bias can be subtle or overt, and can encompass both verbal and physical aggression, as well as social exclusion (Puhl & Brownell, 2007). Reviews of weight bias literature suggest that, regardless of the domain of living studied (e.g., educational settings, occupational settings), attitudes and beliefs toward persons with obesity are relatively consistent; they are regarded as lazy, unhygienic, incompetent, lacking in self discipline and willpower, and as less conscientious (Puhl & Brownell, 2001; Puhl & Heuer, 2009). Individuals tend to attribute overweight and obesity more to a lack of willpower and food consumption, than to genetics (Beeken, & Wardle, 2013).

These attitudes and beliefs are expressed both explicitly and implicitly as weight bias. Explicit weight bias is an individual's conscious awareness of negative attitudes and beliefs towards obese persons and is measured through the use of self-report questionnaires (Brochu & Morrison, 2007). While the measurement of explicit weight bias has been useful in previous

research (e.g., Gujral, Tea, & Sheridan, 2011), response bias can occur when individuals respond to explicit bias measures in a socially desirable way (Rudman, Greenwald, Mellott, & Schwartz, 1999; Schwartz, Chambliss, Brownell, Blair, & Billington, 2003). Implicit weight bias consists of automatic attitudes and beliefs that lie beyond conscious awareness (Brochu & Morrison, 2007; Schwartz et al., 2003). Measuring implicit attitudes allows a researcher to examine attitudes that are automatically activated when an individual is presented with a target person or object (Dovidio, 2001).

The Pervasiveness of Weight Bias

Research has suggested that the prevalence of weight bias is congruent with the prevalence of racial discrimination (Andreyeva, Puhl, & Brownell, 2008; Puhl, Andreyeva, & Brownell, 2008). Four important areas of living that have been heavily documented in the literature as being strongly impacted by weight bias are; employment, education, health care, and interpersonal relationships (Puhl & Brownell, 2001; Puhl & Heuer, 2009). However, recent research has also investigated the occurrence of weight bias in tourism (Small & Harris, 2012), the criminal justice system (Schvey, Puhl, Levandoski, & Brownell, 2013), and for individuals with physical impairments (Resnik, Lapane, & Allen, 2005).

Employment settings. In a nationally representative sample of 2290 U. S. adults, 60% of respondents reported weight discrimination in employment settings; a number similar to reported rates of racial discrimination, and higher than reported gender discrimination (Puhl et al., 2008). A recent qualitative review of the literature examining weight bias in a variety of occupational settings and situations suggested a strong presence of weight-based stereotypes in the workplace, including the belief that people with obesity have poorer job performance, job suitability, reliability, and intelligence (Giel et al., 2010). In addition, the researchers also reported that

individuals with obesity tend to experience barriers to gaining employment in general and in specific professions, and attaining professional success and acceptance in the workplace (Giel et al., 2010). Furthermore, longitudinal research has suggested that, after controlling for socioeconomic and familial factors, individuals with obesity experience a significant and persistent wage discrepancy over the course of their careers (Baum & Ford, 2004).

Previous research has suggested that people with obesity are less likely to be hired and that this disparity is significantly influenced by implicit weight stereotypes (Agerstrom & Rooth, 2011). In order to further investigate biased hiring attitudes, Giel and colleagues (2012) examined the weight bias and discrimination of human resources professionals from a variety of professions and professional organizations. Participants were asked to evaluate standardized photographs of individuals who differed in gender, ethnicity, and weight status and evaluate the target individuals on employability, occupational prestige, and work-related success. Participants were asked to choose which potential employees they would hire, sort these individuals into three levels of occupational prestige, and nominate three individuals for a supervisory position. When choosing who they would not hire, 42% of participants claimed that they would not choose the obese female, and 19% indicated they would not choose the obese male. Further, candidates with obesity were rarely chosen for supervisory positions or for high-prestige occupations.

Educational settings. Previous research has suggested that individuals with obesity tend to have lower levels of education attainment than their normal weight peers (Crosnoe, 2007; Wardle, Waller, & Jarvis, 2002). Longitudinal research conducted with a nationally representative sample of approximately 90,000 American adolescents suggested that, while women with obesity were significantly less likely to enter college than their peers of normal

weight, no differences were found in rates of college entry between males with and without obesity (Crosnoe, 2007). Although these findings suggest that there are differences in educational attainment between individuals with and without obesity, research suggests that these differences may be attributable to weight bias among school professionals and weight bias in peers (e.g., Puhl & Latner, 2007). In a retrospective study, Puhl and Brownell (2006) found that educators were among the most commonly reported sources of weight bias, with 32% of participants indicating that they had experienced weight stigma from a teacher or professor at least once in their lifetime.

Previous research investigating the weight-related beliefs and attitudes of high school teachers, nurses, and social workers found that participants had the tendency to believe that students with obesity are less likely to succeed, are compensating for a lack of love through food, and believe that, generally, most people are uncomfortable associating with a person with obesity (Neumark-Sztainer, Story, & Harris, 1999). Similar results have been found with physical education teachers in all levels of education, who tend to believe that children who are overweight lack adequate social skills, reasoning, physical ability, and cooperation skills when compared to peers of normal weight (Greenleaf & Weiller, 2005). Physical education teachers at the primary, middle, and high school levels have also reported that they expect overweight and obese female students to have poorer physical ability, interpersonal skills, and teamwork than non-overweight female students (Peterson, Puhl, & Luedicke, 2012).

Healthcare. Weight bias has also been reported in a wide array of healthcare professionals including nurses (Brown, 2006), physicians (Sabin, Marini, & Nosek, 2012), dietitians (Stone & Werner, 2012), mental health professionals (Puhl, Latner, King, & Luedicke, 2014), and health pre-professionals (Miller et al., 2013). Research suggests that healthcare

professionals tend to believe that individuals with obesity lack willpower, are noncompliant with treatment, and are undisciplined (Puhl & Brownell, 2001). This research is especially troubling given that biased attitudes may impact a patient's quality of care through reduced time spent with patients, inappropriate comments, and a preference to avoid the discussion of weight (Mold & Forbes, 2013; Puhl & Heuer, 2009; Waller, Lampman, & Lupfer-Johnson, 2012). Recent research investigating the attitudes of medical students found that almost 40% of students had significant implicit and explicit weight bias, and that two thirds of these students were unaware of their bias (Miller et al., 2013). Similarly, research examining the implicit bias of nursing and psychology students found that both groups of students exhibited strong weight bias, and that students were more biased towards females than males (Waller et al., 2012).

The biased attitudes of healthcare students could carry forward into professional practice. Recent research examining weight bias among a large sample of medical doctors suggested that negative attitudes parallel the attitudes of the general population in strength and prevalence (Sabin, et al., 2012). Biased attitudes have even permeated health professionals who are most knowledgeable about obesity (Schwartz et al., 2003). Schwartz et al. (2003) found strong weight bias within a mixed sample of professionals specializing in obesity research or practice. The authors suggested that the influence of weight bias is so significant that even professionals specializing in obesity construe personal characteristics of the patient (e.g., lazy, sluggish, unintelligent) as playing a large role in their condition. Research focusing on the attitudes and beliefs of doctors treating patients with obesity suggested that doctors tend to believe that the cause and treatment of obesity is the responsibility of the patient rather than the responsibility of physicians (Epstein & Ogden, 2005). In a review of research investigating interactions between overweight and obese patients and health professionals, Mold and Forbes (2013) found that, not

only do health professionals have negative attitudes toward patients with obesity, but they also spend less time with obese patients and offer them fewer treatment options when compared to patients without obesity.

Interpersonal relationships. People with obesity also experience weight bias in close interpersonal relationships including friendships (Palmer & Rutland, 2011), familial relationships (Puhl, Moss-Racusin, Schwartz, & Brownell, 2008), and romantic relationships (Boyes & Latner, 2009). Palmer and Rutland (2011) investigated the attributions ascribed by 5-to-11 year old children to pictures of underweight, normal weight, and overweight children, and examined whether or not children displayed weight bias in friendship preference. The results of the study suggested that girls assigned the most positive traits to the underweight children and the most negative traits to the overweight children while boys displayed preference towards normal weight children. Further, the majority of participants selected the underweight child as their preferred friend (Palmer & Rutland, 2011). When comparing peer, teacher, and self reports, obese children between the ages of 8 and 16 were found to be significantly more likely to be described as more socially withdrawn, were less likely to be indicated as a best friend, and had lower peer acceptance (Zeller, Reiter-Purtill, & Ramey, 2008). Previous research has also found that obese girls experience an increased risk of being bullied, but that obese boys are just as likely to be either a perpetrator or a victim of bullying (Griffiths, Wolke, Page, & Horwood, 2006).

When asked to describe their worst stigmatizing experience, adult participants in a recent study indicated that parents were among the most frequently reported sources of weight bias (Puhl et al., 2008). The study also found that participants' worst stigmatizing experience most often occurred in adulthood and was perpetrated by adults. In an examination of weight bias in

sexual relationships, Chen and Brown (2005) found that, although men and women ranked an obese partner as the least desirable, men ranked an obese partner as significantly more undesirable than women. Similar results emerged from a study investigating weight bias in pre-existing romantic relationships (Boyes & Latner, 2009). The results of the study suggested that couples with female partners with overweight or obesity had lower relationship quality and that overweight females were described by their partners as less attractive than what their ideal partner would look like.

Summary. Over the last two decades, researchers have documented the occurrence of weight bias in four important domains of living. First, within employment settings, persons with obesity tend to experience difficulty gaining employment, attaining professional success, and gaining acceptance in the workplace (Giel et al., 2010; Giel et al., 2012). Second, researchers have proposed that the weight bias of teachers, school professionals, and peers significantly impacts the educational experiences and attainment of persons with obesity (Crosnoe, 2007; Puhl & Latner, 2007). Third, research has suggested that health care professionals are not immune to weight bias (e.g., Miller et al., 2013; Sabin et al., 2012; Puhl et al., 2014), and that weight bias has even permeated those professionals who are most knowledgeable about obesity (Schwartz et al., 2003). Fourth, weight bias negatively impacts interpersonal relationships, including familial and peer relationships (Palmer & Rutland, 2011; Puhl et al., 2008) as well as romantic relationships (Boyes & Latner, 2009).

Physical and Psychological Health Consequences

Although researchers have called for increased efforts to investigate the physical and psychological health consequences experienced by victims of weight bias (Puhl & Heuer, 2009), research has only begun to emerge in recent years (e.g., Schafer & Ferraro, 2011). Results from a

10-year national survey suggested that perceived weight discrimination (e.g., perceiving instances in which others treated the participant as inferior, unintelligent, or dishonest) in a variety of social settings played a significant role in the occurrence of numerous physical health consequences associated with obesity, such as reduced mobility (Schafer & Ferraro, 2011). Further, perceived weight status and perceived weight discrimination, but not actual weight status, contributed to perceived declines in health. Internalization of weight bias, defined as the acceptance of weight bias by individuals with overweight and obesity (Puhl, Moss-Racusin & Swartz, 2007), has also been associated with disordered eating behaviour and binge eating disorder (Durso et al., 2012). Previous research has also suggested that individuals who believe that weight-based stereotypes are true engage in more binge eating behaviour and are less likely to diet than individuals who do not believe weight-based stereotypes (Puhl, Moss-Racusin, & Schwartz, 2007). Finally, previous research has also suggested that experiencing weight discrimination is positively associated with increased body dissatisfaction and negatively associated with motivation to engage in physical exercise (Vartanian & Novak, 2011; Vartanian & Shaprow, 2008).

Weight bias is also associated with significant psychological health consequences including depression (Fettich & Chen, 2012), low self-esteem (Annis, Cash, & Hrabosky, 2004), maladaptive coping strategies, and poor psychological well-being (Puhl & Brownell, 2006). In a sample of adult participants seeking bariatric surgery, Chen et al. (2007) found that participants' lived experiences with weight stigma, but not binge eating behaviour or weight-related physical disability, contributed significantly to participants' depression. In a follow-up study investigating the factors associated with depression in African American and Caucasian participants, Fettich

and Chen (2012) found that, in both populations, frequent weight discrimination was associated with depressed mood and negative coping strategies including crying and negative self-talk.

In an investigation of coping strategies and overall psychological well-being of individuals who experience weight bias, Puhl and Brownell (2006) found that participants who had a tendency to use maladaptive coping strategies, such as avoidance and negative self-talk, experienced more psychological distress and had lower self-esteem. Other research comparing participants who were currently overweight, formerly overweight, or never overweight found that participants who were currently overweight reported significantly greater body dissatisfaction and lower overall self-esteem and that this was impacted by stigmatizing experiences from across the lifespan (Annis et al., 2004). Although the results of this research suggest that weight bias is significantly associated with physical and psychological health consequences, Puhl and Heuer (2009) have called for increased research efforts in order to better understand the health consequences of weight bias.

Summary

Although researchers have begun to document the physical and psychological health consequences associated with weight bias in recent years (e.g., Fettich & Chen, 2012; Schafer & Ferraro, 2011), the majority of weight bias research has focused on the life domains in which weight bias occurs (e.g., Boyes & Latner, 2009; Puhl et al., 2011) as well as the attitudes and beliefs related to weight bias (e.g., Giel et al., 2010). Where research efforts have not been as strong, however, is in understanding the factors which contribute to the development and persistence of weight bias. Vartanian and Novak (2011) speculated that two different, but related, forms of internalization may be related to weight bias, and individuals' responses to experiences with weight bias. The first is the internalization of the belief that "fat is bad". The second is the

internalization of society's standards for attractiveness, also referred to as appearance norms or ideal body standards, which will be discussed in the next section.

Sociocultural Appearance Norms

Vartanian and Novak (2011) proposed that another way of understanding weight bias is that these attitudes reflect how much an individual has bought into social standards of attractiveness, which has been implicated as a significant factor in body dissatisfaction (Thompson & Stice, 2001). They propose that a similar relationship may exist between the extent to which a person has bought into societal standards of beauty and weight bias (Vartanian & Novak, 2011). The purpose of this section is to introduce the sociocultural appearance norms as they currently stand in Western culture, followed by a discussion of the influence the media has on these norms, and on weight bias.

Since the 1950's, appearance norms for women have shifted; the ideal body standard for women has become increasingly thinner, and thinness and physical attractiveness are viewed as being associated with success in life (Evans, 2003; Wiseman, Gray, Mosimann, & Ahrens, 1992). A similar trend has occurred for the ideal body standard for men, which has become increasingly leaner and more muscular since the 1970's (Leit, Pope, & Gray, 2001). In addition, these sociocultural norms come paired with an invalid message that body shape and weight are flexible and within the sole control of the individual (Thompson, Heinberg, Altabe, & Tantlett-Dunn, 1999). Body image research over the past few decades has implicated ideal appearance standards as contributing to body dissatisfaction and eating disorders when these norms are internalized (e.g., Lopez-Guimera, Levine, Sanchez-Carracedo, & Fauquet, 2010).

The Role of the Media

The media has been largely blamed for creating and perpetuating unrealistic ideal body standards (Strahan et al., 2008). Through all forms of media, individuals, especially women, are flooded with images of the thin-ideal on a daily basis (Buote, Wilson, Strahan, Gazzola, & Papps, 2011). Research conducted by Buote et al. (2011) suggested that the appearance norms encountered by women more strongly and rigidly represent the thin-ideal, and that women tend to receive far more messages than men about the attainability of the thin-ideal and the controllability of appearance. The results also suggested that the norms directed toward women are more harmful to body image than the norms directed toward men. Women tend to be exposed to a more homogeneous and rigid norm while men are exposed to a more heterogeneous norm, with idealized images being presented among a variety of ages, body types, and levels of physical attractiveness (Buote et al., 2011). In an examination of the distribution of visual attention paid to fashion advertisements, Ju and Johnson (2010) found that, of all the elements of an advertisement, participants spent the most time attending to the model not to the product and that increased visual attention to the model was related to stronger thin-ideal internalization.

Previous research has suggested that as exposure to media messages depicting ideal appearance norms increase, body dissatisfaction (Grabe, Ward, & Hyde, 2008), drive for muscularity (Cramblitt & Pritchard, 2013), and drive for thinness (Fernandez & Pritchard, 2012) also increase. Results from research investigating the effects of media exposure on body image and eating behaviours have also suggested that media exposure is positively associated with disordered eating behaviour among women (Slevec & Tiggemann, 2011). Strahan et al. (2008) proposed that sociocultural appearance norms suggest that a person's value is determined by their appearance, and exposure to ideal-appearance norms via the media serves to strengthen the

amount by which individuals base their self-worth on their appearance. Results from the research suggested that women based their self worth significantly more on appearance when they were exposed to images reflecting the thin-ideal than when they were exposed to neutral images. However, the results also suggested that this impact could be lessened by using an intervention which challenged sociocultural norms for thinness. Further research conducted by Halliwell (2013) suggested that, when individuals have a strong sense of body appreciation, they were less vulnerable to the effects of appearance-related media messages, even when self-reported thin-ideal internalization was high.

