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An Examination of Weight, Weight Bias, and Health Care Utilization and Attitudes Among Emerging Adults

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AN EXAMINATION OF WEIGHT, WEIGHT BIAS, AND HEALTH CARE UTILIZATION AND ATTITUDES AMONG EMERGING ADULTS

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University

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Abstract

AN EXAMINATION OF WEIGHT, WEIGHT BIAS, AND HEALTH CARE UTILIZATION AND ATTITUDES AMONG EMERGING ADULTS

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Individuals with overweight/obesity have been found to exhibit more negative attitudes toward health care and disproportionate rates of health care delay and avoidance, compared to their healthy weight peers. The present study sought to examine potential mechanisms through which weight status influences health care utilization and attitudes. Six hundred and thirty-three students completed a questionnaire measuring weight status, perceived weight bias, patient-provider relationship, and health care utilization and attitudes. Although the majority of the paths in the proposed theoretical mediation model were supported by the present findings, there was no support for the anticipated link between perceived weight bias and the patient-provider relationship or weight-related embarrassment. Overall, these results corroborated previous findings in a novel sample, but did not provide evidence that perceived weight bias mediates the

relationship between weight status and health care outcomes. Possible explanations for these findings are deliberated.

An Examination of Weight, Weight Bias, and Health Care Utilization and Attitudes Among Emerging Adults

Over a third of all American adults are overweight (BMI 25.0-29.9) and another third are obese (BMI ≥ 30.0) and alarmingly, these proportions are even higher among certain racial/ethnic minority groups (Flegal, Carroll, Ogden, & Curtin, 2010; Go et al., 2013). This is a critical public health issue because overweight and obesity are often accompanied with increased risk for other serious diseases, including, but not limited to, cancer, diabetes, cardiovascular disease, and hypertension (Bittner-Fagan, Wender, Myers, Petrelli, 2011; Calle, Rodriguez, Walker-Thurmond, & Thun, 2003; Lawrence & Kopelman, 2004). Despite this increased risk, research has determined that individuals with overweight/obesity tend to utilize suboptimal levels of preventive care services and exhibit disproportionate rates of health care avoidance (i.e., delaying or canceling an appointment), as compared to those within a healthy range weight (BMI 18.5-24.9). This disparity has been particularly well documented in preventive health care, such as routine physicals and check-ups and recommended screenings (Amy, Aalborg, Lyons, & Keranen, 2006; Drury & Louis, 2002; Fontaine, Heo, & Allison, 2001; Maruthur, Bolen, Brancati, & Clark, 2009; Ostbye, Taylor, Yancy, & Krause, 2005). As early diagnosis is critical for the successful treatment of potentially serious conditions, underutilization or avoidance of preventive health care among individuals with overweight/obesity is disconcerting.

This issue may be of particular importance to emerging adults (i.e., individuals aged 18 to 25). First, emerging adulthood is a time when issues relating to weight and

body image are particularly salient. For instance, body dissatisfaction is extremely prevalent among this age group, with many individuals feeling pressure to be thin and engaging in a variety of weight control behaviors (Bucchianeri, Arikian, Hannan, Eisenberg, & Neumark-Sztainer, 2013). Second, despite that previous research has tended to primarily focus on middle-aged and older adults or on adolescents, perhaps under the assumption that emerging adulthood is a comparatively healthy developmental period, a recent study found that emerging adults are actually less healthy on average than adolescents (Park, Scott, Adams, Brindis, & Irwin, 2014). There is also increasing evidence of a troubling lack of support for emerging adults who are transitioning from pediatric to adult care, leading to negative health care experiences and outcomes (Shrewsbury, Baur, Nguyen, & Steinbeck, 2014). Finally, research has found that this may be a critical time for targeting the development of positive patient-provider relationships and good health care practices (Hilliard, Perlus, Clark, Haynie, Plotnick, Guttmann-Bauman, & Iannotti, 2014). Emerging adulthood is often the time when individuals become increasingly independent and first begin to take responsibility for their own health care. Taken together, these findings suggest that examining health care in this previously neglected age group is incredibly important.

Clearly further research is needed to identify the factors that facilitate and hinder health care seeking among emerging adults. Given the considerable emphasis on weight and body image among this age group, it is likely that weight status and weight bias are among these influential factors. To our knowledge, this is the first study to

examine the relationships among weight, weight bias, and health care utilization and attitudes among emerging adults.

In summary, despite a growing awareness of and emphasis on this issue, there is still a great deal to be understood about the link between weight and health care outcomes. The overall purpose of the current study was to evaluate potential mechanisms through which weight status influences health care utilization and attitudes in emerging adults. More specifically, this study focused on an examination of weight bias as one factor contributing to negative attitudes toward and disproportionate delay/avoidance of health care among individuals with overweight/obesity. The remainder of this introduction comprises a review of existing research on weight bias and health care and a discussion of critical gaps in this research, providing context and rationale for this study.

Weight Bias and Discrimination in the United States

Weight bias is exceedingly pervasive in the general United States population, and the expression of this bias is equally persistent (Puhl & Brownell, 2001; Puhl, Andreyeva, & Brownell, 2008). Nationally representative survey data revealed that weight/height discrimination was the fourth most reported cause of discrimination among U.S. adults, regardless of gender, and the third most reported cause among adult women. Also, while other forms of discrimination remained relatively stable over the past decade, rates of weight/height discrimination increased (Puhl et al., 2008).

While the causes of weight bias remain unclear, one popular theory suggests that the pro-thin societal standard of beauty in the United States is to blame,

particularly among women (Puhl & Brownell, 2003). This is supported by a recent study which found that simply the physical appearance of an individual with overweight/obesity may be enough to evoke feelings of revulsion in a prejudiced perceiver and perhaps even to trigger discriminatory behaviors (O'Brien, Latner, Ebneter, & Hunter, 2012). Weight bias, however, is a multifaceted and complex concept and in a society that glorifies self-discipline in addition to beauty and youth, obesity is often deemed intolerable as well as unattractive (Vartanian, 2010).

According to the Attribute-Value Model (AVM; Crandall et al., 2001), weight bias can be better explained by the combination of negative stereotypes associated with overweight/obesity and the belief that these individuals are at fault for their undesirable weight. More specifically, AVM suggests that certain groups are prejudiced against because (1) they possess attributes deemed undesirable by society and (2) they are believed to have control over these attributes. Overweight/obesity is associated with disadvantageous personal qualities, such as laziness, gluttony, and a lack of self-control or motivation (O'Brien et al., 2012; Schwartz et al., 2003). In the case of weight bias, people tend to perceive individuals as accountable for or having control over their weight status (e.g., "they are obese because they lack self-regulation," or "they are overweight because they are too lazy to exercise") and thus liable for the negative characteristics that are associated with their undesirable condition. In fact, there is ample evidence corroborating the notion that perceived personal control over weight is strongly correlated with increased weight bias (Crandall et al., 2001; Vartanian, 2010),

while attribution to genetic/biological factors is generally associated with decreased weight bias.