Given the impact of the media on body image and eating behaviours, researchers have begun to examine the effects of adding warnings or disclaimers to thin-ideal images in advertising (Ata, Thompson & Small, 2013; Slater, Tiggemann, Firth, & Hawkins, 2012; Tiggemann, Slater, & Smyth, 2014). Results from this research have suggested that, while viewing images without disclaimers may increase body dissatisfaction, viewing images with disclaimers is neither helpful nor harmful to participants' body dissatisfaction, mood, or intent to diet (Ata et al., 2013; Slater et al., 2012; Tiggemann et al., 2014).

Appearance Norms, the Media, and Weight Bias

According to Himes and Thompson (2007), sociocultural appearance ideals are conveyed in the media in two ways. First, these ideals are promoted through the use of images portraying the ideal standard that individuals should strive to attain. Second, appearance ideals are reinforced through stigmatizing images and characterizations of overweight and obese individuals. In a qualitative analysis of weight bias in television and film between 1984 and 2004, Himes and Thompson (2007) found that the majority of weight bias occurred as verbal comments directed toward another person, and that these comments were most often directed

toward female characters by male characters. Further, they found that weight biased television and film also attained high popularity and high ratings, which may indicate that viewers find these portrayals of weight bias to be acceptable, or are willing to overlook them (Himes & Thompson, 2007). In a more recent review of research examining weight bias in media directed at individuals across the lifespan, Ata and Thompson (2010) found that overweight and obese characters were more likely to be portrayed as physically unattractive, and to be associated with negative characteristics such as unhappiness, anger, and unsociable (Ata & Thompson, 2010). Further, overweight or obese characters were found to be less likely to interact with or talk about romantic partners and were less likely to display physical affection (Greenberg, Eastin, Hofschire, Lachlan, & Brownell, 2003).

In addition to television sitcoms and movies, reality television has also become increasingly weight biased in recent years through the creation of ‘lifestyle transformation’ shows such as *The Biggest Loser* (Christenson & Ivancin, 2006). In an examination of *The Biggest Loser*, Yoo (2012) found that individuals who are more concerned with their weight tend to watch more episodes of the show. Further, increased viewing of *The Biggest Loser* was also associated with increased perceived personal control over weight loss, attribution of obesity as being the sole responsibility of the obese person, and increased weight bias. Similarly, Domhoff et al. (2012) found that, compared to participants who watched one episode of a nature reality show, participants who watched one episode of *The Biggest Loser* were significantly more likely to believe that weight is controllable and to experience increased weight bias. Researchers have also recognized the importance of examining weight bias on internet sharing websites such as YouTube.com (Hussin, Frazier, & Thompson, 2011). In contrast to previous research, which suggested that men and women were both equally the targets of biased comments (e.g., Himes &

Thompson, 2007), Hussin et al. (2011) found that the majority of weight bias comments were made by males and were directed toward men rather than women.

In addition to entertainment media, researchers have also suggested that the ways in which obesity is framed in news media and public health campaigns can negatively influence weight bias attitudes (Kim & Willis, 2007; Puhl, Luedicke, & Peterson, 2013). Kim and Willis (2007) found that news media tend to portray obesity as being solely under the individual's control and that individuals are responsible for the causes of and solutions to obesity. In addition, researchers have also proposed that news media may be more likely to exaggerate research findings to emphasize individual blame, and choose to report articles that support an individual-blaming framework (Saguy & Almeling, 2008). In an investigation of the perceptions of members of the general population to public health campaigns, Puhl, Peterson, and Luedicke (2013) found that stigmatizing messages (e.g., "skip seconds... lose your gut" and "LOST: love handles. Last seen before taking stairs instead of escalator") received the lowest ratings, and that messages with the highest ratings focused on increasing healthy behaviours without making reference to weight. Further, public health campaigns with stigmatizing messages were viewed as more often having unsuitable visual content, and failed to instill motivation and self-efficacy for increasing healthy behaviours (Puhl et al., 2013).

Recent research has examined the effects of such stigmatizing media on weight bias (Klaczynski, Goold, & Mudry, 2004; Pearl, Puhl, & Brownell, 2012) and body dissatisfaction (Boersma & Jarry, 2013; Vartanian & Dey, 2013). Boersma and Jarry (2013) investigated the effects of biased tabloid-style articles on body dissatisfaction, and fear of appearance evaluation. Results of the study suggested that, when a picture of a normal-weight celebrity was paired with an article derogating the celebrity for gaining weight, participants reported greater fear of

negative appearance evaluation. Research investigating the effect of media images on weight bias found that participants who read a neutral news report on the causes of obesity paired with a stigmatizing image had significantly stronger weight bias than participants who read the report paired with a positive portrayal. However, the level of bias was congruent with that of previous research, not lower (McClure, Puhl, & Heuer, 2011). Findings from research conducted by Pearl et al. (2012) suggested that participants who viewed a positive image of an obese person selecting healthy food at a grocery store responded more positively than participants who viewed a negative image of a person with obesity consuming unhealthy foods on a couch, and that this difference was not influenced by the demographic variables of either the participant or the individual pictured.

Much of the research investigating the relationship between sociocultural appearance norms and weight bias has examined how weight bias is conveyed through the media (e.g., Klaczynski, Goold, & Mudry, 2004; Pearl, Puhl, & Brownell, 2012). Relatively few studies have examined the association between these two variables, and only one has examined this relationship in a more general sense. Klaczynski and colleagues (2004) examined the association between thin-ideal internalization of media messages in general with weight bias, and found a moderate correlation between internalization of thin-ideal media messages and weight bias, as well as the belief that weight is personally controllable. The current research aims to extend these findings by investigating the relationship between internalization of thin-ideal media messages, attitudes towards obese persons, and beliefs about obese persons.

Summary

Over the last several decades, appearance norms for both men and women have shifted; the ideal for women has become increasingly thinner while the ideal for men has become

increasingly leaner and more muscular (Leit et al., 2001; Wiseman et al., 1992). Both men and women are flooded with media images of appearance ideals every day, although research suggests that images targeted towards women are more rigid (Buote et al., 2011). Previous research has suggested that sociocultural appearance norms communicated through the media have a significant impact on body dissatisfaction as well as weight bias (e.g., Grabe et al., 2008; Himes & Thompson, 2007; Puhl et al., 2013; Yoo, 2012).

The previous sections have focused on introducing the attitudes and beliefs that make up weight bias as well as the influence of shifting sociocultural appearance norms and the media on weight bias. To complement this discussion, the following sections will discuss two theories which may be used to conceptualize the vehicle through which appearance norms and weight bias permeate society: Social Comparison Theory and Attribution Theory.

Social Comparison Theory

Researchers have theorized the ways in which sociocultural appearance norms influence individuals within society (e.g., Cattarin, Thompson, Thomas, & Williams, 2000). Sechrist and Stangor (2005) argue that the most powerful influence on an individual's attitudes, beliefs, and behaviour is the individual's perception of the attitudes, beliefs, and behaviour of those around them. The knowledge that others hold analogous beliefs provides social validation (Sechrist & Stangor, 2005). Festinger's (1954) theory of social comparison proposes that individuals have a desire to compare and evaluate their own opinions and abilities to the opinions and abilities of like-minded others in order to instil a sense of validation about their own beliefs and abilities. Festinger proposed that both upward and downward social comparisons can be made. Upward social comparisons occur when an individual compares him or herself to someone who is perceived as better, which serves to induce negative affect and decrease self-esteem (Festinger,

1954; Wheeler, 1966). Downward social comparisons occur when an individual compares him or herself to someone who is perceived to be worse, which serves to induce positive affect and increase self-esteem (Festinger, 1954; Wills, 1981). Social comparisons can be made using real or imagined comparison data, as individuals may make social comparisons based on their thoughts about others regardless of whether or not these thoughts accurately represent social reality (Goethals & Klein, 2000).

Physical appearance comparisons have been strongly and consistently implicated in body dissatisfaction and eating disturbances (Myers & Crowther, 2009). Research investigating the frequency and consequences of physical appearance comparisons found that women with high body dissatisfaction tend to make more appearance comparisons in general, and more upward comparisons in particular when compared to women with low body dissatisfaction (Leahey, Crowther, & Mickelson, 2007). These upward appearance comparisons tend to result in increased negative affect, feelings of guilt, body dissatisfaction, and thoughts to engage in compensatory behaviour (Leahey et al., 2007). Similarly, research conducted by Bailey and Ricciardelli (2010) found that higher rates of upward appearance comparisons and lower rates of downward appearance comparisons were predictive of increased body dissatisfaction and eating disturbance. Although previous researchers have suggested that individuals could reasonably discredit unrealistic media images as viable targets for appearance comparisons (Buote et al., 2011), research has suggested that individuals consider models to be as appropriate an appearance comparison target as their peers (Strahan, Wilson, Cressman, & Buote, 2006). In reality, however, research has suggested that appearance comparisons with thin-ideal media images increase negative mood, body dissatisfaction, and body-focused anxiety (Halliwell & Dittmar, 2004; Tiggemann & McGill, 2004).

Only within the last few years have physical appearance social comparisons begun to be investigated in weight bias research (Carels et al., 2013; Gumble & Carels, 2012). Gumble and Carels (2012) posited that normal weight individuals who make downward social comparisons would induce positive affect, and threats to self-esteem based on weight concern would be avoided. They further proposed that strong weight bias held by individuals who are overweight or obese would serve to undermine self-esteem. They found that stronger weight bias amongst individuals who were overweight or obese was associated with decreased body satisfaction and self-esteem. However, for individuals who were normal weight, stronger weight bias was associated with more positive body satisfaction and self-esteem. Gumble and Carels (2012) posited that these results could be understood through social comparison theory. Through downward social comparisons, the researchers proposed that thin individuals may feel more attractive or as having more positive qualities when they compare themselves to people with overweight or obesity. Moreover, through internalized weight bias, individuals with overweight and obesity may feel less attractive and has having more negative qualities, which negatively impacts self-esteem and body satisfaction (Gumble & Carels, 2012).

Further research conducted by Carels and colleagues (2013) found that weight-based social comparisons may provide a self-protective function for overweight or obese individuals. Participants provided ratings on positive and negative personality traits for themselves, for an individual of normal weight, and for an individual with obesity. Results from the study suggested that when participants compared themselves to others on negative personality traits (e.g., lazy, self-indulgent), participants made downward social comparisons to obese individuals. However, when comparing themselves to others on positive personality traits (e.g., honest, friendly), participants also made downward social comparisons, which predicted lower depression scores.

The results of this research suggest that a greater examination of the role of physical appearance social comparisons in weight bias is needed. The current study seeks to examine the relationship between both upward and downward physical appearance comparisons and attitudes towards and beliefs about people with obesity.

Attribution Theory

While social comparison theory may provide one explanation of how individuals validate their biased attitudes about weight, the questions of how these negative attitudes develop still remains. Andreyeva et al. (2008) proposed that one factor which may have influenced the dramatic increase in the occurrence of weight bias are media messages that body weight and obesity are almost exclusively a result of the personal choices of the individual. This position is congruent with attribution theory, which is one theoretical approach to understanding the development of weight bias. This section will begin by introducing attribution theory and its relation to weight bias. This will be followed by a discussion of the relationship between attribution theory, ideology, and stigma.

Attribution theory proposes that individuals are motivated to seek out causal explanations for outcomes or conditions, such as obesity (Puhl & Brownell, 2003). The nature of the causal explanation obtained influences an individual's emotional reaction (Wiener, Perry, & Magnusson, 1988). Early research conducted through the lens of attribution theory investigated causal inferences and subsequent emotional reactions for 10 conditions including Alzheimer's disease, blindness, cancer, drug abuse, and obesity (Weiner et al., 1988). The results suggested that when conditions were perceived as uncontrollable, participants displayed liking and pity as well as motivation to provide personal assistance and charitable donations. However, when conditions were perceived as under personal control of the individual, participants displayed

little liking, increased anger, negative judgements, and low motivation to provide assistance or charitable donations. Consequently, researchers have proposed that stigmas represent society's attributions of controllability to specific groups, which are used to inform beliefs and expectations of individuals within those groups (Corrigan, 2000; Puhl & Brownell, 2003).

As previously mentioned, sociocultural appearance norms are delivered along with the invalid message that body shape and weight are solely within individual control (Thompson et al., 1999). Consequently, there is also the pervasive belief that weight gain or weight loss is also solely within individual control, and that individuals with obesity are responsible for their weight (Puhl & Brownell, 2001; Puhl & Heuer, 2009). Weight bias remains strong despite empirical evidence that demonstrates the low success rate of long-term weight loss (e.g., Jeffery et al., 2000), as well as research that suggests that weight is determined by the interaction of both complex genetic and environmental factors (e.g., Naukkarinen, Rissanen, Kapiro, & Pietilainen, 2012). Research investigating the association between negative attributions and weight bias, as well as research examining the effects of interventions aimed at changing negative attributions has provided evidence that attributions are a key factor in determining attitudes towards people with obesity (e.g., Diedrichs & Barlow, 2011; Puhl & Heuer, 2009).

Ideology and Stigma

Crandall and colleagues proposed that negative attributions toward people with obesity originate from a connected set of beliefs, attitudes, and values which form an individual's belief system; or ideology (Crandall & Reser, 2005). Ideology is a set of beliefs that form the basis for a political, economic, or social system, which govern an individual's expectations and behaviour (Cormack, 1992; Crandall & Reser, 2005). This position is consistent with previous conclusions of researchers who, after a long empirical history investigating prejudice attitudes, concluded

that enduring negative attributes of individuals' leads to prejudiced attitudes (Duckitt, 2001). Researchers who have examined the relationship between ideology and prejudice have proposed that ideologies which encourage or maintain hierarchies and inequality between groups are the means by which discrimination is legitimized within society (Pratto, Sidanius, Stallworth, & Malle, 1994). When these ideologies are commonly regarded as valid within society, group inequality is accepted as normative, hierarchies are stabilized, and conflict between groups is minimized (Pratto et al., 1994). The following sections introduce three different social ideologies and their position within prejudice literature; right-wing authoritarianism, social dominance orientation, and universal-diverse orientation. This discussion will be followed by a detailed overview of research investigating the association between weight bias and ideology.

Right-Wing Authoritarianism and Social Dominance Orientation

Right-wing authoritarianism (RWA) and social dominance orientation (SDO) are two of the most commonly researched ideologies in the prejudice literature, and are considered two of the strongest predictors of prejudiced attitudes (Sibley & Duckitt, 2008). RWA has been defined as support for social conformity, traditional norms and values, and deference to authority (Altemeyer, 1981; Duckitt & Sibley, 2010). Recent research has proposed an expansion on this original uni-dimensional understanding of RWA to a multidimensional conceptualization consistent with Altemeyer's original work (Duckitt, 2001; Duckitt & Bizumic 2013; Duckitt & Sibley, 2010). The three dimensions proposed to comprise RWA were labeled authoritarianism, conservatism, and traditionalism (Duckitt & Bizumic 2013). The authoritarianism dimension was defined as comprising attitudes that support strict social control versus support for leniency toward the breach of social norms and laws. The conservatism dimension was defined as consisting of attitudes supporting uncritical deference to existing authorities versus support for

the critical examination and questioning of such authorities. Finally, the traditionalism dimension was defined as comprising attitudes which support religious morals and social norms versus more liberal or secular morals and social norms (Duckitt & Bizumic, 2013).

Shortly after the introduction of RWA, the concept of a SDO was introduced (Pratto et al., 1994). SDO has been defined as support for intergroup dominance, social hierarchies between groups, and anti-egalitarianism (Pratto et al., 1994). Similar to current research examining the multidimensional nature of RWA, recent research has also begun to examine SDO as a multidimensional construct comprising of dominance and egalitarianism (Ho et al., 2012). Dominance was defined as the favouring of social hierarchies wherein the dominant group is viewed as superior and actively oppresses the non-dominant groups. Individuals high in the dominance dimension tend to support aggressive intergroup competition and display openly negative attitudes towards individuals in perceived inferior groups. The egalitarianism dimension was defined as comprising attitudes which oppose group equality. Individuals high in egalitarianism tend to support the notion that certain groups should be denied equal access to resources, and reduce equality-affirming policies such as affirmative action (Ho et al., 2012).

Despite being originally regarded as personality traits, both RWA and SDO have been regarded as being more appropriately labelled as measuring fundamental social attitudes and ideological beliefs (Duckitt, 2001; Duckitt, Wagner, du Plessis, & Birum, 2002). However, both RWA and SDO have been examined in relation to the five factor model of personality (e.g., Cohrs, Kämpfe-Hargrave, & Riemann, 2012; Perry & Sibley, 2012). This research has consistently supported the finding that individuals low in agreeableness also tend to have a strong SDO ideology, while individuals high in conscientiousness and low in openness to experience tend to have a strong RWA ideology, and that this is consistent over time (Perry &

Sibley, 2012) and within both self and peer reports (Cohrs et al., 2012). These personality differences between RWA and SDO form the foundation of the Dual Process Model of prejudice (Duckitt, 2001; Duckitt & Sibley, 2010), which proposes that the values inherent in RWA are made relevant and accessible for individuals through a worldview of ‘society as dangerous’, which is influenced by personality and the social environment. Similarly the values inherent in SDO are made relevant and accessible through the same process, but through a worldview of ‘society as competitive’ rather than dangerous. Holding RWA values then leads to perceiving a threat to collective security, while holding SDO values leads to competition for group dominance, both of which influence prejudice (Duckitt & Sibley, 2010).