The AVM may also partially explain why anti-fat attitudes tend to be more explicitly expressed than other forms of prejudice, such as racism or sexism. When social psychologists assess individuals' bias toward a certain social group, they often measure two distinct, yet clearly interrelated, attitudes: explicit and implicit attitudes. Explicit attitudes are deliberately formed attitudes that people are consciously aware of, and they are generally assessed with self-report measures (Teachman & Brownell, 2001; Wang, Brownell, & Wadden, 2004). In contrast, implicit attitudes are attitudes that are outside of people's awareness, and they are generally assessed with reaction time measures. Consistent findings from past intergroup bias research suggest that the association between explicit and implicit attitudes is rather weak (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005; Teachman & Brownell, 2001). One potential explanation for the weak association between explicit and implicit attitudes toward a certain social group is concern over social desirability; that is, people monitor and regulate how they respond to self-report measures of bias to ensure that they do not appear prejudiced (Wang et al., 2004). However, several studies have shown that the association between these two measures of attitudes is considerably stronger when examining people's attitudes toward individuals with obesity than when examining people's attitudes toward racial minorities (Puhl et al., 2008; Sabin, Marini, & Nosek, 2012). This may be because expression of weight bias does not carry the same negative connotation as other forms of bias (Crandall, 1994; Puhl & Brownell, 2001), as

evidenced by findings that people feel that it is more acceptable to express bias against individuals with obesity than toward racial/ethnic minorities, people with physical disabilities, or people with mental illnesses (Crandall, Eshelman, & O'Brien, 2002).

Because the expression of weight bias is not socially condemned to the same extent as other forms of discrimination, individuals with overweight/obesity may encounter blatant prejudice or discrimination in situations or settings where other targeted groups feel safe. For instance, it has been demonstrated that in addition to experiencing discrimination in a wide range of domains from the workplace to social gatherings (Puhl & Brownell, 2001; Wang et al., 2004), individuals with obesity also regularly experience derogatory comments from family members, health care providers and even strangers (Puhl et al., 2008). Furthermore, there is no federal legislation in place to protect this vulnerable group.

Weight Bias among Health Care Professionals

Recent studies have provided considerable evidence that these robust negative perceptions of individuals with overweight/obesity are present among health care professionals, such as physicians, nurses, and medical students (Huizinga, Cooper, Bleich, Clark & Beach, 2009; Mold & Forbes, 2011; Puhl & Brownell, 2001), despite the expression of any form of bias being strongly condemned in the medical profession (Green et al., 2007). Alarmingly, weight bias persists even among those who specialize in the study and treatment of obesity and/or eating disorders (Sabin, Marini, & Nosek, 2012; Schwartz, Chambliss, Brownell, Blair, & Billington, 2003; Teachman & Brownwell, 2001). For instance, Schwartz et al. (2003) found that their sample of health

professionals and obesity researchers expressed significant implicit bias toward individuals with obesity and believed that they were more stupid, lazy, worthless, and bad, as compared to those individuals who were not obese. Furthermore, these stereotypes were also reported in the explicit measure, though to a lesser degree. These findings are noteworthy because health professionals who are specialized in studying and treating obesity presumably have a superior understanding of the complex role of genetic/biological factors in obesity than the general public, yet still demonstrate a robust anti-fat/pro-thin bias.

Another study surveyed 84 health care professionals who regularly work with patients with obesity. Participants were recruited at an obesity education conference and asked to complete a measure of explicit anti-fat/pro-thin bias as well as two implicit measures addressing, respectively, weight bias (i.e., whether they feel positively or negatively toward obese people) and stereotype activation (i.e., whether they associated certain attributes to obese people). The authors found that scores on the explicit anti-fat/pro-thin bias measure were relatively neutral, with participants reporting similar attitudes toward both obese and thin people. The results of the implicit measure of weight bias, on the other hand, reflected a strong anti-fat/pro-thin bias. Additionally, the implicit measure of stereotype activation demonstrated that health care professionals associated larger figures with negative attributes, such as lazy, terrible, and slow, whereas they associated thinner figures with positive attributes, such as motivated, wonderful, and determined (Teachman & Brownell, 2001).

These findings were replicated with a large sample (*N*=2,284) of medical doctors (MD) who voluntarily completed both explicit and implicit measures of weight bias on a public website (Sabin, Marini, & Nosek, 2012). The authors found evidence of strong explicit and implicit weight bias. Interestingly, levels of weight bias were consistent across both male and female MDs; and across underweight, healthy weight, and overweight MDs. In other words, MDs expressed a strong anti-fat/pro-thin bias regardless of their gender or weight status. The only exception was the 11% of the sample who were themselves classified as obese. These individuals reported *moderate* explicit and implicit anti-fat attitudes. It should be noted that participants in this particular study reported stronger explicit anti-fat attitudes than found in similar samples in other studies (Teachman & Brownell, 2001); however, this may be due in part to the anonymous, online nature of the study. Taken together, this research provides strong evidence that weight bias is pervasive in the health care community.

Weight Bias and the Patient-Provider Relationship

A number of studies have begun to examine the potential negative effects of weight bias among health care professionals on the patient-provider relationship. For instance, Huizinga et al. (2009) conducted a secondary analysis of existing data from the Patient-Physician Partnership study (PPP), a study in which patients (n = 238) and physicians (n = 40) completed several questionnaires following an appointment. Participants were asked to provide demographic information and respond to multiple measures concerning their attitudes toward each other and perceptions of the visit in

general. Patient BMI was found to be significantly, inversely associated with physician respect.

In another recent study, researchers analyzed audio-recorded primary care visits obtained from the aforementioned PPP parent study (Gudzune, Beach, Roter, & Cooper, 2013). The recordings were coded for the following content domains: biomedical (e.g., symptoms, tests), psychosocial/lifestyle (e.g., social relationships, diet and exercise habits), and rapport building. Rapport building was further categorized into positive (e.g., compliments, agreement), emotional (e.g., concern, reassurance, self disclosure), and social (e.g., non-medical, personal talk) rapport building. Physicians were found to engage in significantly less emotional rapport building with overweight/obese patients. These results may signify the presence of underlying weight bias that is preventing the physician from connecting with the patient on an emotional level.

Researchers have also begun to examine how provider weight bias can impact patients' perceptions of the quality of patient-provider relationships. In one study, patients (N = 125) were asked to complete a short questionnaire assessing quality of physician care (e.g., professionalism, communication skills, extent to which they believed physician liked them) following a medical appointment. Contrary to the researchers' hypothesis and past findings, there was no inverse association between patient BMI and their perceived quality of care. More specifically, perceived quality of care reported by overweight men was not significantly different from that reported by healthy weight men, and overweight women reported enhanced care compared to healthy weight women. These findings are encouraging; however, it is important to

note that when the quality of patient-provider relationships was assessed with objective measures (i.e., length of patient-physician communication), researchers found the expected negative association between patient BMI and perceived quality of care for male patients, such that the medical interactions involving overweight men were eight minutes shorter than those involving non-overweight men. In contrast, the interaction length for overweight women was not significantly different from that for non-overweight women (Hebl, Xu, & Mason, 2003).

These findings suggest that weight bias may diminish quality of care and undermine the effectiveness of the patient-provider relationship (Gudzune, Beach, Roter, & Cooper, 2013). This has substantial public health implications because less effective or less positive patient-provider relationships have been found to discourage patient utilization of the health care system (Amy et al., 2006; Merrill & Grassley, 2008). Consequently, individuals with overweight/obesity, who are already likely to have poorer patient-provider relationships than other populations, may be discouraged from utilizing the health care system in general.

Weight Bias and Health Care Attitudes and Utilization

Weight bias not only negatively impacts physicians' perceptions of and behaviors toward patients with overweight/obesity; it may also damage the patients' attitudes toward the health care system. Independent observers can detect differences in the quality of patient-provider relationships (Gudzune et al., 2013), however, it is yet undetermined how sensitive the patients themselves are to negativity or bias during medical interactions. If detected, weight bias from a health care provider may lead

patients to feel uncomfortable or disrespected during medical interactions, and consequently be less likely to adhere to suggested treatment plans or to make a timely follow-up appointment. Recent studies examining this topic determined that patients are indeed aware of weight bias from their health care providers and that this awareness affects their decision to receive or not to receive cancer screenings (Amy et al., 2006; Ferrante, et al., 2010). These findings were further supported by a meta-analysis examining the relationship between BMI and cervical cancer screening (Maruthur, Bolen, Brancati, & Clark, 2009). The study reported that BMI was inversely associated with cervical cancer screening in ten of the eleven studies examined. The majority of these studies utilized nationally representative surveys and controlled for potential confounding variables, such as age, race, health status, education, and co-morbid conditions. Although existing literature focuses predominately on cancer screening, this negative association between BMI and health care utilization is not limited to cancer screening. It has been shown that individuals with overweight/obesity are more likely than their healthy weight peers to report having negative health care experiences and to avoid, cancel, or delay medical appointments and preventive screenings in general (Amy et al., 2006; Drury & Louis, 2002; Fontaine et al., 2001; Ostbye, Taylor, Yancy, & Krause, 2005).