Although previous research has found a weak correlation between RWA and SDO (e.g., Altemeyer, 1998; Sidanius & Pratto, 1999), researchers maintain that the two constructs measure two separate conceptualizations of authoritarian beliefs and values (Altemeyer, 1998). RWA has been regarded as an intragroup phenomenon, as it relates to deference to authorities within the in-group whereas SDO has regarded as an intergroup phenomenon that relates to dominance over perceived outgroups (Altemeyer, 1998; Sidanius & Pratto, 1999; Zackrisson, 2005). Sibley, Wilson, and Duckitt (2007) found that benevolent sexism, which is defined as an attitude that views women as fragile and in need of protection, was significantly predicted by RWA, and was influenced by the worldview of society as dangerous and a belief in social conformity. Conversely, hostile sexism, defined as hostility toward women who challenge male dominance, was significantly predicted by SDO, and was influenced by the worldview of society as being competitive, and having a tough-minded character (Sibley et al., 2007). In addition to previous research investigating the role of RWA and SDO in sexism, a strong history of previous research has also suggested that individuals high in RWA and SDO tend to have stronger homophobic

and racist attitudes (e.g., Poteat & Mereish, 2012; Poteat & Spanierman, 2010; Sibley, Robertson, & Wilson, 2006), as well as prejudiced attitudes towards immigrants and diversity (Kauff, Asbrock, Thorner, & Wagner, 2013; Sibley, 2013).

Universal-Diverse Orientation

Other research has been conducted examining a more diversity-affirming ideology (e.g., Rosenthal & Levy, 2012; Stracuzzi, Mohr, & Fuertes, 2011). Universal-diverse orientation (UDO) has been defined as openness to, and appreciation of similarities and differences (Miville et al., 1999). UDO is further characterized by a combination of cognitive, affective, and behavioural components leading to an acceptance of similarities and differences in others and an appreciation in the shared human experience (Fuertes, Miville, Mohr, Sedlacek, & Gretchen, 2000). The combination of cognitive, affective, and behavioural components may be expressed through seeking out experiences with diverse individuals or groups (behavioural) and valuing similarities and differences (cognitive), which may result in feelings such as a sense of connection with others (affective; Miville et al., 1999).

Similar to research examining the personality characteristics most related to RWA and SDO, UDO has also been examined in relation to the five factor model of personality (Thompson, Brossart, Carlozzi, & Miville, 2002). Results indicated that individuals high in UDO were also high in openness to experience, specifically openness to aesthetics and openness to values (Thompson et al., 2002). Researchers have also implicated UDO as overlapping conceptually with a *multicultural personality* (Ponterotto, 2010), a theory which aims to inform training and practice in counselling psychology. The multicultural personality is broadly defined as characterizing an individual who is emotionally stable and secure in his or her racial and ethnic identity, welcomes diversity, and thinks critically about the self as well as systemic forces

which influence social injustice (Ponterotto, Utsey, & Pedersen, 2006). Both UDO and a multicultural personality describe individuals who understand and embrace cultural similarities and differences, which leads to feelings of connectedness (Ponterotto, 2010).

Research investigating UDO is limited, and the majority of research tends to be conducted within a counselling setting (e.g., Stracuzzi et al., 2011; Tummala-Narra, Singer, Li, Esposito, & Ash, 2012). Researchers in counselling psychology have found that counsellors high in UDO tend to perceive having greater multicultural competence in general, as well as greater perceived competence in practices with specific minority clients (Tummala-Narra et al., 2012). However, researchers have begun to examine UDO in the prejudice literature; this research suggests that UDO is significantly negatively correlated with RWA and SDO (Poteat & Spanierman, 2010; Rosenthal & Levy, 2012). Poteat and Spanierman (2010) found that strong UDO attitudes predicted lower levels of homophobia and modern racism. Further, Rosenthal and Levy (2012) found that UDO was significantly associated with greater support for equality, motivation for contact with diverse others, and support for immigration and affirmative action. Additionally, they found that UDO was also significantly negatively correlated with SDO ($r = -.26$) and RWA ($r = -.47$).

Weight Bias and Ideology

Previous research has established a strong connection between attributions and weight bias (Puhl & Brownell, 2001; Puhl & Heuer, 2009), and previous researchers have also theorized a connection between attribution theory and ideology (e.g., Crandall, 1994; Crandall & Reser, 2005). Despite this research, however, surprisingly few studies have been conducted investigating the ideologies which may influence the development of weight bias and the widespread support of weight bias within society.

Beginning in 1990, Crandall and Biernat proposed that weight bias may originate from ideological beliefs about the world. In a survey of over 1000 undergraduate students, they found that strong weight bias was correlated with political conservatism, RWA, and racist attitudes, and that this relationship was stronger for men than women. Follow-up research conducted by Crandall (1994) found an association between weight bias and two other ideologies; Belief in a Just World and the Protestant Work Ethic. A Protestant Work Ethic ideology is defined as the belief that hard work leads to success, while a lack of success is caused by self-indulgence and lack of discipline (Quinn & Crocker, 1999; Weber, 1905/1930). Previous research has connected a Protestant Work Ethic ideology to economic issues (e.g., Schaltegger & Torgler, 2010; van Hoorn & Maseland, 2013), religiosity (e.g., Zulfikar, 2012), and prejudice (e.g., Rosenthal, Levy, & Moyer, 2011). Belief in a Just World is defined as the belief that people get what they deserve, based on their behaviour and attributes (Lerner, 1980). Previous research examining a Belief in a Just World ideology has found a connection between these beliefs and support for injustice and inequalities such as income disparity (e.g., Malahy, Rubinlicht, & Kaiser, 2009), victim injustice or victim blaming (e.g., Callan, Powell, & Ellard, 2007; van den Bos & Maas, 2009), and discrimination (e.g. Schaafsma, 2013). Results from the research conducted by Crandall (1994) suggested that weight bias was positively associated with the belief that people get what they deserve, and that deviance from the values related to physical appearance should result in social rejection.

To further investigate the association between ideology and weight bias, Crandall and Martinez (1996) hypothesized that this association may be due to the social ideology of American society. They compared the relationship between weight bias, Belief in a Just World, political ideology, and the belief in the controllability of poverty between a sample of students

from the U.S. to a sample of students from Mexico. Results of the study suggested that these factors were significantly associated with weight bias for American participants, but not Mexican participants. Crandall and Martinez (1996) suggested that ideology appears to directly influence weight bias, and also indirectly influences weight-based prejudice through increased attributions regarding the controllability of weight in American society.

More recently, research conducted by O'Brien and colleagues has also examined the role of ideology in weight bias (Ebner, Latner, & O'Brien, 2011; O'Brien, Hunter, & Banks, 2007; O'Brien, Latner, Ebner, & Hunter, 2013). O'Brien and colleagues (2007) examined the differences in implicit and explicit weight bias between first and third year physical education students and a matched sample of first and third year psychology students as well as the potential role of SDO in weight bias. The results suggested that weight bias was significantly stronger among physical education students than among psychology students, and that third year physical education students had higher rates of weight bias than first year students. Despite these differences in weight bias, there were no differences between groups in overall levels of SDO. However, SDO was significantly correlated with explicit weight bias across all groups, and was significantly correlated with implicit weight bias in third year physical education students. Ebner and colleagues (2011) examined whether just world beliefs were associated with stronger attributions of responsibility for eating disorders and obesity. Results indicated that stronger just world beliefs were associated with stronger stigmatization and attributions of responsibility for both eating disorders and obesity, and that this relationship was not impacted when participants had personal experience, or knew someone with an eating disorder or obesity.

Further research conducted by O'Brien and colleagues (2013) examined whether RWA, SDO, and physical appearance evaluation and investment was related to weight-based

discrimination on a personnel selection task. Participants rated six target résumés, which portrayed individuals with equivalent age, qualifications, and self-described qualities, and rated candidates on their potential for leadership, success, employability, and rate of starting salary. For each participant, two résumés depicted an obese individual and four depicted a normal weight individual. Higher RWA, SDO, and appearance evaluation were associated with greater weight bias, and both RWA and appearance evaluation were found to be predictive of obesity discrimination. Higher RWA and SDO scores were significantly correlated with lower likelihood of selecting an obese applicant, while higher appearance evaluation was significantly correlated with lower predicted career success and leadership potential.

Although it provides a strong foundation, much of the research examining weight bias and ideology is dated. In light of research suggesting that the prevalence of weight bias increased 66% between 1995 and 2008 (Andrejeva, Puhl, & Brownell, 2008; Puhl, Andrejeva, & Brownell, 2008), this relationship needs to be re-examined. More recent research has examined the role of ideology and weight bias with specific student samples (O'Brien et al., 2007) and within a specific task (O'Brien et al., 2013), as well as the relationship between SDO and attributions of responsibility (Ebner et al., 2011). No research has examined the relationship between UDO ideology and weight bias. The current study aims to examine the role of RWA, SDO, and UDO in weight bias within a more general sample. Finally, although previous research has connected weight bias to Belief in a Just World (e.g., Ebner et al., 2011) and Protestant Work Ethic (e.g., Crandall, 1994) ideologies, RWA and SDO were chosen as the ideologies of interest in the current research study given the significant amount of research implicating these ideologies in relation to other forms of stigma (e.g., Kauff et al., 2013; Poteat & Mereish, 2012; Sibley et al., 2006; Sibley et al., 2007).

Summary

Despite recent research efforts to examine the settings in which weight bias occurs, and the physical and psychological health consequences of weight bias, research investigating the role of thin-ideal internalization and physical appearance comparisons is lacking, and most of the research examining the association between weight bias and ideology is dated. Weight bias is pervasive and occurs in employment (e.g., Giel et al., 2010), education (e.g., Crosnoe, 2007), health care (e.g., Mold & Forbes, 2013), and interpersonal relationships (e.g., Puhl et al., 2008). Social appearance norms and the media send the message that men and women should strive to attain the ideal beauty standard while concurrently providing stigmatizing representations of obese individuals (Himes & Thompson, 2007). Social comparisons serve to reinforce these thin-ideal appearance standards, as identification with individuals with obesity may have negative consequences, while identification with thin individuals may have benefits (Carels et al., 2013; Festinger 1954). Finally, weight bias may also be fueled through enduring negative attributes and ideologies (e.g., right-wing authoritarianism, social dominance orientation, universal-diverse orientation) which encourage social hierarchies or inequalities (Duckitt, 2001; Pratto et al., 1994). These sociocultural and ideological factors are the focus of the current research.

CHAPTER THREE: METHODOLOGY

The review of the literature in the previous chapter highlighted three relatively independent domains, each of which influences weight bias: sociocultural appearance norms, social comparison theory, and ideology. The current study investigated the combined influence of ideology, thin-ideal internalization, and upward and downward social comparisons in relation to both explicit and implicit weight bias.

Research Question and Hypotheses

The study was conducted under the overarching research question; *how do ideological beliefs, internalization of thin-ideal media messages, and social comparison processes influence implicit and explicit weight bias?* The study extended upon previous research in three important ways. First, the study investigated the relationship between UDO and weight bias, which has not previously been examined in weight bias research. By examining the relationship between UDO and weight bias, the current research investigated whether the acceptance and appreciation of diversity found between UDO and cultural diversity also extends to diversity in size. Second, the study also considered the influence of thin-ideal internalization on weight bias. Although previous research has examined the association of thin-ideal internalization and weight bias (e.g., Klaczynski, Daniel, & Keller, 2009), this research remains quite limited. Third, the study examined how ideology and social comparison processes work together in weight bias. Although the role of ideology and social comparison to weight bias has been examined separately in previous research (e.g., Carels et al., 2013; Crandall, 1994), the role of these two phenomena together in weight bias has not been previously explored.

In addition to the overarching research question, four specific hypotheses were made. It was hypothesized that;

- a) Stronger RWA and SDO ideologies would be associated with stronger implicit and explicit weight bias,
- b) Lower UDO ideology scores would be associated with stronger implicit and explicit weight bias,
- c) Higher internalization of thin-ideal appearance messages would be associated with stronger implicit and explicit weight bias, and
- d) Higher scores for both upward and downward social comparison processes would be associated with stronger implicit and explicit weight bias.

Participants

Sample

One hundred fifty three participants were recruited for the study through Amazon.com's Mechanical Turk (MTurk). MTurk is an online platform used for recruiting and paying participants to perform tasks requiring human intelligence (Berinsky, Huber, & Lenz, 2012). These tasks involve various jobs such as classifying pictures, transcribing handwriting, or taking part in a research survey (Berinsky et al., 2012). More than 500 000 workers from 190 countries use MTurk (Gardner, Brown, & Boice, 2012) and participants are anonymous to the researcher, as the researcher only has access to their MTurk worker ID (Crump, McDonnell, & Gureckis, 2013). Researchers examining the demographics of MTurk samples have found that, generally, these samples are more diverse than undergraduate student samples (Mason & Suri, 2012).

For the purposes of the current study, only MTurk workers located in the United States were eligible to participate in the study. This decision was based on the results of previous research suggesting that weight bias may be more bound to Western culture (Crandall & Martinez, 1996). Further, limiting eligible participants to the United States will make the

findings of the research more strongly generalizable to the U.S. and comparable to previous weight bias research, the vast majority of which has taken place with US participants. Participant demographics in the current sample will be discussed further in Chapter 4.

Recruitment

Participant recruitment took place in April 2014, and lasted two days. Participants who were eligible to take part in the HIT (human intelligence task) were able to view its description and choose whether or not they would like to take part in the HIT. Keyword search terms used to describe the HIT were: psychology, survey, body image, and beliefs. Upon arriving to the HIT page, a brief description of the HIT was provided, along with links to the two online surveys used in the study (Appendix A). Once a participant completed the HIT, the researcher authorized compensation, which is completed through the MTurk website (Berinsky et al., 2012).

Although researchers offer a wide range of compensation, researchers have reported that higher pay increases the speed at which participants complete HITS without compromising reliability and validity of data (Buhrmester, Kwang, & Gosling 2011; Gardner et al., 2012). Buhrmester et al. (2011) reported that, on a HIT taking 30 minutes to complete offering \$0.02 payment, approximately 5 participants were recruited each hour. Based on a review of recent research using MTurk, payments can vary widely. For example, Crump and colleagues (2013) paid participants \$0.10 for a HIT taking 5 minutes to complete, Berinsky and colleagues (2012) paid \$0.75 for a 6 minute HIT, and Gardner and colleagues (2013) paid participants \$0.20 for a 30 minute HIT. The current study took approximately 30 minutes to complete and participants were provided a moderate compensation of \$0.75 for completion of the HIT.

Measures

Participants were asked to complete seven measures, a demographics questionnaire, as well as an interactive implicit attitudes test. More specifically, the seven measures included three ideology questionnaires (Right-wing Authoritarianism Scale, Social Dominance Orientation Scale, Miville-Guzman Universality-Diversity Scale – Short), two social comparison questionnaires (Upward Physical Appearance Comparison Scale, Downward Appearances Comparisons Scale), one measure for internalization of the thin-ideal (Sociocultural Attitudes Towards Appearance Questionnaire), and two measures of explicit weight bias (Attitudes Towards Obese Persons Scale, Beliefs About Obese Persons Scale). Each measure is outlined below.

Demographic questionnaire. The demographics questionnaire (Appendix B) was used to collect data that would aid in determining the representativeness of the current sample to the population of the United States. Participants were invited to provide their age, gender, ethnicity, occupation, and their mother and father's highest completed level of education. Further, the demographics questionnaire was also used to collect data about the sample on variables that relate to ideology and body image. Specifically, participants were invited to indicate their religious affiliation and to complete a question asking about the importance of religious values in their life. These questions were consistent with previous research in ideology, as previous research has suggested a strong correlation between religiosity and RWA, a low correlation between religiosity and SDO, and that religiosity moderates the relationship between a participants self-reported RWA and SDO (i.e., Dallago, Cima, Roccato, Ricolfi, & Mirisola, 2008). Participants were also invited to report their height and weight, as well as answer two items regarding their satisfaction with their overall body weight and shape. These items are

consistent with previous research investigating weight bias and body image (e.g., Martin, Rhea, Greenleaf, Judd, & Chambliss, 2011).

Right wing authoritarianism. The short version of the RWA Scale (Zackrisson, 2005) contains 15 items which assess the degree to which respondents support traditional social norms and deference to authority. Items are rated in a Likert type response style, with the scale ranging from 1 (*very negative*) to 7 (*very positive*) with high scores indicating stronger RWA beliefs. Items include “our country needs a powerful leader, in order to destroy the radical and immoral currents prevailing in society today” and “the ‘old-fashioned ways’ and ‘old-fashioned values’ still show the best way to live”.

Modification from the original 30-item scale (Altemeyer, 1998) involved eliminating those items with low internal consistency, as well as those items with high correlation to SDO, in order to make the scale as independent from SDO as possible (Zackirsson, 2005). The original version of the scale had an internal consistency of $\alpha = .86$, and a moderate correlation to SDO, $r = .47$, $p < .001$, $N = 224$. The revised 15-item scale has an internal consistency of $\alpha = .80$, and a lower correlation with SDO, $r = .26$, $p < .001$, $N = 224$. Confirmatory factor analysis suggested a reasonable fit between the 15 items and the three factors of authoritarianism, conservatism, and traditionalism. Researchers have argued that the short version of the scale is more appropriate, as it eliminated extreme wording and avoids reference to specific minority groups (Poteat & Spanierman, 2010).