In order to confirm and expound upon these findings, Mold and Forbes (2011) conducted a systematic literature review in which they identified common themes among 30 studies on weight status in health care. They found that in addition to detecting weight bias from their health care providers and experiencing associated

feelings of powerlessness and shame, patients with overweight/obesity tend to perceive health care professionals as being ambivalent about their treatment. They also found that patients with overweight/obesity feel reluctant to utilize health care and can suffer from negative psychobehavioral responses (e.g., low self-esteem, poor body image), perhaps as the result of perceived weight bias. These findings emphasize the necessity of reducing both explicit and implicit weight bias among health care professionals and the importance of building and maintaining strong, positive relationships between health care providers and their patients.

Researchers have recently started to examine *why* patients with overweight/obesity may be less likely to utilize preventive care. For instance, Merrill and Grassley (2008) conducted in-depth interviews with eight women, in which the participants were asked to recount a notable story of their experience as a patient with overweight/obesity. Several women recounted feeling uncomfortable, guilty, and judged by their health care providers. They also reported that they felt as though their health care provider did not take sufficient time to listen to their weight-related concerns when they wanted to discuss their weight. This finding is especially troublesome because a recent study found that women with overweight/obesity most value compassion, understanding, and respect from their physician (Buxton & Snethen, 2013). Through 26 semi-structured interviews, the authors explored patients' desire to have a genuine connection with their primary care physician. While respect and compassion on the part of the physician were seen as important, patients also reported wanting a primary care physicians whom they could trust and with whom they could have a personal

relationship, free of bias and insensitive comments. According to these women, having a warm, positive relationship with one's health care provider is associated with decreased anxiety and increased desire to seek regular health care. Leske, Strodl, and Hou (2012) unearthed similar findings in a sample of 21 men and women. They conducted in-depth interviews in order to determine the characteristics of the patient-physician relationship desired by patients with overweight/obesity. The primary theme that emerged was a strong desire for trust in their physician, which was further associated with positive health outcomes (e.g., patient empowerment to make informed decisions; patient ownership of health goals).

The finding that perceived weight bias influences patients' attitudes toward health care is further supported by several quantitative and mixed-method studies. For instance, Drury and Louis (2002) assessed associations among BMI, self-esteem, satisfaction with health care, and delay/avoidance of health care among a sample of 261 women with varying BMI. They found that BMI was significantly, positively associated with delay and avoidance of health care, though participants cited both weight-related and non-weight-related reasons for neglecting care. The most common weight-related reasons included not wanting to be weighed and having gained weight since their previous visit, indicating that patients feel a sense of shame or embarrassment concerning their weight, perhaps due to perceived bias from their health care provider.

Similarly, Amy et al. (2006) surveyed a sample of 498 African American and White women with BMI > 25 about their gynecological screening and health care

experiences, focusing particularly on barriers to obtaining such care. Controlling for insurance coverage, type of health care, and education level, 52% of participants reported that their weight was a barrier to receiving appropriate health care, a number that increased with BMI-based weight class (i.e., in women with BMI > 55, 83% perceived their weight as a barrier). When asked to indicate specific weight-related barriers to receiving care, the women were almost as likely to report negative attitudes of providers and disrespectful treatment as barriers as they were to report unsolicited weight loss advice, inadequate gowns and examination tables, and embarrassment explicitly associated with being weighed.

In another study, large-scale national household survey data indicated that White women with obesity were significantly less likely to have received Pap testing in the three years prior, as compared to their healthy weight peers (Wee, Phillips, & McCarthy, 2005). These women were also more likely to report embarrassment as a reason for avoiding such screening. Interestingly, the researchers did not find this same negative association between BMI and utilization of health care among Black and Hispanic women. They posited that this could be because racial/ethnic minority women are less likely than White women to idealize a thinner body size and thus may experience less embarrassment and/or anxiety when in medical situations that force them to confront their weight status (e.g., being weighed, discussing weight). The potential moderating role of race in the relationship between BMI and health care utilization is further discussed later in this thesis.

Lastly, Ferrante et al. (2010) explored family physicians' perceptions of barriers to cancer screening in women with extreme obesity (BMI > 40) using a sequential mixed-methods study, consisting of in-depth interviews and later, a mail survey developed using themes from the interviews. More specifically, semi-structured, 30-60 minute interviews were conducted during which 15 physicians were asked to recall and describe in detail recent experiences with patients with extreme obesity. These interviews were audio recorded, transcribed, and analyzed for themes. The subsequent mail survey ($N = 255$) was developed to quantify some of these themes. Although many of the questions were intended to assess technical barriers that physicians face when performing cancer screening on women with extreme obesity (e.g., inadequate equipment, difficulty physically conducting exam, extra time requirement), a few questions were specifically devised to assess physicians' insight regarding barriers to receiving regular and timely physicals and cancer screening exams (e.g., embarrassment, pain, other priorities, disrespectful treatment from health care providers) among patients with obesity. The results of this study indicated that physicians most strongly attributed these patients' hesitation to undergo cancer screenings to embarrassment and an aversion to undressing. Additionally, 40% of the physicians indicated that disrespectful treatment from health care providers also functions as a barrier, suggesting that health care professionals may be aware of (and even willing to express) their negative feelings toward patients with extreme obesity.

In sum, the current literature suggests that weight bias is prevalent and pervasive among health care providers and that patients with overweight/obesity are

likely to be conscious of such bias toward them. In addition to damaging the patient-provider relationship, perceived weight stigma may induce or exacerbate negative psychobehavioral responses in individuals with overweight/obesity, such as shame, embarrassment, and poor self-esteem. These represent two potential mechanisms through which patients who experience weight bias develop negative attitudes toward the health care system and become discouraged from seeking further care.

Gaps in the Current Literature

Over the past decade, an increasing number of researchers have begun to focus on this important issue of health disparities due to weight status. Considering that research on the consequences of weight bias in the health care system is relatively new (Buxton & Snethen 2013; Friedman, Hemler, Rossetti, Clemow, Ferrante, 2012; Gudzune et al., 2013), the progress made in this research is remarkable. However, there are three major issues in the current literature that need to be addressed in order for this research to advance further. Those gaps are: (1) insufficient strategies to assess overweight/obese status; (2) limited research in social groups other than adult White women; and (3) limited research on individual difference factors.

Assessment of overweight/obese status. The first major issue in the existing literature on weight bias and health care utilization is that all of the previous studies that have attempted to empirically investigate the association between overweight/obesity and health care utilization used BMI as the sole measure of weight status. Reliance on BMI alone as an indicator of weight status is problematic because it does not provide any information about the patients' own perception of their weight

status or body composition. It is important to assess multiple aspects of weight status, as perception may be more important than actual weight status when examining health care outcomes (Post et al., 2011). This is particularly relevant when examining racial differences in weight perception, as discussed below.

Potential influence of race and gender. The second, and more important, gap in the current literature is a dearth of research on the role of race and gender in the effects of weight bias on health care utilization. The majority of the existing research was conducted among adult White women, and almost exclusively in a gynecological setting, which severely limits generalizability of the findings to other social groups and types of health care (Ferrante, et al., 2010; Fontaine et al., 2005; Friedman et al., 2012; Mulherin et al., 2013; Wee, Phillips, & McCarthy, 2005). According to intersectionality theory, people's experiences with weight bias may differ, both qualitatively and quantitatively, depending on multiple characteristics, such as gender, race/ethnicity, and age. Intersectionality refers to the idea that individuals who are members of more than one stigmatized groups (e.g., overweight/obese, racial minority, female) undergo unique experiences based on the interaction of these multiple dimensions of discrimination (Crenshaw, 1991). For example, a Black woman with obesity is subject to the societal pressures of racism and sexism as well as weight bias, and so her experience may drastically differ from that of a White man with the same BMI.

Consistent with the theory of intersectionality, several studies have shown that the inverse effect of BMI on utilization of cancer screenings (e.g., Pap smear,

mammogram) is significantly stronger among White women than racial minority women, even though overweight/obesity is generally more prevalent among individuals in minority groups (Bittner-Fagan et al, 2011; Puhl, Andreyeva, et al., 2008). This phenomenon may be instigated by multiple factors, such as cultural differences in awareness of weight status and body esteem (Bittner-Fagan et al., 2011; Miller & Downey, 2000). For instance, Black and Latino individuals have consistently shown higher rates of misperception of weight status (i.e., an individual with overweight/obesity self-identifying as 'underweight' or 'about the right weight') than their White peers (Bennet & Wolin, 2006; Dorsey, Eberhardt, & Ogden, 2009; Kemper, Sargent, Drane, Valois, & Hussey, 1994). Bennet and Wolin (2006) assessed data from the 1999-2002 National Health and Nutrition Examination Survey and found that, after adjusting for age, SES, self-reported health, and marital status, Blacks were twice as likely and Latinos were 70% more likely to have an inaccurate perception of their own weight status, as compared to Whites. Inaccurate categorization of weight status has also been demonstrated in adolescents, with Black girls as young as 13-19 years old reporting that they were smaller than they actually were based on the nationally defined weight status using BMI (Kemper et al., 1994). Earlier literature tended to focus on the protective aspects (i.e., in regards to poor self-esteem and disordered eating) of misperception of weight status (Kemper et al., 1994; Miller & Downey, 2000), but recently this focus has shifted to the negative consequences (i.e., failure to recognize health risk) of this phenomenon (Post et al., 2011).

Substantial literature has addressed racial differences in body-image, and the findings consistently demonstrate that Black women have greater body satisfaction (Chin-Evans & McConnell, 2003; Miller et al., 2000), a heavier body ideal (Hebl, King, & Perkins, 2009; Powell & Kahn, 2004), less concern with dieting (Powell & Kahn, 2004), and less social pressure to be thin (Kemper et al., 1994; Powell & Kahn, 2004) than their White peers. These differences are often attributed to positive constructs, such as high self-esteem and high body satisfaction. In a recent study, Chithambo and Huey (2013) examined racial differences in perceived weight and attractiveness among women with overweight/obesity (N = 1,694). The results showed that Black women perceived themselves as significantly more attractive and less overweight than their White counterparts, despite having higher BMI on average. Interestingly, while BMI was significantly, negatively correlated with attractiveness in White women, this relationship was not apparent in Black women. The authors suggest that this may be because Black women, as compared to White women, do not place as much value on thinness when evaluating attractiveness (Chin-Evans & McConnell, 2003; Freedman, Carter, Sbrocco, & Gray, 2007). Other minority groups do not necessarily share these protective traits. For instance, while Black women demonstrate significantly greater overall body satisfaction than White women, Asian women have reported levels of satisfaction similar to and even lower than White women (Chin-Evans & McConnell, 2003). In a study conducted by Chin-Evans and McConnell (2003), Asian women indicated the strongest need for conformity and were significantly more likely than Black women to hold themselves to mainstream Western beauty standards. Despite such results, there are very few studies

examining weight constructs in Asian women and even fewer involving Asian men. Taken together, these findings support the notion that weight as a psychosocial construct varies depending on race/ethnicity and gender.

As such, it is equally imperative to understand the mechanisms that underlie overweight/obesity and health care utilization among men. Research on weight bias among men is extremely limited, and findings are somewhat inconsistent. Generally, it is understood that men are less concerned with their weight and have higher body esteem than women, which may buffer against the effects of weight bias. In one seminal study, male students reported significantly higher body esteem and significantly lower weight concern than their female counterparts (Miller et al., 1998). Another study examining data from the National Survey of Midlife Development determined that, on average, 4.9% of men reported daily or lifetime weight/height discrimination, while over twice as many women (10.3%) reported such experiences (Puhl, Andreyeva, et al., 2008). In contrast, Hebl & Turchin (2005) found that men might experience more weight bias than women in certain social domains. In this study, 68 male undergraduate students (22 Black and 46 White) were asked to rate 12 standardized target stimuli (varies in gender and race) on seven dimensions: intelligence, job competence, relationship success, life satisfaction, popularity, professionalism, and weight. As expected, the researchers discovered that men perceived and evaluated overweight men more negatively than non-overweight men. However, more surprisingly, overweight men were perceived significantly more negatively than overweight women on multiple dimensions (e.g., intelligence, professionalism),

regardless of race. The study also found a significant interaction between race and gender, such that overweight White men were perceived more negatively than overweight Black men. Clearly, more research is necessary to be able to properly assess the role of gender and race in the relationships between weight, weight bias, and health care utilization and attitudes.

Potential role of individual differences. The third criticism of the existing literature examining weight and health care is a failure to take into account individual characteristics that potentially moderate the effects of overweight/obesity on health care utilization. Specifically, levels of body esteem and body anxiety may provide valuable insight as to why certain individuals with overweight/obesity are less willing to utilize health care. Individuals with overweight/obesity who also exhibit high body esteem and/or low body anxiety may not report the same barriers to health care as individuals with overweight/obesity who have low body esteem and/or high body anxiety. In other words, positive body image may function as a protective factor against poor health care outcomes associated with overweight/obesity. While similar individual characteristics such as high self-esteem and positive self-image have been found to protect against the negative effects of stigma, this phenomenon has primarily been demonstrated in racial minorities (Crocker & Major, 1989; Twenge & Crocker, 2002). To date, there is little research examining the self-protective efficacy of these factors in relation to weight bias. Previous studies of weight status and health care have fallen prey to the assumption that all individuals with overweight/obesity are susceptible to

negative self-image, failing to take into account individual differences existing within this population.

The Present Study

The primary objective of this thesis is to explore the role of weight status in health care utilization and attitudes among an emerging adult sample. Specifically, the present study aims to address the above-mentioned gaps in the existing literature on weight and health care by responding to the following research questions:

1. Is the association between weight and health care utilization and attitudes mediated by perceived weight status, weight bias, patient-provider relationship, and/or patient embarrassment?
2. To what extent do individual characteristics such as gender, race, and body-specific esteem and anxiety influence these relationships?

In an attempt to address these questions, a theoretical model was developed through integrating social psychology theory, health psychology theory, and findings from existing research on weight and health care. The objective of the present study was to test each path in this model empirically.