Social dominance orientation. The 16-item SDO scale (Pratto et al., 1994) measures an individual’s support for inequality among social groups within society. Items are rated on a Likert type scale, with responses ranging from 1 (*very negative*) to 7 (*very positive*) with higher scores indicating stronger SDO ideology. Items include “if certain groups of people stayed in

their place, we would have fewer problems” and “it’s probably a good thing that certain groups are at the top and other groups are at the bottom”. Internal consistency for the scale is $\alpha = .83$ and the three-month test-retest reliability was found to be $r = .81, p < .01, n = 25$.

Universal diverse orientation. The Miville-Guzman Universality-Diversity Scale – Short (M-GUDS-S; Fuertes et al., 2000) is a 15-item measure assessing the degree to which individuals are aware of and accept the similarities and differences in others. Items are rated in a Likert type format, with responses ranging from 1 (*strongly disagree*) to 6 (*strongly agree*) with higher scores indicating stronger UDO ideology. Items include “I am interested in learning about the many cultures that have existed in this world” and “knowing how a person differs from me greatly enhances our friendship”.

The original 45-item scale (Miville et al., 1999) consisted of three subscales in order to reflect the cognitive, behavioural, and affective components of UDO. The *diversity of contact* subscale measures respondent’s interest in, and commitment to participation in culturally diverse activities. The *relativistic appreciation* subscale measures appreciation for the similarities and differences among individuals, and the impact this appreciation has on personal growth. The *sense of connection* subscale measures a respondent’s degree of comfort with diverse individuals. The short form of the M-GUDS was created by selecting five items from each subscale with the highest structure coefficients. Confirmatory factor analysis supported a 3-factor scale consistent with the behavioural, emotional, and cognitive conceptualization of UDO ideology. Internal consistency for the three subscales ranges from $\alpha = .59 - .92$ and the overall internal consistency is $\alpha = .77$. The M-GUDS-S is correlated $r = .77, p < .001, N = 206$ with the 45-item version of the scale.

Thin-ideal internalization. The Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) is a 30-item scale, which measures the awareness and internalization of sociocultural appearance norms and standards through exposure to the media. Items are rated on a 5-point Likert type scale ranging from 1 (*completely disagree*) to 5 (*completely agree*). High scores represent an increased internalization of the thin-ideal, and pressure to be thin. Items include “I’ve felt pressure from TV or magazines to lose weight” and “Movie stars an important source of information about fashion” and ‘being attractive’”.

The SATAQ-3 consists of a 4-factor model including; general internalization, information, pressures, and athlete internalization. Internal consistency for these factors ranges from $\alpha = .89 - .94$, with an overall internal consistency of $\alpha = .94$. Further, the SATAQ-3 was found to moderately correlated with the ideal body internalization scale – revised (Stice & Agras, 1998) suggesting that the SATAQ-3 uniquely taps into the societal influence of thin-ideal internalization (Thompson et al., 2004).

Social comparison. The Upward Physical Appearance Comparisons (UPACS) and Downward Physical Appearance Comparisons (DACS) scales (O’Brien et al., 2009) measure the tendency to make upward and downward physical appearance comparisons. The UPACS scale has 10 items and the DACS scale has 8 items, each of which is rated on a 5-point scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Examples of items from the UPACS include: “I tend to compare myself to people I think look better than me” and “when I see good looking people I wonder how I compare to them”. The UPACS has a high internal consistency, $\alpha = .94$, as well as high two-week test-retest reliability, $r = .79, p < .05, n = 167$.

Items for the DACS include “at the beach, gym, or sporting events I compare my body to those with less athletic bodies” and “when I see a person who is physically unattractive I think about how my body compares to theirs”. The DACS has high internal consistency, $\alpha = .92$, and high two-week test retest reliability, $r = .70$, $p < .05$, $n = 167$. Both the UPACS and the DACS were found to have high construct validity (O’Brien et al., 2009).

Explicit weight bias. The Attitudes Towards Obese Persons Scale (ATOP; Allison et al., 1991) is a 20-item scale which measures a respondent’s positive and/or negative attitudes towards obese persons. Items are rated on a 6-point scale ranging from -3 (*I strongly disagree*) to +3 (*I strongly agree*). Low scores are associated with a negative attitude, while high scores are associated with a positive attitude. Items include “most obese people feel that they are not as good as other people” and “most obese people have different personalities than non-obese people.”

The Beliefs About Obese Persons Scale (BAOP; Allison et al., 1991) is an 8-item scale which measures the extent to which respondents believe obesity is under the control of the individual. Items are rated on a 6-point scale ranging from -3 (*I strongly disagree*) to +3 (*I strongly agree*). Low scores represent the belief that obesity is within the control of the individual, while high scores represent the belief that obesity is not within their control. Items include “obesity is usually caused by overeating” and “people can be addicted to food, just as others are addicted to drugs, and these people usually become obese”. The internal consistency of the ATOP and BAOP were assessed using three different samples; undergraduate students, graduate students, and members of the National Association to Advance Fat Acceptance. Internal consistency for the ATOP ranged from $\alpha = .80$ to $\alpha = .84$, and internal consistency for the BAOP ranged from $\alpha = .65$ to $\alpha = .82$ (Yuker, Allison, & Faith, 1995).

Implicit weight bias. The Implicit Associations Test (IAT; Greenwald, McGhee, & Schwartz, 1998) operates under the assumption that it is easier for individuals to categorize two compatible concepts with the same response key, rather than two incompatible concepts. The IAT allows for the measurement of biased attitudes in participants who may have responded in a socially desirable way on measures of explicit attitudes (Brochu & Morrison, 2007; Rudman, Greenwald, Mellott, & Schwartz, 1999). The IAT has become one of the most important and reliable measures within social cognition research for the measurement of implicit attitudes, stereotypes, self-concept, and self-esteem, and has been used in research with individuals across the lifespan (Cunningham, Preacher, & Banaji, 2001; Heiphetz, Spelke, & Banaji, 2013; Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005).

The Weight IAT (Teachman & Brownell, 2001) was originally developed by researchers at the Rudd Centre for Food Policy and Obesity at Yale University and measures the automatic cognitive associations individuals make about obese people. Since the initial development of the paper-and-pencil version of the weight IAT, an online version of the test has been created for research by Project Implicit at Harvard University. The online version of the weight IAT was used as the measure of implicit weight bias in the current study. This version of the weight IAT requires participants to categorize pictures of obese people and thin people with positive and negative value-laden words (Sabin, Marini, Nosek, 2013). The test involves two conditions. In the first condition, participants classify pictures of thin people with positive value-laden words, and pictures of obese people with negative value-laden words. In the second condition, classification is reversed. Strength of implicit bias is indicated by calculating the difference in the average response time between the two conditions (Sabin et al., 2013).

Procedure

Participants were recruited online through Amazon.com's MTurk platform. Eligible participants who chose to take part in the study were instructed to complete the two survey links provided within the HIT page. The first survey link was for the questionnaire portion of the study while the second link was for the online weight IAT. The questionnaire survey was provided through FluidSurveys.com, a Canadian online survey host that allows researchers to create a customized survey to be administered online. After clicking on the first link and before completing any questionnaires, participants read an informed consent form (Appendix C). Participants were informed that the purpose of the study was to investigate larger socio-political views and how these views relate to beliefs about body image and body shape and size. Full disclosure of specific hypotheses of the study was provided upon completion of both survey links. Participants were also reassured that their responses would be kept confidential and any identifiers would be kept separate from the data. Although participants' names were not collected, MTurk worker identification numbers were required at the beginning of each survey in order to match questionnaire and IAT data for each participant.

After completion of informed consent, all participants completed the demographics portion of the survey, followed by the measures of ideology, thin-ideal internalization, social comparison, and explicit weight bias. Presentation of these scales was randomized. Following completion of the last questionnaire, participants were instructed to complete the weight IAT link. Once the weight IAT had been completed, participants were provided with the project summary form, which provided full disclosure of the purpose of the study, as well as the research hypothesis (Appendix D). Participants were also provided with the contact information for the researchers. Please see Appendix E for ethics approval.

After data collection was completed, the questionnaire data was downloaded from FluidSurveys.com into SPSS and the file was saved onto the researchers password protected computer. The IAT data was analyzed by Project Implicit and the scored SPSS data file was sent to the researcher by email. These two data files were merged, and participant data was matched using MTurk worker identification numbers.

Data Analysis

The aforementioned hypotheses were examined using multiple regression analyses. In preparation for data analysis, preparatory analyses included an examination of descriptive statistics, the correlation between the dependent variables, and the assumptions of multiple regression analysis. All data analyses were conducted using SPSS 22.0 statistical software. Each of the analyses conducted are further discussed below, and the results of these analyses are presented in Chapter 4.

Research Design

The current study used a non-experimental research design. The use of control groups, pretests, or random assignment were not incorporated into the research design (Shadish, Cook, & Campbell, 2002). Rather, multiple regression analyses were used to examine the aforementioned research question and hypotheses. Regression analyses allow a researcher to examine the relationship between one dependent variable and several independent variables, and are often used with the intent of assessing the combined influence of the independent variables on the dependent variable (Tabachnick & Fidell, 2013). For the current study, standard multiple regression was used; all independent variables were entered into the model simultaneously, and each variable was analyzed in terms of the unique influence it provides to the dependent variable (Tabachnick & Fidell, 2013).

The use of multiple regressions in the current study allowed for an examination of the combined influence of RWA, SDO, UDO, thin-ideal internalization, and social comparison (independent variables) on implicit and explicit weight bias (dependent variables). This relationship is represented through the R^2 statistic, which represents the proportion of variance in the dependent variable that is accounted for by the independent variables (Tabachnick & Fidell, 2013). Further, the analyses allowed for an examination of which independent variables were significantly associated with implicit and explicit weight bias within the model, which are represented by individual beta values, or regression coefficients, for each of the independent variables (Tabachnick & Fidell, 2013). The examination of the significant regression coefficients will help to build the groundwork for understanding the factors which may contribute to weight bias. The examination of the combined influence of these variables on implicit and explicit weight bias will help to provide a picture of how strongly weight bias attitudes are impacted by the combination of these variables.

Descriptive Statistics

Before conducting the analyses, the dataset was first examined using descriptive statistics. Descriptive statistics are useful for describing or summarizing the nature of a sample of participants on the variables measured and are generally displayed in graph or tabular format (Leech, Barrett, & Morgan, 2005; Tabachnick & Fidell, 2013). Descriptive statistics typically include the minimum and maximum values for each variable, the mean, standard deviation, skewness, and kurtosis as well as histograms and boxplots (Leech et al., 2005). Correlations between the independent and dependent variables were also examined.

Assumptions of Multiple Regression

Next, the assumptions of linear regression were examined in order to ensure the proposed analyses were appropriate for the current dataset. In research, if one or more assumptions of a particular statistical analysis have been violated, the results may be misleading due to increased risk for Type I or Type II error, or an over- or under-estimation of significance or effect size (Osborne & Waters, 2002). Therefore, it was important to test for these assumptions before conducting the multiple regressions for the current study. Multiple regression analyses can only estimate the relationship between the independent variables and the dependent variable if the relationships between these variables are linear (Osborne & Waters, 2002). This assumption was examined through residual plots, which indicate whether or not a relationship is linear or curvilinear (Osborne & Waters, 2002). Next, the assumption of normality of each of the variables was tested by examining descriptive statistics, plots, and tests for univariate and multivariate outliers (Osborne & Waters, 2002). The absence of multicollinearity, which occurs when two or more variables are highly correlated, was tested for by considering the correlations between the independent variables (RWA, SDO, UDO, SATAQ-3, UPACS, and DACS). The assumption of homoscedasticity, which indicates that the variance of errors is equal across all levels of an independent variable, was tested by examining residual plots. Finally, the assumption of independence of residuals was tested for by examining the Durbin-Watson test statistic after conducting the multiple regression.

Multiple Regression

Finally, a regression was run by entering in each ideology as an independent variable, along with scores from the SATAQ-3, UPACS, and DACS. The regression analyses allowed for examination of the combined influence that each independent variable has on implicit and

explicit weight bias. The regression also allowed for the consideration of the amount of variance in implicit and explicit weight bias (measured by the IAT, ATOP, and BAOP scales) accounted for by each of the independent variables (ideology, thin-ideal internalization, and social comparison).

Summary

Multiple regression analyses were used to test the hypotheses of the current research. Data was collected from 153 participants through Amazon.com's Mechanical Turk platform. Participants completed a demographics questionnaire, seven quantitative measures, and an interactive implicit attitudes test. Analyses included descriptive statistics, tests for the assumptions of multiple regression and three regressions, which are detailed in Chapter 4.

CHAPTER FOUR: RESULTS

As discussed in chapter three, this study investigated the influence of three social ideologies (i.e., right-wing authoritarianism, social dominance orientation, and universal-diverse orientation), thin-ideal internalization, and physical appearance social comparisons on implicit and explicit weight bias. This chapter will describe the results of the study in three sections. The demographics of the sample will be described first, followed by an examination of the descriptive statistics and correlations among the variables investigated. Lastly, the results of the multiple regression analyses will be discussed.

Demographic Data

One hundred fifty three participants from the United States completed the study. The IAT data for 16 participants could not be computed due to the quantity of mistakes participants made when completing the IAT. Therefore, the dataset for the current study consisted of 137 participants (70% female). Participants completed a demographic questionnaire, seven measures (Right-Wing Authoritarianism Scale-Short, Social Dominance Orientation Scale, Miville-Guzman Universality-Diversity Scale-Short, Sociocultural Attitudes towards Appearance Questionnaire-3, Upward Physical Appearance Scale, Downward Physical Appearance Comparison Scale, Attitudes towards Obese Persons Scale, Beliefs about Obese Persons Scale), and an interactive reaction time task. Participants ranged in age from 18 to 72 years, with a mean age of 37.90 years ($SD = 12.79$). The majority of participants were Caucasian (86.10%), with the remaining participants self-identifying as Black, Hispanic/Latin American, Southeast Asian, Biracial, or other (see Table 4.1). With regards to participants' highest level of education, 28.50% of participants reported receiving a high school diploma, 24.10% reported obtaining a college diploma, 35.80% a university degree, and 9.50% a graduate degree. The majority of

participants identified as either Christian (50.40%) or atheist/agnostic (35.80%). When asked how important religious values were in their life, 40.90% of participants indicated that they were moderately or strongly important.

Participants' self-reported height and weight was used to calculate BMI. Two participants chose not to report height and weight. Values for BMI ranged from 19.1 to 42.9kg/m², with a mean of 26.51 kg/m² (*SD* = 5.25). Distributions for participants' satisfaction with their overall body weight and body shape suggest a relatively even distribution of participant's feelings of satisfaction with their body weight and shape (see Table 4.2).

Table 4.1
Demographic Data

| Demographic Variable | Frequency | Percentage |
|--|-----------|------------|
| Gender | | |
| Male | 41 | 29.9 |
| Female | 96 | 70.1 |
| Race/Ethnicity | | |
| Black/African/Caribbean | 7 | 5.1 |
| Caucasian/White/European | 118 | 86.1 |
| Hispanic/Latin American | 8 | 5.8 |
| Southeast Asian | 1 | 0.7 |
| Biracial/Biethnic | 1 | 0.7 |
| Other | 2 | 1.5 |
| Level of Education | | |
| High School | 39 | 28.5 |
| College Diploma | 33 | 24.1 |
| University Degree | 49 | 35.8 |
| Graduate Degree | 13 | 9.5 |
| Prefer not to disclose | 3 | 2.2 |
| Religion | | |
| Atheist/Agnostic | 49 | 35.8 |
| Buddhist | 3 | 2.2 |
| Christian | 69 | 50.4 |
| Jewish | 3 | 2.2 |
| Muslim | 1 | 0.7 |
| Other | 12 | 8.8 |
| How important are religious values in your life? | | |
| Strongly unimportant | 42 | 31.8 |
| Moderately unimportant | 15 | 11.4 |
| Slightly unimportant | 5 | 3.8 |
| Slightly important | 16 | 12.1 |
| Moderately important | 26 | 19.7 |
| Strongly important | 28 | 21.2 |

Table 4.2

Participant Satisfaction with Body Weight and Shape

| Demographic Variable | Frequency | Percentage |
|-------------------------------|-----------|------------|
| Satisfaction with body weight | | |
| Strongly unsatisfied | 20 | 15.2 |
| Moderately unsatisfied | 34 | 25.8 |
| Slightly unsatisfied | 18 | 13.6 |
| Slightly satisfied | 15 | 11.4 |
| Moderately satisfied | 31 | 23.5 |
| Strongly satisfied | 14 | 10.6 |
| Satisfaction with body shape | | |
| Strongly unsatisfied | 16 | 12.0 |
| Moderately unsatisfied | 34 | 25.6 |
| Slightly unsatisfied | 18 | 13.5 |
| Slightly satisfied | 19 | 14.3 |
| Moderately satisfied | 39 | 29.3 |
| Strongly satisfied | 7 | 5.3 |

Descriptive Statistics and Correlations

Before conducting descriptive statistics, a missing value analysis was conducted. The results of the analysis revealed that 1.29% of the data was missing. However, the Chi-Square test statistic for Little's MCAR (missing completely at random) test was non-significant, suggesting that the missing values within the dataset occurred at random. Because the distribution of the missing data was such that many participants had at least one missing value, deleting the participants with missing data would significantly reduce the sample size. Therefore, the multiple imputations method was used to impute the missing data. In contrast to mean or regression substitution methods, multiple imputations replace each missing value with multiple plausible values, creating multiple new datasets, typically three to five (Royston, 2004; Tabachnick & Fidell, 2013; Yuan, 2000).