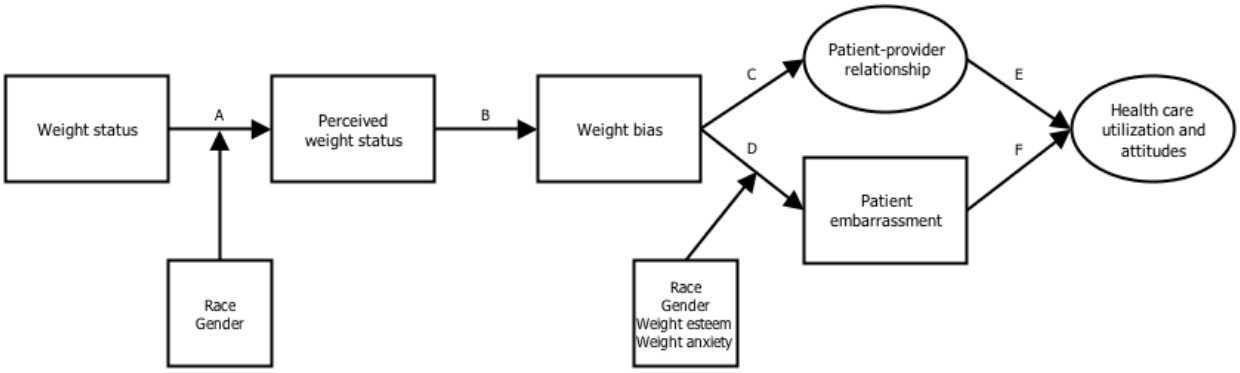

Figure 1. Conceptual model depicting proposed relationship between weight status and health care utilization and attitudes

The proposed model (Figure 1) indicates that weight status (BMI) is a significant predictor of diminished health care utilization (i.e., absence of physician, delay/avoidance/cancelation of health care) and negative health care attitudes (i.e., low satisfaction with health care). The model posits that this principal relationship is mediated by several underlying factors. Specifically, weight status is expected to be associated with perceived weight status, such that as BMI increases so will individuals' perception of themselves as being larger than the social ideal. Perceived weight status is expected to be further associated with perceived weight bias, such that those individuals who perceive themselves to be larger than the social ideal will report greater instances of experienced weight bias and discrimination. Subsequently, weight bias may act as a barrier to health care utilization through damaging the patient-physician relationship and/or propagating feelings of embarrassment in patients with overweight/obesity. The resulting negative patient-provider relationship and heightened feelings of embarrassment, in turn, are expected to foster negative attitudes toward health care and to discourage individuals from utilizing health care.

The model further posits that the relationship between actual weight status and perceived weight status may be moderated by race and gender, such that BMI is expected to correlate more highly with undesirable perceived weight status in Whites and Asian Americans than in Blacks and Latinos and in women than in men. Additionally, the relationship between weight bias and weight-related embarrassment may be moderated by race, gender, body esteem, and body anxiety. This association is

expected to be stronger in women, Whites and Asian Americans, and individuals with low body esteem and/or high body anxiety.

Finally, a number of relevant factors will be controlled for in all analyses: age, relationship status, health insurance status, general health status, and general self-esteem. Each of these variables has been previously associated with health care utilization and attitudes (Andersen & Newman, 2005; Finney Rutten, Augustson, & Wanke, 2006; Frech, 2014).

Method

Participants

Seven hundred and thirteen undergraduate participants took part in the present study. A total of 80 participants were excluded from subsequent analyses due to incorrectly providing height and/or weight (*n* = 9*),* having a BMI below 18.5 (*n* = 41*),* having been formally diagnosed with an eating disorder (*n* = 12), and scoring above clinical threshold on the Eating Disorder Diagnostic Scale (EDDS; Stice, Telch, & Rizvi, 2000; *n* = 28). These exclusion criteria were applied because the proposed conceptual model was developed to examine only one direction of weight bias—anti-fat bias. There is some evidence suggesting that individuals who are *underweight* (BMI < 18.5) also experience bias, however, their experience with weight bias is likely to differ considerably from that of individuals on the opposite end of the weight spectrum (Swami, Pietschnig, Stieger, Tovee, & Voracek, 2010; Tantleff-Dunn, Hayes, & Braun, 2009). Similarly, individuals who exhibited clinically significant eating pathology or reported a formal eating disorder diagnosis may have understandings of or experiences

with weight bias, body image or the health care system that make them unique. This left a final sample of 633 participants.

Participants were undergraduate students at Virginia Commonwealth University who were registered on SONA (Department of Psychology Online Research Participation Pool). The sample consisted of 43% male and 57% female students between the ages of 18 and 25 (M = 19.66, SD = 1.75) and was racially diverse, with 23.9% of participants identifying as Asian American, 27.8% as Black or African American, 12.0% as Hispanic or Latino, and 36.3% as White. The present sample was purposefully collected in eight cells (2 gender x 4 race groups) in an attempt to reach a diverse sample while sustaining adequate power. A power analysis indicated that a minimum of 85 participants were required in each of the eight groups to detect small to moderate effects with .80 power. This minimum sample size was reached for only four of the eight cells—Asian American females (n = 88), Black females (n = 108), White females (n = 112), and White males (n = 118). The remaining cells [Hispanic/Latino females (n = 52), Asian American males (n = 63), Black males (n = 68), Hispanic/Latino males (n = 24)] did not meet the minimum sample size for conducting Structural Equation Modeling (SEM). However, these sample sizes were adequate for testing each individual path using regression analyses.

Procedure

After obtaining approval for study procedures from the Virginia Commonwealth University Institutional Review Board, participants were recruited through SONA. lInterested students were redirected to an online questionnaire administered through a

secure electronic survey program (REDCap, Harris et al., 2009), after providing electronic informed consent. Upon completion of the questionnaire, participants received partial course credit toward an undergraduate psychology course. Data were collected from February 2014 to April 2015. In order to lessen order effects, two counterbalanced versions of the survey were constructed. Participants were randomly assigned to complete one of the two surveys, which included all of the same measures in a different order.

Measures

Predictors.

Weight status. Participants were required to report their weight and height to the best of their ability so that Body Mass Index (BMI) could be calculated. The mathematical formula used for this calculation was: weight (lb.) / [height (in.)]^2 x 703 (Centers for Disease Control and Prevention [CDC], 2013). In order to establish a categorical measure of weight status, standard BMI ranges were used to determine participant weight status: below 18.5 underweight, 18.5-24.9 healthy weight, 25.0-29.9 overweight, and 30.0 and above obese (Flegal et al., 2010). Substantial literature has demonstrated that self-reported weight highly correlates (*r*s > .90) with actual, objectively measured weight (Bulik et al., 2001; Jeffrey, 1996). As mentioned earlier, individuals with a BMI below 18.5 were excluded from the present study.

Perceived weight status*.* A set of nine figural stimuli developed by Stunkard, Sorensen, & Schulsinger (1983) were utilized to assess perceived weight status. The figural stimuli were tailored for each gender: Male participants were asked to choose

from a set of nine male figures, and female participants were asked to choose from a parallel set of nine female figures. All participants were asked to select the figure that best represented their present, ideal, and society's ideal body size from a set of figural stimuli. Past research has demonstrated that figural stimuli are an effective method for classifying weight status (Bulik et al., 2001) and these particular figures have been widely used in body image research. For the present study, the discrepancy between a participants' present body size figure and society's ideal body size figure functions as a measure of perceived weight status, with higher numbers indicating a more undesirable weight status (i.e., being larger than the perceived social ideal).

Weight bias. Perceived weight bias was assessed using two different measures: general daily discrimination attributed to body weight and weight discrimination specifically from health care providers. *Daily discrimination* was assessed using The Everyday Discrimination Scale (Williams, Yu, Jackson, & Anderson, 1997), which consists of nine items scaled on a 7-point Likert scale ranging from 'Almost everyday' to 'Never.' Example items include "You are treated with less respect than other people are," and "People act as if they're better than you are." Participants who responded at least 'A few times a year' or more to any item were asked to further indicate causes of such experiences (e.g., ancestry, gender, weight, sexual orientation). This measure has demonstrated good internal consistency and reliability (Lewis, Aiello, Leurgans, Kelly, & Barnes, 2010) and in the current study, exhibited excellent internal consistency (α = .92). However, it should be noted that very few participants reported any experience of discrimination that are attributed to their weight (see Table 1). Thus, this variable was

treated as discrete (1 = have experienced discrimination attributed to weight, 0 = have not experienced discrimination attributed to weight).

Perceived *weight bias specifically from health care providers* was measured using two items: "Has any health care professional ever treated you differently than other patients specifically because of your weight?" and "Has your current primary care physician ever treated you differently than other patients specifically because of your weight?" Participants were asked to respond to these items using dichotomous answers (No vs. Yes). Although similar self-report measures of perceived weight bias have been used in previous studies, with higher BMI correlating with higher scores (Puhl, Andreyeva, et al., 2008), the number of participants who responded affirmatively to these items was extremely low in the present study (n = 19 out of 633 participants, which is 3.0% of the participants). Because meaningful inferential statistics cannot be conducted with such a small n, this variable was excluded from the current analyses.

Patient-provider relationship. Patient-provider relationship was assessed in three ways: (1) trust in health care providers; (2) perceived quality of patient-provider relationships in general; and (3) avoidance of health care system due to negative perceptions of physicians. Participants' *trust in their health care provider* was measured using the Trust in Physician Scale (Anderson & Dedrick, 1990). This measure consists of 11 items (e.g., "My doctor is usually considerate of my needs and puts them first"; "I trust my doctor's judgment about my medical care") scored on a 5-point Likert scale ranging from 1 to 5 and has demonstrated excellent psychometrics, including strong construct validity and good internal validity ($\alpha > .85$). In the current study, this

measure had excellent internal consistency (α = .90). Trust has been found to highly correlate with other areas of the patient-provider relationship (Pearson & Raeke, 2000).

In order to assess participants' perceptions of the *overall quality of the patient-provider relationship*, participants were asked, "How would you classify your overall relationship with your PCP?" and "How would you classify your PCP's attitude toward you?" with responses ranging from '1 - Extremely negative' to '7 - Extremely positive.' These items were highly correlated (r = .85), so they were averaged in order to compute a composite score of patient-provider relationship quality.

Finally, participants' *avoidance of health care system due to negative perceptions of the patient-provider relationship* was assessed using a measure of health care utilization, described later in this section. Specifically, the selection of certain motives for avoiding care (e.g., I felt discriminated against by my physician; I am uncomfortable with my physician) from the list of motives indicated that inadequate patient-physician relationship could be functioning as a barrier to health care. It should be noted, however, that the number of participants who reported avoiding health care system due to negative perceptions of and experiences with their physicians was extremely low (n = 8, which is equivalent to 1.3% of the participants). Thus, this variable was excluded from analyses.

Patient embarrassment. The selection of certain motives for avoiding care (e.g., I knew I would be weighed; I did not want to undress) from the list of motives indicated that weight-related embarrassment could be functioning as a barrier to health care. However, again, due to extremely low rates of participants responding

affirmatively to these items (n = 11, 1.7%), this variable was also excluded from analyses.

Body esteem. Body esteem was assessed using the 21-item Body Esteem Scale for Adolescents and Adults (BESAA; Mendelson, et al., 2001). The BESAA is scored on a 5-point Likert scale ranging from '1 - Never' to '5 - Always,' and example items include: "My looks upset me" and "I feel I weigh the right amount for my height." This measure was selected because the questions are not suggestive of a particular gender or weight status and it has demonstrated strong reliability and adequate internal consistency (αs > .87) in emerging adult samples (Streeter, Man, Milhausen, Buchholz, 2012). In the current study, this measure exhibited excellent internal consistency (α = .94).

Body anxiety. The 12-item Social Physique Anxiety Scale (SPAS; Hart, Leary, & Rejeski, 1989), designed to assess the degree of anxiety one feels when they perceive negative evaluation of their figure, was used to assess body anxiety. This measure was chosen because the items are inclusive enough to apply across race and gender. Example items include: "In the presence of others, I feel apprehensive about my physique or figure," and "When in a bathing suit, I often feel nervous about how well proportioned my body is." The SPAS has demonstrated high internal consistency (α = .90) as well as strong construct validity (Hart, Leary, & Rejeski, 1989). In the current study, this measure exhibited excellent internal consistency (α = .92).

Primary demographics. Participants were required to indicate their race and gender, as this information is essential for the purposes of the present study.

Outcomes.

Health care utilization. Prior health care utilization was assessed using multiple brief measures designed to capture: (1) presence of an ongoing relationship with a primary care physician (PCP); (2) frequency of health care utilization in the previous year; and (3) frequency of and motives for delaying, avoiding, and canceling medical appointments and screenings in the past year. The *presence of an ongoing relationship* between a participant and a PCP was measured with two items: "Do you have a primary care physician (PCP)?" and "For how many years have you been seeing your PCP?"

Frequency of health care utilization in the previous year was measured in two ways. First, participants were asked to respond the following item: "During the past 12 months, about how many times have you seen a doctor or other health care professional about your own health at a doctor's office, a clinic, student health, or some other place? Do not include times you were hospitalized overnight, visits to hospital emergency rooms, home visits, dental visits, psychiatry visits, or telephone calls." Second, participants were asked to indicate the month and year of their last visit with a physician. This date was used in conjunction with the survey completion date to calculate the approximate number of months that had passed since each participant had seen a physician.

Finally, to assess *frequency of and motives for delay/avoidance/ cancellation* of medical appointments and screening, participants were asked "Have you delayed or canceled a medical appointment in the past 12 months?" and those who answered 'Yes', were further instructed to indicate how many times and to select from a list of

motives *why* they delayed or canceled. The list of motives (see Appendix F) was compiled based on the most commonly reported barriers to health care in previous studies (Amy et al., 2006; Drury & Louis, 2002). Participants were able to select all applicable reasons and to write in any other, unlisted reason. Motives were characterized as either 'weight-related' (e.g., I knew I would be weighed; I did not want to discuss my weight with my physician) or 'non weight-related' (e.g., I did not have transportation; The issue I was having went away on its own), in addition to certain motives being designated as indicative of poor patient-provider relationship or patient-embarrassment.

Health care attitudes. Health care attitudes were assessed using the 18-item Short-Form Patient Satisfaction Questionnaire (PSQ-18; Marshall & Hays, 1994). The PSQ-18 consists of seven subscales: general satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with doctor, and accessibility and convenience; and is scored on a 5-point Likert scale ranging from "1 - Strongly disagree" to "5 - Strongly agree". Example items include "My doctors treat me in a very friendly and courteous manner," and "I find it hard to get an appointment for medical care right away." This measure has demonstrated good internal consistency (α = .84), and each of the subscales has been found to highly correlate with the parallel subscale of the full length PSQ-III (Armstrong, Fraser, Dadds, & Morris, 1999). A general measure of health care satisfaction was deliberately selected because participants were not targeted immediately following a medical interaction. That is, the PSQ-18 does not

specify a particular visit or time frame. In the current study, this measure exhibited excellent internal consistency (α = .90).

Control variables.

Additional demographics. In addition to race and gender, participants were asked to provide their age, relationship status, and health insurance status. Relationship status was recoded such that participants fell into two groups—single (single, separated/divorced, widowed) or in a relationship (in a relationship <6 months, in a relationship >6 months, married).

Health status. Overall health was measured using the five-item general heath subscale of the Short-Form Health Survey (SF-36; Ware, Snow, Kosinski, & Gandek, 1993), a 36-item self-report questionnaire. Lower scores indicate poorer functioning. This measure was selected because it is generic in that it does not address a specific age or disease group, and its strong validity and reliability (α = .83) have been demonstrated across thousands of previous studies. In the present study, the general health subscale exhibited acceptable internal consistency (α = .76).