After data imputation was completed, the total scores for each of the variables were computed, and the distribution for each variable was examined using descriptive statistics. The mean, standard deviation, range, and values for skewness and kurtosis are presented in Table 4.3.

Values for skewness and kurtosis are within the acceptable range (± 2), suggesting the distributions are approaching a normal distribution (Osborne & Waters, 2002; Tabachnick & Fidell, 2013). An examination of z-scores for each of the variables suggested two potentially influential outliers, with z-scores greater than ± 3.29 standard deviations from the mean, one on SDO ($z = -3.35$) and one on UDO ($z = -3.40$; Tabachnick and Fidell, 2013). These two data points were corrected for using the winsorizing method, which trims potential outliers to the score that corresponds to a z score of ± 3.0 (Pelham, 2013).

Table 4.3

Descriptive Statistics for Independent and Dependent Variables

| Variable | Mean \pm SD | Range | Skewness | Kurtosis |
|---------------------------------|-------------------|------------|----------|----------|
| Right-wing authoritarianism | 42.09 \pm 18.90 | 15-94 | 0.52 | -0.65 |
| Social dominance orientation | 35.42 \pm 19.43 | 16-98 | 1.15 | 0.74 |
| Universal-diverse orientation | 56.67 \pm 7.96 | 30-74 | -0.45 | 0.49 |
| Thin-ideal internalization | 85.31 \pm 33.62 | 30-146 | -0.05 | -1.09 |
| Upward social comparison | 31.70 \pm 11.99 | 10-50 | -0.35 | -0.99 |
| Downward social comparison | 21.64 \pm 8.49 | 8-40 | 0.09 | -0.90 |
| Attitudes towards obese persons | 63.29 \pm 19.31 | 12-111 | -0.09 | -0.31 |
| Beliefs about obese persons | 15.80 \pm 8.14 | 0-40 | 0.62 | 0.23 |
| Weight IAT | 0.49 \pm 0.24 | -0.56-1.54 | -0.32 | -0.24 |

Next, correlations were examined in order to examine the association between the independent and dependent variables, as well as to examine the variables for the presence of multicollinearity and singularity (Tabachnick & Fidell, 2013). Table 4.4 outlines the correlations between the independent and dependent variables for all participants.

Table 4.4

Correlation Matrix for Independent and Dependent Variables

| | RWA | SDO | UDO | SATAQ-3 | UPACS | DACS | ATOP | BAOP | IAT |
|---------|-------|--------|------|---------|-------|--------|-------|------|-----|
| RWA | - | | | | | | | | |
| SDO | .36** | - | | | | | | | |
| UDO | .06 | -.07 | - | | | | | | |
| SATAQ-3 | .02 | -.08 | .12 | - | | | | | |
| UPACS | .05 | -.12 | .15 | .83** | - | | | | |
| DACS | .16 | .20* | .11 | .34** | .45** | - | | | |
| ATOP | -.16 | -.28** | .03 | -.31** | -.34* | -.26** | - | | |
| BAOP | -.16 | -.12 | .01 | -.20* | -.19* | -.02 | .51** | - | |
| IAT | -.01 | .02 | -.03 | .14 | .18* | .09 | -.08 | -.07 | - |

Note. Abbreviations in the above RWA = right-wing authoritarianism, SDO = social dominance orientation, UDO = universal-diverse orientation, SATAQ-3 = thin-ideal internalization, UPACS = upward physical appearance comparisons, DACS = downward physical appearance comparisons, ATOP = attitudes towards obese persons, BAOP = beliefs about obese persons, IAT = weight IAT.

* Denotes correlation significant at the $p = .05$ level

** Denotes correlation significant at the $p = .01$ level

Upon examining these correlations (Table 4.4), two important trends are of note. First, RWA and UDO do not appear to be significantly correlated with explicit or implicit weight bias in this sample. However, the results suggest that SDO is a significant correlate of explicit weight bias measured through the Attitudes Towards Obese Persons scale, as low scores on the scale are associated with stronger weight bias. These results provide partial support for hypothesis A, but do not provide support for hypothesis B.

Second, the results suggest that both thin-ideal internalization and upward and downward physical appearance social comparisons are also significantly associated with stronger explicit weight bias. Further, the correlations between the UPACS and IAT suggest upward physical appearance comparisons were also significantly correlated with implicit weight bias. These results provide partial support for hypotheses C and D. Further analyses were conducted in order to examine any potential gender differences that may be impacting the results.

Examination of Gender Differences

A MANOVA was conducted in order to test for gender differences in scores for the independent and dependent variables. The MANOVA was significant, $F(9, 127) = 4.83, p < .001$, and the results for each variable are presented in Table 4.5. Results suggest that there were significant differences between males and females on scores for the SDO, SATAQ-3, and UPACS scales, and that scores on the ATOP scale were approaching significance.

Table 4.5

Gender differences on Independent and Dependent Variables

| Variable | <i>F</i> statistic | <i>p</i> value | Mean (F) | Mean (M) |
|---------------------------------|--------------------|----------------|----------|----------|
| Right-wing authoritarianism | .34 | .59 | 42.71 | 40.63 |
| Social dominance orientation | 12.10 | <.001 | 31.68 | 44.20 |
| Universal-diverse orientation | .15 | .70 | 56.84 | 56.27 |
| Thin-ideal internalization | 11.28 | .001 | 91.39 | 71.08 |
| Upward social comparison | 4.66 | .03 | 33.13 | 28.36 |
| Downward social comparison | 1.62 | .21 | 22.24 | 20.23 |
| Attitudes towards obese persons | 3.09 | .08 | 65.17 | 58.89 |
| Beliefs about obese persons | .37 | .54 | 15.53 | 16.46 |
| Weight IAT | .73 | .40 | 0.51 | 0.44 |

Note. Table provides the *F* statistic and *p* value for the MANOVA examining gender differences on the independent and dependent variables, as well as the means for each variable for females (F) and male (M) participants.

Next, correlations were examined by gender. The correlations between the independent and dependent variables are presented in Table 4.6 for women and Table 4.7 for men. The correlations between the demographic variables are presented in Table 4.8 for women and Table 4.9 for men, and the correlations between the regression variables and the demographic variables are presented in Table 4.10 for women and Table 4.11 for men.

Table 4.6

Correlation Matrix for Independent and Dependent Variables for Female Participants

| | RWA | SDO | UDO | SATAQ-3 | UPACS | DACS | ATOP | BAOP | IAT |
|---------|--------|--------|------|---------|--------|-------|-------|------|-----|
| RWA | - | | | | | | | | |
| SDO | .42** | - | | | | | | | |
| UDO | .01 | -.17 | - | | | | | | |
| SATAQ-3 | .06 | .04 | .04 | - | | | | | |
| UPACS | .06 | -.04 | .09 | .83** | - | | | | |
| DACS | .15 | .13 | .11 | .26* | .40** | - | | | |
| ATOP | -.27** | -.26** | .11 | -.39** | -.39** | -.24* | - | | |
| BAOP | -.18 | -.09 | .05 | -.24* | -.20* | .02 | .55** | - | |
| IAT | .16 | .10 | -.06 | .26* | .23* | .10 | -.05 | -.02 | - |

Note. Abbreviations in the above RWA = right-wing authoritarianism, SDO = social dominance orientation, UDO = universal-diverse orientation, SATAQ-3 = thin-ideal internalization, UPACS = upward physical appearance comparisons, DACS = downward physical appearance comparisons, ATOP = attitudes towards obese persons, BAOP = beliefs about obese persons, IAT = weight IAT.

* Denotes correlation significant at the $p = .05$ level

** Denotes correlation significant at the $p = .01$ level

Table 4.7

Correlation Matrix for Independent and Dependent Variables for Male Participants

| | RWA | SDO | UDO | SATAQ-3 | UPACS | DACS | ATOP | BAOP | IAT |
|---------|-------|-------|------|---------|-------|-------|-------|------|-----|
| RWA | - | | | | | | | | |
| SDO | .39* | - | | | | | | | |
| UDO | .14 | .05 | - | | | | | | |
| SATAQ-3 | -.12 | -.06 | .24 | - | | | | | |
| UPACS | -.01 | -.13 | .27 | .83** | - | | | | |
| DACS | .17 | .43** | .09 | .50** | .56** | - | | | |
| ATOP | .09 | -.24 | -.16 | -.32* | -.35* | -.40* | - | | |
| BAOP | -.12 | -.27 | -.10 | -.08 | -.12 | -.11 | .45** | - | |
| IAT | -.33* | -.02 | .02 | -.11 | .05 | .04 | -.20 | -.21 | - |

Note. Abbreviations in the above RWA = right-wing authoritarianism, SDO = social dominance orientation, UDO = universal-diverse orientation, SATAQ-3 = thin-ideal internalization, UPACS = upward physical appearance comparisons, DACS = downward physical appearance comparisons, ATOP = attitudes towards obese persons, BAOP = beliefs about obese persons, IAT = weight IAT.

* Denotes correlation significant at the $p = .05$ level

** Denotes correlation significant at the $p = .01$ level

When examining the correlation matrices for the regression variables for male and female participants, four important trends are of note. First, greater scores on thin-ideal internalization

were significantly positively associated with both upward and downward physical appearance comparisons, suggesting that participants who experience greater internalization of thin-ideal media messages also tend to make both upward and downward physical appearance comparisons. Second, for both male and female participants, scores on the ATOP and BAOP were significantly positively correlated with one another, but were not significantly correlated with Weight IAT scores for women, and were negatively (albeit insignificantly) correlated with Weight IAT scores for men (see Tables 4.6 and 4.7).

Third, for female participants, higher scores on RWA and SDO were significantly negatively correlated with scores on the ATOP ($r = -.27$ for RWA and $r = -.26$ for SDO), suggesting that female participants higher on RWA and SDO had stronger explicit weight bias. Finally, a similar trend occurred for thin-ideal internalization and physical appearance comparisons. For both men and women, scores on the SATAQ-3, UPACS and DACS were significantly negatively correlated with the ATOP and BAOP. This suggests that participants who endorsed greater internalization of thin-ideal media messages as well as participants with a greater tendency to make both upward and downward physical appearance comparisons had stronger explicit weight bias. This relationship also occurred for female participants', but not male participants', SATAQ-3 and UPACS scores when compared to scores on the Weight IAT, suggesting that female participants had stronger implicit weight bias when they had stronger thin-ideal internalization and a greater tendency to make upward physical appearance comparisons.

Table 4.8

Correlation Matrix for Demographic Variables for Female Participants

| | Age | Religious Importance | BMI | Satisfaction with Weight | Satisfaction with Shape |
|--------------------------|-----|----------------------|--------|--------------------------|-------------------------|
| Age | - | | | | |
| Religious Importance | .18 | - | | | |
| BMI | .03 | .09 | - | | |
| Satisfaction with Weight | .01 | -.05 | -.60** | - | |
| Satisfaction with Shape | .01 | -.12 | -.55** | .82** | - |

Note. BMI = body mass index

* Denotes correlation significant at the $p = .05$ level

** Denotes correlation significant at the $p = .01$ level

Table 4.9

Correlation Matrix for Demographic Variables for Male Participants

| | Age | Religious Importance | BMI | Satisfaction with Weight | Satisfaction with Shape |
|--------------------------|------|----------------------|--------|--------------------------|-------------------------|
| Age | - | | | | |
| Religious Importance | -.25 | - | | | |
| BMI | .22 | -.13 | - | | |
| Satisfaction with Weight | -.21 | .30 | -.72** | - | |
| Satisfaction with Shape | -.28 | .29 | -.66** | .89** | - |

Note. BMI = body mass index

* Denotes correlation significant at the $p = .05$ level

** Denotes correlation significant at the $p = .01$ level

When examining the correlation matrices for the demographic variables for male and female participants, BMI and body satisfaction correlations are important to note. First, for both male and female participants, self-reported BMI was significantly negatively correlated with satisfaction with body weight and shape. Further, satisfaction with body weight and shape were significantly positively correlated with one another. This suggests that, as participants body weight increased, their satisfaction with their body weight and shape decreased. Further, participants who were dissatisfied with their body weight tended to also be dissatisfied with their body shape.

Table 4.10

Correlations between Regression Variables and Demographic Variables for Females

| | Age | Religious Importance | BMI | Satisfaction with Weight | Satisfaction with Shape |
|---------------------------------|--------|----------------------|------|--------------------------|-------------------------|
| Right-wing authoritarianism | .10 | .67** | .03 | -.07 | -.18 |
| Social dominance orientation | .11 | .32** | .06 | .01 | .04 |
| Universal-diverse orientation | -.22* | .12 | -.16 | .12 | .08 |
| Thin-ideal internalization | -.39** | -.07 | .06 | -.20 | -.23* |
| Upward social comparison | -.49** | -.13 | .01 | -.14 | -.15 |
| Downward social comparison | -.21* | -.01 | .10 | -.04 | -.05 |
| Attitudes towards obese persons | .12 | .02 | .06 | -.02 | -.02 |
| Beliefs about obese persons | .18 | .02 | .20* | -.07 | -.12 |
| Weight IAT | .02 | .05 | -.02 | -.10 | -.07 |

Note. BMI = body mass index.

* Denotes correlation significant at the $p = .05$ level

** Denotes correlation significant at the $p = .01$ level

Table 4.11

Correlations between Regression Variables and Demographic Variables for Males

| | Age | Religious Importance | BMI | Satisfaction with Weight | Satisfaction with Shape |
|---------------------------------|-------|----------------------|------|--------------------------|-------------------------|
| Right-wing authoritarianism | -.13 | .73** | .01 | .14 | .13 |
| Social dominance orientation | -.08 | .12 | -.17 | .14 | .23 |
| Universal-diverse orientation | -.25 | .32* | -.10 | .15 | .30 |
| Thin-ideal internalization | -.37* | -.08 | .19 | -.36* | -.28 |
| Upward social comparison | -.38* | .04 | .16 | -.31 | -.26 |
| Downward social comparison | -.20 | .02 | -.05 | -.26 | -.22 |
| Attitudes towards obese persons | .21 | .08 | .17 | .09 | -.07 |
| Beliefs about obese persons | .39* | -.04 | -.09 | .001 | -.16 |
| Weight IAT | .08 | -.31* | -.04 | -.10 | -.05 |

Note. BMI = body mass index.

* Denotes correlation significant at the $p = .05$ level

** Denotes correlation significant at the $p = .01$ level

When examining the correlation tables for the demographic variables and the regression variables for males and females, it is important to note that, for both male and female participants, age was significantly negatively correlated with thin-ideal internalization and the tendency to make physical appearance comparisons. This suggests that the relationship between thin-ideal internalization and making physical appearance comparisons was stronger among

younger participants. Further, for male participants, there was a significant positive correlation between age and beliefs about the controllability of weight. Finally, for female participants, age was significantly negatively correlated with UDO ideology, suggesting that being of a younger age in females, may be associated with higher scores in ideology promoting openness to diversity.

Multiple Regression Analyses

During exploratory analyses, when the assumptions of multiple regression were being tested for, 12 participants were identified as multivariate outliers for all six multiple regressions and were excluded from the multiple regression analyses. The final analysis included 36 male, and 89 female participants. It is important to note the impact gender differences had on the power of the regression analyses, as only 36 male participants (out of 41) were included. Therefore, the results of these multiple regressions should be interpreted with caution. This section outlines the three multiple regression analyses that were conducted investigating the combined influence of the independent variables (RWA, SDO, thin-ideal internalization, upward and downward social comparison) on the dependent variables (attitudes towards obese persons, beliefs about obese persons, implicit weight bias).

Factors Associated with Attitudes towards Obese Persons

Two multiple regressions were conducted investigating the combined influence of each of the independent variables (RWA, SDO, UDO, thin-ideal internalization, upward and downward social comparison) on attitudes towards obese persons. The multiple regression for male participants was non-significant, $F(6, 29) = .60, p = ns$, with 11% of the variance in attitudes towards obese persons being accounted for by the independent variables. The multiple regression for female participants was significant, $F(6, 82) = 4.38, p = .001$, with 24% of the

variation in attitudes towards obese persons accounted for by the independent variables.

However, upon examination of the beta coefficients of the variables in the model (Table 4.12), no variables are significant within the model.

Table 4.12

Beta Coefficients for Regression Examining Attitudes towards Obese Persons in Females

| Variable | Beta Coefficient | p-value |
|-------------------------------|------------------|---------|
| Right-wing authoritarianism | -.03 | .78 |
| Social dominance orientation | -.21 | .08 |
| Universal-diverse orientation | .08 | .41 |
| Thin-ideal internalization | -.15 | .40 |
| Upward social comparison | -.25 | .20 |
| Downward social comparison | -.10 | .36 |

Factors Associated with Beliefs about Obese Persons

Two multiple regressions were conducted examining the influence of the independent variables (RWA, SDO, UDO, thin-ideal internalization, upward and downward social comparison) on the beliefs about obese persons and the controllability of weight. The multiple regression for male participants was non-significant, $F(6, 29) = .16, p = ns$, with 3% of the variance in beliefs about obese persons being accounted for by the independent variables. The multiple regression for female participants was also non-significant, $F(6, 82) = 1.21, p = ns$, with 8% of the variation in beliefs about obese persons being accounted for by the independent variables.

Factors Associated with Implicit Weight Bias

Two multiple regressions were conducted examining the influence of the independent variables (RWA, SDO, UDO, thin-ideal internalization, upward and downward social comparison) on implicit weight bias for male and female participants. The regression for male participants was significant, $F(6, 29) = 2.49, p = .046$, with 34% of the variance in implicit weight bias accounted for by the independent variables. Table 4.13 includes the beta coefficients

and significance values for each variable within the model. Results from the regression indicated that RWA and thin-ideal internalization were significant negative predictors of implicit weight bias for male participants. This suggests that, for male participants, stronger RWA and internalization of the thin-ideal was associated with lower implicit weight bias. The multiple regression for female participants was non-significant, $F(6, 82) = 1.17, p = ns$, with 8% of the variance in implicit weight bias being accounted for by the independent variables.

Table 4.13

Beta Coefficients for Regression Examining Implicit Weight Bias in Male Participants

| Variable | Beta Coefficient | p-value |
|-------------------------------|-------------------------|----------------|
| Right-wing authoritarianism | -.50 | .01 |
| Social dominance orientation | .06 | .78 |
| Universal-diverse orientation | -.09 | .56 |
| Thin-ideal internalization | -.66 | .03 |
| Upward social comparison | .39 | .26 |
| Downward social comparison | .09 | .67 |

Summary

For the study, 153 participants were recruited from Amazon.com's Mechanical Turk website. Participants were 41 males and 96 females aged 18-72 from the United States. Correlations and multiple regression analyses were used to test the four hypotheses of the research. Hypothesis A was partially supported. Correlations testing for the relationship between RWA and SDO for female participants suggested that participants higher in these ideologies had stronger explicit weight bias. Hypothesis B, which proposed that lower scores on UDO would be associated with higher implicit and explicit weight bias was also not supported. UDO was not significantly correlated with the measures of explicit weight bias as well as scores on the Weight IAT.

Hypothesis C proposed that stronger internalization of thin-ideal media messages would be associated with stronger implicit and explicit weight was partially supported. Stronger thin-

ideal internalization was associated with stronger explicit weight bias for both women and men, and was also significantly associated with stronger implicit weight bias for women.

Finally, hypothesis D proposed that higher scores for both upward and downward physical appearance comparisons would be associated with implicit and explicit weight bias. This hypothesis was partially supported. For both men and women, scores on the UPACS and DACS were significantly associated with explicit weight bias, suggesting that a stronger tendency to make physical appearance comparisons were associated with stronger explicit weight bias. Further, for female participants, higher scores on the UPCAS was significantly positively correlated with scores on the Weight IAT, suggesting that a greater tendency to make upward physical appearance comparisons was associated with stronger implicit weight bias. These results will be interpreted and explored through a consideration of previous literature in chapter five.

CHAPTER FIVE: DISCUSSION

This study sought to examine how ideological beliefs, internalization of thin-ideal media messages, and physical appearance social comparisons influence implicit and explicit weight bias. Participants were 153 adults from the United States recruited through Amazon.com's Mechanical Turk. Participants completed a demographics questionnaire, three measures of ideology, a measure of thin-ideal internalization, two social comparison measures, two measures of explicit weight bias, and a reaction time task measuring implicit weight bias. Following a consideration of previous literature in Chapter Two, four specific hypotheses were proposed in Chapter Three and the results of these hypothesized were reported in the previous chapter. The purpose of this chapter is to discuss and interpret these findings through a consideration of previous research. Each of the four hypotheses will be discussed, followed by a consideration of the limitations of the study. Finally, the implications for counselling as well as the implications for future research will be discussed.

Hypothesis A

The first hypothesis proposed that RWA and SDO would be significantly associated with implicit and explicit weight bias. This hypothesis was partially supported. The results of the current research are congruent with previous research examining the relationship between explicit weight bias, RWA, and SDO (e.g., Crandall & Biernat, 1990; O'Brien et al., 2007; O'Brien et al., 2013) as well as other forms of stigma (e.g., Kauff et al., 2013; Poteat & Mereish, 2012; Sibley et al, 2007). Crandall and Biernat's (1990) research indicated a significant relationship between explicit weight bias and RWA in a sample of undergraduate students. Further research conducted by O'Brien and colleagues (2007) suggested a significant relationship between SDO and explicit weight bias in both psychology and physical education

students. O'Brien and colleagues (2013) recently conducted the first study to investigate the relationship between both RWA and SDO and explicit weight bias. A personnel selection task, where participants were presented with six resumes and asked to make an employment recommendation, indicated that higher RWA and SDO was associated with stronger explicit weight bias, and that these two ideologies were predictive of weight discrimination. The results of the current study were congruent with these findings, and suggested that, for female participants, higher RWA and SDO were associated with stronger explicit weight bias as measured with the ATOP scale. A similar trend occurred with male participants, but these correlations failed to reach statistical significance. The low number of participants in the current study may have influenced these results. Follow-up research investigating the relationships between ideology and weight bias for men, using a larger sample size, is required in order to fully understand the relationships between RWA, SDO, and weight bias.

RWA, SDO, and Beliefs about the Controllability of Weight

Although the results of the current study suggest that RWA and SDO are significantly associated with stronger explicit weight bias measured using the ATOP scale, correlations between RWA and SDO with the BAOP scale were non-significant for both male and female participants. The BAOP scale aims to measure beliefs about the controllability of weight, while the ATOP scale aims to measure negative attitudes towards individuals with obesity (Allison et al., 1991). With regard to the correlations between RWA, SDO, and the BAOP scale, the findings of the current research are inconsistent with previous research that has suggested that a significant component of weight bias is the attribution that weight is under personal control (e.g., Puhl & Brownell, 2003). Attribution theory asserts that individuals are motivated to seek out causal explanations for outcomes, like obesity, that seem uncertain (Puhl & Brownell, 2003).

Attribution theory has been implicated in previous research as contributing to stigmatized reactions for obesity (e.g., Diedrichs & Barlow, 2011; Poustchi et al., 2013; Swift et al., 2013), as well as other forms of stigma (e.g., Hegarty & Golden, 2008; Ramasubramanian, 2011).

The lack of association between RWA, SDO, and beliefs about the controllability of weight in the current study may have been influenced by increased knowledge about, or exposure to, information about genetics and weight (Persky, Sanderson, & Koehly, 2013; Tambor, Bernhardt, Rodgers, Holtzman, & Geller, 2002). Although the mean and standard deviation of scores on the BAOP in the current study are consistent with previous research (e.g., Poustchi et al., 2013; Swift et al., 2013), it is possible that participants responses may have been influenced by the increased availability of information related to the influence of genetics on weight in recent years. Research conducted by Persky and colleagues (2013) suggested that individuals are engaging with information related to the genetic influences on the development of obesity in online blogs and discussion boards, and that this information tends to be paired with a discussion of lifestyle factors that also contribute to the development of obesity. This finding may have important implications for weight bias, as previous research has suggested that exposure to information about the influence of genetics on the development of obesity has a significant impact on reducing explicit weight bias (Diedrichs & Barlow, 2011). With regard to the current research, it is possible that the increase in the availability of information relating to genetic influences on obesity may have influenced scores on the BAOP scale. However, it is unclear whether this influence is related to changing attitudes or socially desirable responding. Follow-up research investigating the relationship between RWA, SDO, and beliefs about the controllability of weight is needed to determine whether increased exposure to knowledge about

the genetic influence on weight in recent years is influencing individual beliefs about the controllability of weight.

RWA, SDO, and Implicit Weight Bias

The results of the current research are also inconsistent with previous research suggesting that SDO is significantly positively associated with implicit bias (O'Brien, Hunter, & Banks, 2007). Only one study has examined the relationship between implicit weight bias and ideology. O'Brien and colleagues (2007) investigated the differences in weight bias between psychology and physical education students. The results suggested that SDO was significantly correlated with explicit weight bias across all groups, and was significantly correlated with implicit weight bias in upper year physical education students. Given that the results of the current study are inconsistent with previous research conducted by O'Brien et al. (2007) and also that this may be the first study examining the relationship between RWA and implicit weight bias, further research needs to be conducted in order to understand the relationship between ideology and implicit weight bias.

Further research is especially important given the lack of correlation between implicit and explicit weight bias in the current sample. Previous researchers have argued that, because the IAT measures cognitions that are outside of conscious awareness, scores on implicit measures of stigma may differ considerably from scores on explicit measures (Jost, Banaji, & Nosek, 2004). Although previous research has been mixed, research investigating the relationship between implicit and explicit weight stigma has suggested that these two constructs may not be significantly associated with one another (e.g., Brewis & Wurtich, 2012; Brochu & Morrison, 2007). Further research investigating the relationship between implicit and explicit weight bias,

and the differences between implicit and explicit weight bias may help to clarify the results of the current study.

RWA, SDO, and Stigma Interventions

Although hypothesis A received only partial support, the findings from the current study are significant in that they demonstrate that ideological correlates remain significant factors in negative attitudes towards individuals living with overweight and obesity. These findings have implications for weight bias interventions, as a strong history of research has been conducted examining the influence of RWA and SDO on stigmatized attitudes which have in turn informed attitude interventions (e.g., Asbrock, Gutenbrunner, & Wagner, 2013; Dhont, Van Hiel, & Hewstone, 2014). *Intergroup Contact Theory* proposes that stigma can be reduced by bringing members of different groups together, and was originally proposed by Allport (1954). Recent research conducted by Dhont and colleagues (2014) investigated the influence of positive intergroup contact on SDO. The researchers first investigated the influence of a contact intervention among high school students, followed by a longitudinal survey of adults. The results suggested that, in both samples, positive intergroup contact reduced the strength of SDO, providing support for Intergroup Contact Theory. However, research conducted by Asbrock and colleagues (2013) investigated the effect of imagined contact on RWA and SDO, and compared the effects of imagined contact for individuals who scored high versus low on each ideology. The results of the study suggested that, as the strength of RWA increased, participants displayed less negative attitudes and stronger intentions to contact an out-group member following the imagined contact intervention. However, participants who scored high on SDO did not display a change in attitudes or intentions to contact following the intervention.

The results of these recent interventions grounded within Intergroup Contact Theory have significant implications for future weight bias interventions, as previous research suggests that individual ideology may influence the efficacy of interventions. Further, this research may suggest that the methodology of interventions is important, and that real contact may be more influential than imagined contact. However, previous research investigating the influence of recalled previous contact with a stranger and friend with overweight or obesity suggested that the intervention significantly strengthened trust and decreased intergroup anxiety (Turner, Wildschut, & Sidikides, 2012). However, future research needs to determine the utility of weight interventions grounded within Intergroup Contact Theory with individuals high in SDO, as well as the impact of real or imagined contact on weight bias.

Summary

The results of the current study suggest that RWA and SDO are significantly associated with negative attitudes towards individuals with obesity, which is consistent with previous research. These findings have implications for future weight bias interventions, especially those interventions grounded within Intergroup Contact Theory. Although the relationship between RWA, SDO, and beliefs about the controllability of weight in the current study are not clear, an examination of the impact of the increased exposure to information about the genetic influences on obesity may help to clarify this relationship. Further research investigating the relationship between RWA, SDO, and implicit weight bias may also help to clarify the association among unconscious attitudes towards individuals with obesity, RWA, and SDO.

Hypothesis B

The second hypothesis proposed that UDO, a diversity-affirming ideology, would be negatively associated with implicit and explicit weight bias. This hypothesis was not supported.

Correlations for both male and female participants on UDO suggested that there was no relationship between UDO and explicit or implicit weight bias. Although previous research has not investigated the relationship between UDO and weight bias, researchers have examined the relationship between UDO and other forms of stigma (e.g., Poteat & Spanierman, 2010). This research has suggested that UDO is negatively associated with stigmatized attitudes, and positively associated with support for diversity, immigration, and affirmative action (Poteat & Spanierman, 2010; Rosenthal & Levy, 2012).

Although few studies have examined the relationship between RWA, SDO, and UDO ideologies, the findings from Poteat and Spanierman (2010) suggested that UDO was significantly negatively correlated with both RWA ($r = -.29$) and SDO ($r = -.39$). These findings are consistent with previous research suggesting that UDO is associated with positive attitudes toward diversity (e.g., Rosenthal & Levy, 2012), whereas research has suggested that both RWA and SDO are associated with negative attitudes towards diversity (e.g., Kauff, Asbrock, Thorner & Wagner, 2013; Kupper, Wolf, & Zick, 2010). In contrast to previous research, however, the results of the current research suggested little to no relationship between RWA and UDO, with a correlation of $r = .06$ for RWA, and $r = -.07$ for SDO.

The following sections offer potential interpretations of the current research findings based on previous literature. Specifically, the lack of association of UDO with implicit or explicit weight bias will be discussed through a consideration of the definitions of UDO and multiculturalism.

Universal Diverse Orientation, Diversity, and Weight

UDO has been defined by previous researchers as openness to, and appreciation of similarities and differences in others as well as appreciation for the shared human experience

(Fuertes et al., 2000; Miville et al., 1999). Further examination of the similarities and differences which are encompassed within the construct of UDO may help to explain the lack of relationship between UDO and weight bias in the current study. In their original discussion of the factors which encompass UDO, Miville et al., (1999) referred to cultural factors including race, ethnicity, gender, age, and sexual orientation, as well as individual factors including family of origin and personality. Further, UDO has been conceptually linked to Ponterotto's (2010) *multicultural personality*, which describes an individual who, in part, recognises the influence of internalized racism and homophobia, and also feels compelled to refute all forms of social injustice including racism, homophobia, sexism, ageism, domestic violence, and religious stereotyping. Both UDO and multicultural personality recognize that an appreciation of the cultural factors of race, ethnicity, gender, age, and sexual orientation contribute to greater openness and appreciation of diversity, a greater sense of connection with others, and increased interactions with diverse others (Fuertes et al., 2000; Ponterotto, 2010).

By examining these definitions through the results of the current research, it may be concluded that, while the definitions of UDO and multicultural personality provide space for other forms of diversity to be included within each construct, weight has not been made explicit as being a part of the overall definition. Further, previous researchers have advocated for a broader definition of culture to include gender, sexual orientation, ability, age, religion, socioeconomic status and language (e.g., Arthur & Collins, 2010; Pedersen, 2001), but this broader definition has yet to include weight. Although previous research has examined body image concerns and weight bias within multicultural contexts (e.g., Brewis, Wutich, Falletta-Cowden, & Rodriguez-Soto, 2011; Holmqvist & Frisen, 2010), body weight and shape may not currently be within the realm of what most researchers define as being multicultural. Increasing

the recognition of weight as an aspect of diversity may have potential positive implications for increasing acceptance of weight diversity, which may lead to positive social justice outcomes. However, further research would need to be conducted in order to investigate the implications of incorporating weight into the definition of diversity.

Hypothesis C

The third hypothesis proposed that implicit and explicit weight bias would be significantly associated with internalization of thin-ideal media messages. This hypothesis was partially supported. For female participants, higher scores on the measure of thin-ideal internalization were associated with stronger implicit and explicit weight bias, which is consistent with hypothesis C. However, for male participants, higher scores for thin-ideal internalization were only associated with stronger explicit weight bias measured using the ATOP scale. These results are consistent with previous findings by Klaczynski and colleagues (2004) who investigated the influence of thin-ideal internalization on body esteem and weight bias in a sample of undergraduate students. The results suggested that internalization of thin-ideal media messages was moderately correlated with negative attitudes towards individuals with obesity, as well as the belief that weight is under personal control. The results of the current study are consistent with, and further support, the results of Klaczynski and colleagues (2004), as the current study used a previously developed and validated measure of beliefs about the controllability of weight, and also included an implicit measure. These results further support the assertion that thin-ideal internalization is significantly related to weight bias.

The results of the current study, however, are inconsistent with the results of the research conducted by Klaczynski et al. (2004), which found no significant gender differences. In the current study, male participants scored significantly lower on thin-ideal internalization, and

while scores on the SATAQ-3 were significantly correlated with negative attitudes towards individuals with obesity, these scores were not correlated with beliefs about the controllability of weight or implicit weight bias. The following section offers a potential explanation for the inconsistency of the results of the current study with the results found by Klaczynski et al. (2004).

Thin versus Muscular Ideal Internalization

While thin-ideal internalization was significantly correlated with implicit weight bias and the belief that weight is under personal control for women, these relationships were not found for men. Although this may be due, in part, to the low sample size of men in the current study, another factor may be that thin-ideal internalization does not fully capture the internalization of media messages experienced by men. Researchers have suggested that, although men and women both experience body dissatisfaction, women are more likely to report wanting to lose weight whereas men are more likely to report a drive for muscularity (Neighbours & Sobal, 2007).