Self-esteem. General self-esteem was assessed using the Rosenberg Self-Esteem Scale (Rosenberg, 1965), which has been validated across many adult populations (αs > .80; Drury & Louis, 2002; Puhl & Brownell, 2006). This measure was included in order to tease apart the effects of body esteem from more general self-esteem. It exhibited excellent internal consistency (α = .90) in the present study.

Table 1.

Endorsement of Dichotomous Outcome Variables for All Participants by Gender and Weight Status

	Women			Men			Total
	Healthy (*n* = 226)	**Overweight** (*n* = 90)	**Obese** (*n* = 44)	**Healthy** (*n* = 165)	**Overweight** (*n* = 80)	**Obese** (*n* = 28)	
Discrimination attributed to weight	10 (4%)	10 (11%)	12 (27%)	11 (7%)	6 (8%)	9 (11%)	58
Weight bias from current physician	1 (<1%)	4 (4%)	2 (5%)	1 (<1%)	3 (4%)	0	11
Weight bias from any physician	2 (1%)	5 (6%)	3 (7%)	4 (2%)	4 (5%)	1 (4%)	19
Presence of PCP	182 (81%)	68 (76%)	30 (68%)	113 (68%)	54 (68%)	23 (82%)	470
Delayed care because of weight	3 (1%)	6 (7%)	6 (14%)	0	3 (4%)	2 (7%)	20
Weight as barrier to care	3 (1%)	2 (2%)	2 (5%)	2 (1%)	4 (5%)	1 (4%)	14
Delayed/cancelled care (past year)	50 (22%)	25 (28%)	17 (39%)	26 (16%)	18 (23%)	6 (21%)	142
Patient-provider relationship motives	1 (<1%)	3 (3%)	3 (7%)	1 (<1%)	0	0	8
Patient embarrassment motives	1 (<1%)	3 (3%)	4 (9%)	2 (1%)	1 (1%)	0	11
Weight-related motives	1 (<1%)	3 (3%)	4 (9%)	2 (1%)	1 (1%)	0	11
Non-weight-related motives	59 (26%)	26 (29%)	18 (41%)	33 (20%)	23 (26%)	5 (18%)	164

Note. Percentages are rounded to nearest whole percent.

Analysis Overview

SPSS 22.0 was used to analyze data that were downloaded from REDCap 6.3.0. Prior to analysis, data were checked for missing data, outliers, and normality. After the initial data check, individual items were combined into scales, with items reverse-coded as necessary in order to create consistency in the interpretation of the scores. These new variables were then used for the assumption-checking process within each analysis. Additionally, zero-order product-moment correlations within and between independent and dependent variables were calculated in order to identify any unexpected colinearities among the predictor variables. Assumptions of regression were checked prior to moderation and regression analyses.

Each path in the model was assessed separately using a multiple linear regression, logistic regression or Poisson regression, depending on whether the outcome variable was continuous, discrete, or counting, respectively. Prior to conducting regression analyses, categorical predictor variables (i.e., race, gender, health insurance status, relationship status) were dummy-coded. Reference groups for the dummy coded variables are as follows: gender (0 = female), relationship status (0 = single), race (0 = Black/African American), and health insurance status (0 = no health insurance). Additionally, continuous predictor variables (i.e., age, BMI, perceived weight status, health status) were grand-mean centered as needed. For the test of a moderated path (i.e., Path A in Figure 1), interaction terms between the independent variable of interest and moderators (i.e., race, gender, body esteem, and body anxiety) were created. Note that the moderated Path D in Figure 1 was not tested because of

the low proportion of the sample reporting embarrassment due to weight, as stated earlier.

Results

Descriptive Statistics

As indicated in Table 1, a number of variables had very low rates of endorsement among the present sample. Although differences were not examined using inferential statistics, there were consistent patterns, such that individuals with overweight/obesity reported greater rates of these outcomes than healthy weight individuals. Means and standard deviations for all primary variables can be found in Tables 2 (full sample), 3 (female participants only), and 4 (male participants only). Based on traditional weight classifications established by the CDC (CDC, 2013), over half of the participants in this sample (61.8%) fell into a healthy weight range, while 26.9% were classified as overweight and 11.4% as obese. Body mass index (M = 24.77, SD = 4.69) ranged from 18.54 to 47.61. A majority of the participants (82.3%) possessed health insurance at the time of the study and almost as many had a current primary care physician (70.8%). Overall, female and male participants showed similar characteristics. However, visual examinations of the means suggest that the proportion of participants who reported having a current PCP was different between the genders, with a greater percentage of female participants (77.8%) reporting a current PCP than their male counterparts (69.6%).

Correlations among major variables can be found in Tables 5 (full sample), 6 (female participants only), and 7 (male participants only). Visual examinations of

correlation coefficients for the full sample indicated that BMI is significantly negatively correlated with years with PCP (r = -.12, p = 011). However, further analysis by gender indicated that this association was only present among female participants (r = -.15, p = 009), not male participants (r = -.05, p = .506). There were no significant associations between participant BMI and any other health care outcome variable.

Table 2.

Means and Standard Deviations of Primary Measures for All Participants by Race

	Asian		Black		Latino		White		All	
	(*N* = 151)		(*N* = 176)		(*N* = 76)		(*N* = 230)		(*N* = 633)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Global self-esteem	1.90	.54	2.21	.56	2.03	.53	2.04	.53	2.05	.55
Body Mass Index	23.34	3.21	25.99	5.75	25.79	4.08	24.43	4.51	24.76	4.69
Figural stimuli - present	4.04	1.19	4.12	1.37	4.45	1.29	4.14	1.25	4.15	1.27
Figural stimuli - personal ideal	3.46	.92	3.71	.96	3.32	.94	3.45	1.05	3.51	.99
Figural stimuli - social ideal	3.03	1.28	3.06	1.30	2.47	1.14	2.92	1.28	2.93	1.28
Perceived weight status	1.02	1.69	1.06	2.02	1.97	1.55	1.22	1.73	1.22	1.81
Body esteem	2.05	.58	4.42	.68	2.07	.67	2.15	.65	2.19	.66
Social physique anxiety	3.04	.76	2.67	.91	3.22	.87	3.00	.92	2.94	.89
Trust in physician	3.56	.54	3.64	.68	3.64	.68	3.55	.64	3.59	.64
Patient-provider relationship	5.20	1.21	5.49	1.32	5.42	1.37	5.35	1.31	5.36	1.29
Years with PCP	7.53	6.87	7.23	6.66	6.88	5.97	7.89	6.82	7.51	6.69
Number of visits (past year)	2.84	9.05	2.38	2.51	3.65	6.97	3.51	5.68	3.05	6.16
Months since physician	6.16	9.23	5.32	8.12	5.63	5.84	5.74	8.15	5.72	8.19
Patient satisfaction	3.54	.53	3.69	.64	3.56	.65	3.58	.58	3.60	.60

Table 3.