Previous research has suggested that the drive for muscularity in men is associated with body dissatisfaction (e.g., Gudnadottir, & Gardarsdottir, 2014; Valls, Bonvin, & Chabrol, 2013) as well as disordered eating behaviours (e.g., Flamant et al., 2012). Although drive for muscularity is presented as a unique construct, previous research has found significant associations between thin-ideal internalization, and drive for muscularity (e.g., Cramblitt & Pritchard, 2013; Daniel & Bridges, 2010). Taken together, this research might suggest that, when it comes to weight bias, perhaps examining the role of internalization of the muscular ideal for men and the thin-ideal for women might be more appropriate in examining the association among weight bias and internalization of sociocultural appearance norms. For example, items on

the SATAQ-3, which was used as the measure of thin-ideal internalization in the current study, ask participants about perceived pressure to diet and lose weight (Thompson et al., 2004) which may not accurately capture the experience of men. A modified version of the SATAQ-3, or the use of the Muscle Appearance Satisfaction Scale (Mayville, Williamson, White, Netemeyer, & Drab, 2002) may be useful in future research investigating the role of ideal appearance norms and weight bias.

Body Dissatisfaction and Eating Disorder Interventions

Previous research has consistently implicated thin-ideal internalization in the development of body dissatisfaction and eating disorders (e.g., Lopez-Guimera, Levine, Sanchez-Carracedo, & Fauquet, 2010). In recent years, significant effort has been placed on creating effective interventions which target thin-ideal internalization in an effort to prevent body dissatisfaction and eating disorders (e.g., Halliwell & Diedrichs, 2014; Serdar et al., 2014; Stice, Marti, & Cheng, 2014). A recent meta-analytic review suggested that, among the different approaches to the prevention of body dissatisfaction and eating disorders, approaches that use a cognitive dissonance framework have the highest efficacy (Stice, Shaw, & Marti, 2007). Cognitive dissonance based interventions require participants to engage in counter-attitudinal dialogue and behavioural exercises, with the assertion that going against the thin-ideal will create cognitive discomfort, resulting in a corresponding shift in attitudes (Halliwell & Diedrichs, 2014). The most common cognitive dissonance based interventions include four hours of intervention (e.g., *The Body Project*; Stice et al, 2014). Previous research has suggested these interventions significantly decrease thin-ideal internalization, body dissatisfaction, negative affect, psychosocial impairment, and risk for eating disorders (Stice et al., 2007), and that these

effects can be maintained for at least three years following the intervention (Stice, Rohde, Shaw, & Gau, 2011).

The results of the current study suggest that negative attitudes towards individuals with obesity, the belief that weight is under personal control, and implicit weight bias may all be significantly associated with thin-ideal internalization. With the research documenting the efficacy of cognitive dissonance based interventions for body dissatisfaction and eating disorders, the results of the current study suggest that future research may want to examine the potential influence of a weight bias intervention based on a cognitive dissonance framework. To date, there have been no published studies investigating the influence of a cognitive dissonance weight bias intervention.

Summary

Although hypothesis C was only partially supported, the results suggested that negative attitudes towards individuals with obesity, the belief that weight is under personal control, and implicit weight bias are all significantly associated with thin-ideal internalization. These results have implications for future weight bias intervention research, as cognitive dissonance based interventions targeting the thin-ideal have been successful at decreasing body dissatisfaction and eating disorder symptoms. Follow up research is needed in order to further examine these relationships with male participants, as well as to examine the influence of muscular ideal internalization rather than thin-ideal internalization in men.

Hypothesis D

Hypothesis D proposed that both upward and downward physical appearance social comparisons would be positively associated with implicit and explicit weight bias. This hypothesis was also partially supported. For female participants, higher scores on the measure of

upward physical appearance social comparisons were associated with stronger explicit and implicit weight bias, which is consistent with hypothesis D. However, the tendency to make downward social comparisons was only significantly associated with explicit weight bias measured with the ATOP scale, and was not associated with the BAOP scale, or implicit weight bias. For male participants, both upward and downward physical appearance social comparisons were significantly associated with stronger explicit weight bias measured using the ATOP scale, which is consistent with hypothesis D. Although the correlations between upward and downward social comparisons and the BAOP scale were non-significant, these correlations were trending in the hypothesized direction and suggested that, for male participants, the belief that weight is under personal control was also associated with appearance social comparisons.

To date, the only study to examine the relationship between physical appearance comparisons and weight bias was conducted by O'Brien and colleagues (2009) as part of the development and validation of the UPACS and DACS. The relationship between upward and downward physical appearance comparisons and explicit weight bias was measured using the seven items from the dislike subscale of the Antifat Attitudes Scale (Crandall, 1994). The results of the study suggested that the tendency to make downward social comparisons, but not upward social comparisons, was significantly related to weight bias. The results of the current study extend the results of this research. Specifically, the results suggested that, while downward physical appearance comparisons were significantly associated with negative attitudes towards individuals with obesity, upward comparisons were associated with both explicit and implicit weight bias for women. These results suggest that, together with thin-ideal internalization, physical appearance comparisons may be an important factor in the development and

maintenance of weight bias. However, further research investigating these relationships with a larger sample of male participants is needed in order to better understand these relationships.

Body Image Interventions Targeting Appearance Comparisons

Just as previous researchers have examined the efficacy of interventions challenging thin-ideal internalization on body dissatisfaction and eating disorders, previous researchers have also investigated the effect of interventions that target the social comparison process (e.g., Halliwell & Dittmar, 2005; Martijn, Sheeran, Wesseldijk, Merrick, & Webb, 2013). Halliwell and Dittmar (2005) examined the effect of prompting women to focus on self-evaluation versus self-improvement when viewing images of media models. The results of the study suggested that when participants focused on self-improvement they did not experience an increase in body-focused anxiety. The researchers concluded that, as opposed to a self-evaluative motive, a self-improvement motive may reduce the negative effects associated with upward social comparisons to thin-ideal images (Halliwell & Dittmar, 2005). Further research conducted by Martijn and colleagues (2013) conducted an evaluative conditioning intervention, aimed at changing the implicit associations between media models and positive attributes. Participants in the intervention condition were taught to complete an IAT measure where images of supermodels were associated with the word “fake” and *Dove* models were associated with the word “real”. The results of the study suggested that, after receiving the evaluative conditioning intervention, participants were less likely to view models as appealing comparison targets and experienced an increase in body satisfaction. Taken together, the results of the current research and previous research investigating the role of appearance comparison interventions on thin-ideal internalization may suggest that future weight bias interventions may benefit from a focus on

self-improvement, as well as interventions targeting implicit associations between models and positive attributes.

Social Comparison and Thin-ideal Internalization

Previous researchers have examined the relationship between thin-ideal internalization and physical appearance comparisons (e.g., Carey, Donaghue, & Broderick, 2014; Fitzsimmons-Craft et al., 2012). The results of this research has suggested that the endorsement of thin-ideal norms was positively associated with social comparisons to both models ($r = .31$) as well as peers ($r = .36$; Carey et al., 2014). Further, research conducted by Fitzsimmons-Craft and colleagues (2012) suggested a significant correlation between internalization of thin-ideal media messages and the general tendency to make social comparisons ($r = .29$), but a stronger correlation with the tendency to make physical appearance social comparisons ($r = .58$). These relationships were similar in the current study. For both male and female participants, thin-ideal internalization of media messages was strongly correlated with the tendency to make upward physical appearance comparisons ($r = .83$), and correlations between thin-ideal internalization and downward social comparisons was also significant ($r = .26$ for females, and $r = .50$ for males). These results may suggest that, given the association between thin-ideal internalization and social comparisons, that future weight bias interventions targeting both thin-ideal internalization and appearance comparisons may have a greater impact on negative attitudes than interventions targeting either one alone.

Thin-ideal internalization and social comparison across the lifespan. Given that age was significantly correlated with thin-ideal internalization and physical appearance comparisons, it is important to examine literature which has investigated these constructs in individuals throughout the lifespan. Although previous research has suggested that body dissatisfaction

remains relatively consistent for women throughout adulthood (e.g., Tiggeman, 2004), previous research has also found that magazines continue to feature young women in advertisements and rarely include images of adults in middle or older adulthood, regardless of the average age of readership (Lewis, Medvedev, & Seponski, 2011). Further, recent research investigating the role of appearance related social comparisons has suggested that the tendency to make body comparisons with peers as well as models was a significant mediator between the relationship between drive for thinness and body dissatisfaction in adolescents (Carey, Donaghue, & Broderick, 2014) as well as adults in early and middle adulthood (van den Berg et al., 2007). Although research among older adults is limited, this research has suggested that older adults tend to make fewer physical appearance comparisons (Kozar & Damhorst, 2009). These results may help to explain the negative correlations between age and thin-ideal internalization and physical appearance social comparisons in the current sample. These findings may suggest that thin-ideal internalization and social comparison processes are important factors in understanding weight bias in individuals in middle adulthood and younger, but that they become less important in the attitudes of older adults. However, more research needs to be conducted in order to elucidate the relationships between these variables.

Summary

Although hypothesis D was only partially supported, the results suggested that both upward and downward physical appearance comparisons are significantly associated with weight bias. These results have implications for future weight bias intervention research, as previous interventions targeting social comparisons processes have been successful in decreasing upward appearance comparisons to models and in increasing body satisfaction (Halliwell & Dittmar, 2005; Martijn et al., 2013). Follow up research is needed in order to further examine these

relationships with male participants. In addition, given the strong relationship between thin-ideal internalization and social comparison processes, future research investigating the efficacy of a combined intervention focusing on both constructs may help to provide a greater impact in reducing weight bias.

Body Image and Weight Bias

Although the hypotheses of the current study were partially supported through correlational analyses, when entered into multiple regression analyses, RWA, SDO, thin-ideal internalization, and physical appearance comparisons failed to account for a significant proportion of the variance of implicit or explicit weight bias. These results may suggest that, while these constructs may be correlated with weight bias, further research needs to be conducted in order elucidate other correlates of weight bias. Given the strength of relationship between weight bias, thin-ideal internalization, and social comparison in the current study, future weight bias research may want to more closely align with emerging research in the area of body image and eating disorders. Future research examining the relationships between body dissatisfaction, positive body image, and weight bias may help to better describe the nature of weight bias as it currently stands. With regard to emerging research in positive body image, future research may want to examine the relationships between weight bias and the following constructs: body appreciation, perceived body acceptance by others, and body image flexibility. Each of these constructs will be briefly outlined below.

Body appreciation comprises four characteristics related to positive body image; (1) having positive regard for the body regardless of size and perceived imperfection, (2) having awareness of and attentiveness towards the needs of the body, (3) engaging in healthful behaviours, and (4) rejection of thin-ideal media messages (Agustus-Horvath & Tylka, 2011;

Frisen & Holmqvist, 2010; Wood-Barcalow, Tylka, & Augustus-Horvath, 2010). Previous research has suggested that body appreciation is predictive of psychological well-being, such as self-esteem, optimism, and overall life satisfaction (Avalos, Tylka, & Wood-Barcalow, 2005). In the current study, the measurement of UDO ideology was included in order to investigate the relationship between an appreciation for similarities and differences in others and weight bias. However, as discussed above, the constructs included within diversity and multiculturalism may not be conceptually connected to body weight and shape. Perhaps a measure of body appreciation (e.g., Avalos et al., 2005) would more accurately measure this relationship.

Previous research has suggested that body appreciation is significantly related to *perceived body acceptance by others* (Avalos et al., 2005; Avalos & Tylka, 2006). Avalos and colleagues (2005) proposed that women may become less preoccupied with their appearance when they perceive that others accept their body, whereas a lack of body acceptance from others is associated with increased body monitoring (Avalos & Tylka, 2006; Tylka & Hill, 2004). Based on these findings, Avalos and Tylka (2006) concluded that significant others play a key role in women's attitudes towards their body, and that by increasing body image acceptance, women's positive attitudes and respect towards their bodies may also increase.

Finally, *body image flexibility* has been defined as the ability of an individual to fully and openly experience negative body image while also engaging in value-consistent behaviours (Sandoz, Wilson, Merwin, Kellum, 2013). For example, an adolescent who is dissatisfied with the size and shape of her thighs may choose to eat a full and balanced meal because this behaviour is consistent with her value of physical health (Hill, Masuda, & Latzman, 2013). Previous research has suggested that increased body image flexibility is negatively associated with body dissatisfaction and disordered eating behaviour (Ferreira, Pinto-Gouveia, & Duarte,

2011; Sandoz et al., 2013). With regard to weight bias, future research may want to consider the possible relationships between body appreciation, perceived body acceptance by others, body image flexibility, and weight bias. Perhaps individuals who appreciate their own body, experience body image flexibility, and/or perceive that others accept their body also have less negative attitudes towards people with obesity.

Limitations

The results of the current study must be considered in light of several key limitations. Specifically, six key limitations have been identified; (1) sample size and representativeness, (2) statistical power, (3) data collection method, (4) lack of measurement for Belief in a Just world and Protestant Work Ethic ideologies, (5) lack of measurement for social desirability, and (6) datedness of weight bias measures used. Each of these six limitations will be considered in detail in the following section.

First, the sample size of the current study was relatively small, considering sample sizes used in previous research examining the relationship between weight bias and ideology (e.g., Crandall & Biernat, 1990; O'Brien et al., 2007). The small sample size had significant implications for sample diversity and the generalizability of results. Although the sample was relatively diverse in age, with participants ranging in age from 18-72, it was comprised mostly of Caucasian females. Together with the low sample size, the findings from the current study have implications for the generalizability of results to the greater U.S. population. Further research needs to be conducted in order to replicate the results with a larger sample size, as well as a sample that is more culturally representative of the general American and Canadian populations.

The small sample size also significantly impacted statistical power in the current study, which is the second key limitation. Since gender differences were found, the analyses in the

current study were conducted separately for males and females. With only 96 females and 41 males, the power of the multiple regression analyses was significantly impacted, and the results of the multiple regression analyses for male participant must be interpreted with caution.

Previous researchers have recognized that low statistical power increases the risk for both Type I and Type II error (Maxwell, Kelly, & Rausch, 2008; O'Brien & Casteloe, 2007). This has implications for the current study for both the significant and non-significant findings. Therefore, further research needs to be conducted with a larger sample in order to replicate, or dispute, the findings of the current study.

Third, the data collection method used in the study may have impacted the results. During the informed consent process, participants were informed that the study was investigating general sociopolitical attitudes and how these attitudes related to attitudes towards body weight, shape, and size. Although the average scores and standard deviations for the variables used in the current study were generally consistent with previous research, the data collection method used in the current study may have made the results vulnerable to social desirability. A recent review of research investigating social desirability in social science research suggested that individuals are generally able to identify the purpose of sensitive surveys investigating stigmatizing attitudes and that they may consciously alter their responses in order to avoid feelings of shame and embarrassment, reduce cognitive dissonance and to maximize positive self-image and feelings of self-worth (Krumpal, 2013). The explanation of the purpose of the current research study may have significantly impacted the results if participants were able to identify more clearly the purpose of the research study and alter their responses accordingly in order to avoid feelings of shame or embarrassment due to their true attitudes towards people with obesity. Future research may want to consider using a cover story or other method of disguise the purpose of the research.

Fourth, while the current study investigated the relationships between RWA, SDO, and weight bias, the study did not investigate the relationships between the Belief in a Just World, and a Protestant Work Ethic ideology. Previous research examining the relationship between these two ideologies and weight bias, although limited, has suggested that both ideologies are positively associated with weight bias (Crandall, 1994; Crandall & Martinez, 1996; Ebner, Latner, & O'Brien, 2011). Given the unique results of the current research, future research examining the relationship between the Belief in a Just World, a Protestant Work Ethic ideology and weight bias may help to clarify the fundamental beliefs that are associated with the current state of weight bias in North American society.

Given the propensity for individuals to respond in a socially desirable way on sensitive surveys investigating negative attitudes and discrimination (e.g., Holmes, 2009), the fifth limitation identified in the current study is the failure to include a measure of social desirability, such as the short form of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982). Although utilizing a measure of social desirability has become commonplace in research investigating racism or homophobia (e.g., Holmes, 2009), previous research investigating weight bias and ideology, or weight bias and thin-ideal internalization has not included a measure of social desirability. However, given that a measure of social desirability was not included in the current study, any examination of the effects of social desirability became impossible. Given the increase in the pervasiveness of weight bias in recent years, the effects of social desirability on participant responses may be an important consideration for future research.

Finally, it is important to consider the measures used in the study. Both the ATOP and BAOP were developed and validated in research studies published in 1991. Researchers investigating explicit racist attitudes have attempted to create measures that are less transparent

in order to avoid socially desirable responding (e.g., McConahay, 1986). However, research conducted by Holmes (2009) suggested that, regardless of whether a scale attempts to measure explicit racism in an overt or covert manner, participants are capable of identifying the social implications of negative responses to scale items, and adjusted their responses accordingly. These results may have significant implications for the current research, as well as weight bias research as a whole. Puhl Latner, King, and Luedicke (2014) indicated significant participant dropout and speculated that this may have been influenced by discomfort with survey items inquiring about their attitudes towards people with obesity. This speculation may suggest that current measures for explicit weight bias are direct in item content, and future research may want to consider examining whether or not the wording of items significantly influences participants' responses. In addition, future research may want to consider indirect measures of weight bias through the use of the IAT.

Implications for Counselling

As discussed in Chapter Two, health professionals are not immune to weight bias (e.g., Brown, 2006; Sabin, Marini, & Nosek, 2012; Stone & Werner, 2012). Although research examining weight bias among counselling and clinical psychologists is significantly limited, the results of a recent study by Puhl and colleagues (2014) examined weight bias among professionals who work with individuals with eating disorders suggested that the prevalence of weight bias is similar to health professionals in other fields. The results of the research suggested that, although the average level of self-reported weight bias was lower, the majority of participants (56%) reported that they had witnessed a colleague make a negative comment about a patient with obesity. Further, 42% of participants indicated they feel other practitioners in the field have negative stereotypes about patients with obesity, 35% perceived that other

practitioners are often uncomfortable treating patients with obesity, and only 35% of participants indicated they believe patients with obesity were compliant with treatment. Finally, participants with stronger weight bias were also more likely to believe that obesity is caused by behaviours such as overeating, express frustration about treating patients with obesity, and predict poorer treatment outcomes.

Although the researchers suggested that increased efforts need to be placed on interventions aimed at reducing weight bias among professionals working with individuals with eating disorders, they ultimately concluded that an increased understanding of the nature and correlates of weight bias in this population would better inform intervention efforts (Puhl et al., 2014). This suggests that, although intervention efforts are needed within this population, increased research efforts need to be given to understanding the factors that contribute to the development and persistence of weight bias in health professionals, as well as the general population, in order to make intervention efforts more successful and the results more long-standing. The results of the current research study mirror this conclusion. Although previous research has examined the associations between ideology and weight bias, the current research study suggests that further investigation into the most salient correlates of weight bias needs to be conducted in order to better understanding the factors that may influence the development and persistence of weight bias.

Implications for Social Justice, Ethics, and Policy

Although follow-up research needs to be conducted in order to further examine the relationships between ideology, thin-ideal internalization, social comparisons, and the current state of weight bias in society, the results of the current research may suggest that increased efforts in the areas of social justice, ethics, and policy related to weight bias also needs to occur.

In an examination of current models and interventions targeting obesity, Adler and Stewart (2009) note that, currently, the medical model focuses on the treatment of obesity and has a tendency to frame obesity as being under the control of the patient, while the public health model has focused on prevention as well as the social and economic conditions that may be influencing obesity. However, both tend to fall to an “eat less, move more” message. Together, these models attempt to empower individuals to achieve a normal weight status through diet and exercise while also blaming them for a failure to adequately manage their weight (Adler & Stewart, 2009). Greenhalgh (2012) viewed current models from a similar stance, and added the argument that the dominant narrative from these models communicates that, not only are individuals with obesity “lazy”, but that they are also “abnormal”, “diseased”, and in need of medical treatment.

In response to these messages, Adler and Stewart (2009) critically examined the social environment and argued that, if it is unacceptable to blame individuals for consequences over which they have little control, then individual responsibility is only a potential relevant factor when individuals have full access to the social and economic environments which promote these behaviours. Adler and Stewart noted that rates of obesity are higher among individuals who are racial or ethnic minorities, as well as individuals of lower socioeconomic status, and that these systemic issues frame obesity, and by extension weight bias, as social justice issues. In addition to failing to account for such systemic issues, Greenhalgh (2012) argued that the nature of the concern about obesity in medical and public health models has produced an epidemic of *fat talk* (speech which focuses on body inadequacy) within which “important individuals in the social worlds of young people as well as the larger media culture actively participate, naming who is fat, ridiculing those individuals, cajoling them to lose weight, and informing them how” (p. 473).

Others researchers have focused on obesity-related policy and legislation (e.g., Greer & Ryckeley, 2011; Liberman, Golden, & Earp, 2013). Despite the increase in the occurrence of weight bias in recent years and calls for action to improve legislation for victims of weight bias (Puhl & Heuer, 2009), efforts to improve legislation to protect individuals from weight discrimination are lacking (Pomeranz & Puhl, 2013). However, Greer and Ryckeley (2011) argued that, when offering support for obesity policy, healthcare professionals should consider the ethical implications of policy changes to ensure that policies do not support weight bias and result in potential harm to patients. They propose that, prior to offering support for legislation, health professionals should engage in a thorough ethical examination of the proposed legislation with members of a multidisciplinary team. Liberman and colleagues (2013) also questioned the ethical implications of structural changes to social, environmental, and political structures without adequate understanding of the outcomes of these interventions and the impact on personal autonomy. They argue that making changes without the participation and agreement of the affected individuals impacts autonomy, but that ignoring opportunities to help increase healthful behaviours will maintain the status quo. Therefore, they propose that the individuals most likely to be affected by any structural and environmental changes should be involved in the decision making process (Liberman et al., 2013).

Implications for Future Research

The results of the current study suggest that, while RWA, SDO, thin-ideal internalization, and appearance comparisons may be significantly related to weight bias, further research is needed in order to determine other factors which may influence the development and persistence of weight bias. Further research also needs to be conducted in order to address the limitations of the current study and to replicate the results in order to further understand these relationships,

especially among men. In order to address these two general recommendations, five specific research recommendations will be made below.

First, given the strong association between weight bias and thin-ideal internalization and social comparisons in the current study, future research could align more closely with emerging research in the area of body image and eating disorders. More specifically, future research examining the relationships between weight bias and body appreciation, body image flexibility, and perceived body acceptance by others may help to elucidate the changing nature of weight bias.

Second, research needs to investigate the role of internalization of the muscular ideal for men in weight bias. Previous research documenting a shift in male ideal-appearance norms (e.g., Leit et al., 2001) as well as research implicating the internalization of these ideals in male body dissatisfaction and disordered eating (e.g., Flamant et al., 2012; Gudnadottir, & Gardarsdottir, 2014) suggests that this may be an more appropriate factor influencing weight bias for men than internalization of thin-ideal media messages.

Third, future weight bias intervention research needs to examine the utility of interventions with documented success in the reduction of body dissatisfaction and eating disorders. Specifically, previous interventions targeting thin-ideal internalization have suggested that a cognitive dissonance approach is successful in reducing thin-ideal internalization, body dissatisfaction, and eating disorder symptoms (Stice et al., 2007), and that these effects can be maintained for at least three years following the intervention (Stice, Rohde, Shaw, & Gau, 2011). In addition, previous interventions aimed at reducing upward physical appearance comparisons to thin-ideal images have suggested these interventions have efficacy in reducing thin-ideal

internalization and in increasing body satisfaction (Halliwell & Dittmar, 2005; Martijn et al., 2013).

Finally, the influence of socially desirable responding is an important future direction for weight bias research, since weight bias can be a sensitive area of research, and previous research investigating explicit racism has suggested that participants tend to respond in a socially desirable way (e.g., Holmes, 2009). Also, given previous research which has suggested that individuals are generally able to identify the purpose of sensitive surveys and alter their responses (Krumpal, 2013), future research may also want to examine the efficacy of a more indirect measure of explicit weight bias.

Summary and Conclusion

This study represents the beginning of an investigation of the sociocultural and ideological factors which may play a role in the development and persistence of weight bias. Male and female participants from the United States took part in a survey measuring three social ideologies (right-wing authoritarianism, social dominance orientation, universal-diverse orientation), internalization of thin-ideal media messages, social comparison processes, and implicit and explicit weight bias. The results of the study suggested that, although RWA, SDO, thin-ideal internalization and social comparison were significantly associated with weight bias, these variables did not account for a significant proportion of the variance in negative attitudes towards individuals with obesity, beliefs about the controllability of weight, or implicit weight bias. . Given the increase in the occurrence of weight bias in recent years, it is important that research efforts be placed on further understanding the factors which may influence the development and persistence of weight bias. Understanding these factors may help to inform future weight bias interventions for health professionals as well as the general population.

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Appendix A

Participant Recruitment

You are invited to participate in a research study! This study is being conducted by a graduate student in psychology. The purpose of this study is to examine general social and political beliefs and how they relate to views on body image and body shape/size. The study will take approximately 30 minutes. You will be asked to complete seven questionnaires as well as an interactive activity. There are no right or wrong answers to any of the questions.

The study contains two parts. Please complete the links in the order they are provided below. In addition, please make sure to enter your MTurk worker identification number into both links to aid the researcher in HIT approval.

1. Questionnaire Survey:
2. Interactive task:
3. Project Summary:

For more information about the study, please contact the researcher at snutter@ucalgary.ca. This study has been approved by the University of Calgary's CFREB board.

Thank you for your participation!

Appendix B Demographics

Gender: Male Female Other Prefer not to disclose

Age: _____

Ethnicity:

| | | |
|--------------------------|-------------------------|-------------------|
| Asian | Hispanic/Latin American | South Asian |
| Black/African/Caribbean | Middle Eastern | Biracial/Biethnic |
| Caucasian/White/European | Pacific Islander | Other |
| First Nations | Southeast Asian | |

Occupation: _____

Mother's level of Education:

| | | |
|------------------|----------------------|-----------------------------|
| Some high school | College diploma | Graduate degree |
| High school | Undergraduate degree | N/A, Prefer not to disclose |

Father's level of Education:

| | | |
|------------------|----------------------|-----------------------------|
| Some high school | College diploma | Graduate degree |
| High school | Undergraduate degree | N/A, Prefer not to disclose |

Religion:

| | | | |
|------------------|--------------|--------|-------|
| Atheist/Agnostic | Confucianism | Muslim | Other |
| Buddhist | Hindu | Sikh | |
| Christian | Jewish | Taoist | |

How important are your religious values in your life?

| | | | | | |
|-------------------------|---------------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| Strongly unimportant | Moderately unimportant | Slightly unimportant | Slightly important | Moderately important | Strongly important |

Weight: _____ lbs

Height: ____ ft ____ in

Satisfaction with body weight:

| | | | | | |
|-------------------------|---------------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| Strongly unsatisfied | Moderately unsatisfied | Slightly unsatisfied | Slightly satisfied | Moderately satisfied | Strongly satisfied |

Satisfaction with body shape:

| | | | | | |
|-------------------------|---------------------------|-------------------------|-----------------------|-------------------------|-----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| Strongly unsatisfied | Moderately unsatisfied | Slightly unsatisfied | Slightly satisfied | Moderately satisfied | Strongly satisfied |

Appendix C
Informed Consent Form

Name of Researcher, Faculty, Department, Telephone & Email:

Sarah Nutter, Werklund School of Education, Educational Psychology

Supervisor:

Dr. Shelly Russell-Mayhew, Werklund School of Education, Educational Psychology

Title of Project:

Ideology, thin-ideal internalization and social comparison: An examination of the predictive qualities of weight bias

This consent form, a copy of which has been given to you, is only part of the process of informed consent. If you want more details about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The University of Calgary Conjoint Faculties Research Ethics Board has approved this research study.

Purpose of the Study:

You are invited to participate in a research study. This study is being conducted by Sarah Nutter, a Master's student in psychology. The purpose of this study is to examine larger socio-political views and how they relate to view on body image, body shape, and body size.

What Will I Be Asked To Do?

Participation in this study involves completing an online questionnaire package which will involve answering a series of questions about your general socio-political views, as well as your views on body image, body shape, and body size. The study will take approximately 30 minutes to complete. You will be asked to complete seven questionnaires as well as an interactive reaction time task. There are no right or wrong answers to the questions you will be asked.

Your participation in this study is voluntary; you are under no obligation to answer all of the questions on a questionnaire, and you can decline to answer any questions if you choose. If you decide to participate, you may withdraw from the study at any time.

What Type of Personal Information Will Be Collected?

No personal identifying information will be collected in this study, and all participants shall remain anonymous. You will not be asked to provide your name at any time throughout the study. Should you agree to participate, you will be asked to provide your gender, age, ethnicity, religion, height, weight, and occupation.

Are there Risks or Benefits if I Participate?

The online survey is being administered by an American software company. As such, your responses are subject to U.S. laws, including the USA Patriot Act. The risks associated with participation are minimal, however, and similar to those associated with many e-mail programs, such as Hotmail and social utilities spaces, such as Facebook.

There is also potential that while answering questions in this study that you may feel a range of emotions, including negative feelings such as discomfort with subject material. These feelings are normal and should be temporary. If any negative feelings persist and you wish to seek mental health services, the following websites can be visited to help you connect with local services;

Canadian Mental Health Association: <http://www.cmha.ca/>

National Institute of Mental Health: <http://www.nimh.nih.gov/index.shtml>

Participants will gain educational benefits from participating in this research, as they will gain knowledge and understanding of the research process in psychology. The results from this research will advance the literature by contributing to a more complex understanding of how socio-political views are related to views about body image, body shape, and body size. The results may also have a positive impact on the larger societal views about body image, body shape, and body size.

What Happens to the Information I Provide?

Participation is completely voluntary, anonymous, and confidential. You are free to discontinue participation at any time during the study. No one except the researcher and her supervisor will have access to the questionnaires. There are no names on the questionnaire. Only group data will be used for all analyses in this study, and only group data will be summarized for any presentation or publication of results. The questionnaires are kept in a password-protected computer where only authorized persons (Sarah Nutter, Dr. Shelly Russell-Mayhew) may access the data. If you withdraw from the study before data collection is completed, your data will be destroyed. If you withdraw from the study after data collection is complete, your data cannot be destroyed because data is stored without identifiers and cannot be linked to participants.

This study is being conducted in partial fulfillment of Sarah Nutter's master's thesis. The results of the study will be included in Sarah Nutter's Master's thesis, and it is anticipated that the results will also be published as a journal article, and be included in conference presentations.

Consent

By submitting the completed or partially-completed survey you are indicating your consent as a voluntary participant in this research study

In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from this research project at any time. You should feel free to ask for clarification or new information throughout your participation.

Questions/Concerns

If you have any further questions or want clarification regarding this research and/or your participation, please contact:

Sarah Nutter: Educational Psychology, Werklund School of Education

Supervisor: Dr. Russell-Mayhew, Educational Psychology, Werklund School of Education

A copy of this consent form has been given to you to keep for your records and reference. The investigator has kept a copy of the consent form.

Appendix D

Project Summary Form

Principal Investigator: Sarah Nutter, Educational Psychology, Werklund School of Education

Supervisor: Dr. Shelly Russell-Mayhew, Educational Psychology, Werklund School of Education

Project Title: Ideology, thin-ideal internalization and social comparison: An examination of the predictive qualities of weight bias

Thank you for your participation in this study! Your participation is greatly appreciated and we hope you found the experience interesting. The purpose of this study is to investigate whether the types of ideologies, or core beliefs, that people hold are related to how they compare their own body shape/size to the body shape/size of others, as well as to any negative beliefs about overweight and obese people they might have.

Previous research has found that people tend to compare aspects of themselves, such as their abilities, attitudes, or status to others who are perceived as better than or worse than, in order to assess one's own worth. Over the last several decades, Western culture and media has placed an increased emphasis on the value of physical attractiveness, and thinness. Studies have shown that some individuals have internalized these messages of a thin-ideal body type, and have developed a tendency to compare themselves to those who are perceived to be less attractive or more overweight in order to feel better about how they look. These tendencies have consequences for obese individuals, who have experienced increasing amounts of stigma in recent decades. Research in the area of stigma has found that some negative attitudes are linked to a connected set of beliefs, attitudes, and values which form an individual's belief system; also known as ideology.

Past research has considered the impact of comparing oneself to others, the internalization of media messages, and the impact of ideology in negative attitudes against obese people, but research has not considered these aspects together at one time. In the current research, we are examining the above research together as a whole, examining how ideology, internalization of media messages, and comparing oneself contribute to negative attitudes against obese people.

After completing a study that consists of recalling events in your life it is normal for it to have an effect on your feelings; you may experience some negative emotions temporarily. However, if your negative emotions persist over time or if you are concerned or distressed about these feelings, the following websites can be used to assist you in locating local mental health services:

Canadian Mental Health Association: <http://www.cmha.ca/>

National Institute of Mental Health: <http://www.nimh.nih.gov/index.shtml>

The results of this study will be included in Sarah Nutter's Master's thesis, and it is anticipated that the results of this study will also be published as a journal article, and be included in conference presentations. If you would like to know more information about the topics addressed in this research please consult the following articles and books:

- Brownell, K. D., Puhl, R. M., Schwartz, M. B., & Rudd, L. (2005). *Weight bias: Nature, consequences, and remedies*. New York, NY: The Guilford Press.
- Crandall, C. S. & Martinez, R. (1996). Culture, ideology, and antifat attitudes. *Personality and Social Psychology Bulletin*, 22, 1165-1176. doi:10.1177/01461672962211007
- Fitzsimmons-Craft, E., Harney, M. B., Koeler, L. G., Danzi, L. E., Riddell, M. K., & Bardone-Cone, A. M. (2012). Explaining the relation between thin ideal internalization and body dissatisfaction among college women: The roles of social comparison and body surveillance. *Body Image*, 9, 43-49. doi:10.1016/j.bodyim.2011.09.002
- Gumble, A., & Carels, R. (2012). The harmful and beneficial impacts of weight bias on well-being: The moderating influence of weight status. *Body Image*, 9, 101-107. doi:10.1016/j.bodyim.2011.07.005

Thank you again for your participation in this study!