Means and Standard Deviations of Primary Measures for Female Participants by Race

	Asian		Black		Latino		White		All	
	(*N* = 88)		(*N* = 108)		(*N* = 52)		(*N* = 112)		(*N* = 360)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Global self-esteem	1.78	.51	2.26	.55	2.01	.48	2.02	.55	2.03	.55
Body Mass Index	22.75	3.30	26.95	6.57	25.42	3.98	23.97	4.60	24.78	5.19
Figural stimuli - present	3.77	1.18	4.22	1.45	4.27	1.16	4.01	1.07	4.05	1.24
Figural stimuli - personal ideal	3.00	.79	3.45	.89	3.00	.79	2.83	.76	3.08	.85
Figural stimuli - social ideal	2.38	1.00	2.42	1.09	1.90	.60	2.03	.81	2.21	.95
Perceived weight status	1.40	1.71	1.79	1.93	2.37	1.30	1.98	1.34	1.84	1.64
Body esteem	1.97	.64	2.33	.66	2.00	.64	2.04	.66	2.10	.67
Social physique anxiety	3.21	.80	2.89	.92	3.41	.76	3.33	.87	3.18	.87
Trust in physician	3.57	.55	3.72	.65	3.64	.66	3.53	.69	3.61	.64
Patient-provider relationship	5.40	1.22	5.58	1.27	5.49	1.37	5.41	1.21	5.47	1.25
Years with PCP	8.69	7.30	7.00	6.72	6.69	6.02	7.63	6.82	7.55	6.81
Number of visits (past year)	2.27	1.90	2.66	2.69	4.45	7.96	4.16	5.41	3.29	4.65
Months since physician	6.18	10.33	3.99	4.71	4.54	5.21	4.33	7.68	4.68	7.42
Patient satisfaction	3.57	.53	3.75	.64	3.57	.62	3.54	.61	3.62	.61

Table 4.

Means and Standard Deviations of Primary Measures for Male Participants by Race

	Asian		Black		Latino		White		All	
	(*N* = 63)		(*N* = 68)		(*N* = 24)		(*N* = 118)		(*N* = 273)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Global self-esteem	2.05	.54	2.13	.59	2.05	.63	2.06	.51	2.08	.55
Body Mass Index	24.15	2.90	24.46	3.69	26.58	4.25	24.87	4.41	24.75	3.95
Figural stimuli - present	4.42	1.11	3.95	1.21	4.83	1.49	4.26	1.40	4.27	1.32
Figural stimuli - personal ideal	4.10	.69	4.12	.92	4.00	.89	4.05	.93	4.07	.87
Figural stimuli - social ideal	3.92	1.06	4.08	.92	3.71	1.04	3.78	1.04	3.88	1.02
Perceived weight status	.50	1.52	-.12	1.57	1.13	1.73	.48	1.75	.40	1.68
Body esteem	2.17	.46	2.58	.68	2.20	.71	2.26	.62	2.31	.63
Social physique anxiety	2.81	.63	2.31	.79	2.81	.96	2.68	.85	2.63	.82
Trust in physician	3.55	.55	3.53	.70	3.64	.75	3.56	.60	3.56	.63
Patient-provider relationship	4.94	1.14	5.34	1.40	5.24	1.42	5.29	1.41	5.21	1.35
Years with PCP	5.98	5.99	7.65	6.57	7.36	6.03	8.17	6.83	7.46	6.54
Number of visits (past year)	3.71	14.28	1.83	2.03	1.44	1.50	2.84	5.89	2.68	7.91
Months since physician	6.14	7.72	7.62	11.65	9.00	6.61	7.35	8.43	7.21	9.00
Patient satisfaction	3.50	.53	3.58	.64	3.54	.71	3.61	.56	3.57	.58

Table 5.

Correlations among Primary Variables for All Participants

	1	2	3	4	5	6	7
1. Body Mass Index	--						
2. Perceived weight status	.56***	--					
3. Trust in physician	-.02	.02	--				
4. Patient-provider relationship	-.02	.06	.43***	--			
5. Years with PCP	-.12*	-.01	.15**	.27***	--		
6. Number of visits (past year)	.02	.12**	-.06	.02	-.07	--	
7. Months since physician	-.01	-.08+	-.05	-.07	.18***	-.16**	--
8. Patient satisfaction	-.01	-.03	.72***	.40***	.13**	-.03	.06

Note. + indicates marginal significance at $p < .10$; * indicates significance at the $p < .05$ level, ** indicates $p < .01$, and *** indicates $p < .001$. $N = 633$

Table 6.

Correlations among Primary Variables for Female Participants

	1	2	3	4	5	6	7
1. Body Mass Index	--						
2. Perceived weight status	.58***	--					
3. Trust in physician	.01	.04	--				
4. Patient-provider relationship	.01	.02	.52***	--			
5. Years with PCP	-.15**	-.02	.14**	.29***	--		
6. Number of visits (past year)	-.01	.08	-.08	-.02	-.06	--	
7. Months since physician	.01	.03	-.06	-.09	.10	-.19**	--
8. Patient satisfaction	.05	.01	.69***	.48***	.09	-.03	-.08

Note. + indicates marginal significance at $p < .10$; * indicates significance at the $p < .05$ level, ** indicates $p < .01$, and *** indicates $p < .001$. $N = 360$.

Table 7.

Correlations among Primary Variables for Male Participants

	1	2	3	4	5	6	7
1. Body Mass Index	--						
2. Perceived weight status	.68***	--					
3. Trust in physician	-.06	-.06	--				
4. Patient-provider relationship	-.06	.02	.31***	--			
5. Years with PCP	-.05	.00	.16**	.26***	--		
6. Number of visits (past year)	.05	.15**	-.05	.04	-.09	--	
7. Months since physician	-.05	-.08	-.03	-.02	.29***	-.14+	--
8. Patient satisfaction	-.11+	-.12+	.76***	.30***	.19**	-.04	-.02

Note. + indicates marginal significance at $p < .10$; * indicates significance at the $p < .05$ level, ** indicates $p < .01$, and *** indicates $p < .001$. $N = 273$.

Hypothesis Testing

Path A: An association between weight status and perceived weight status moderated by race and gender. To test the moderated association between weight status and perceived weight status, a hierarchical moderated regression was conducted. All control variables (i.e., age, relationship status, health insurance, general self-esteem, and health status) were entered into Step 1. Next, the main effects of BMI, three dummy-coded race (Black as a reference), and dummy-coded gender (female as a reference) were entered into Step 2. In Step 3, two-way interaction terms between BMI and each of the three dummy-coded race and between BMI and gender were entered into the model.

Consistent with the proposed model, results of this analysis (see Table 8) indicated that BMI was significantly positively associated with perceived weight status, β = .47, SE = .02, p < .001. This suggests that individuals with higher BMI perceived their weight to be larger than their perception of society's weight ideal. There were also significant main effects of gender (β = -.37, SE = .20, p < .001), such that male participants reported lower perceived weight status (M = .40, SD = 1.68) than female participants (M = 1.84, SD = 1.64), in general. A main effect of race was also significant, with Asian (β = .15, SE = .21, p = .003), Hispanic/Latino, (β = .16, SE = .22, p < .001), and White (β = .19, SE = .18, p < .001) participants reporting higher perceived weight status, as compared to Black participants.

However, consistent with the prediction, these significant main effects were qualified by significant interaction between BMI and gender (β = .11, SE = .03, p =

.003), and between BMI and Asian vs. Black dummy-coded race (β = .11, *SE* = .04, p = .002). Specifically, the effects of BMI on perceived weight status were stronger for women (β = .25, *SE* = .03, $p < .001$) than for men (β = .18, *SE* = .02, $p < .001$; see Figure 2). Additionally, the effects of BMI on perceived weight status were stronger for Asian Americans (β = .30, *SE* = .02, $p < .001$) as compared to African Americans (β = .18, *SE* = .04, $p < .001$; see Figure 3). No other interactions reached significance.

Table 8.

The Moderating Effects of Race and Gender on the Impact of Weight Status on Perceived Weight Status

Variable	*B*	*S.E.*	β	*t*	Sig. *(p)*
(Constant)	1.242	.195		6.378	<.001
Age	-.008	.030	-.008	-.265	.791
Relationship Status	.151	.107	.041	1.411	.159
Health Insurance	.105	.157	.019	.669	.504
Self-Esteem	.049	.105	.015	.471	.638
Health Status	-.007	.003	-.067	-2.066	.039
BMI	.177	.017	.467	10.140	<.001
Asian v. Black	.617	.208	.146	2.975	.003
Latino v. Black	.862	.217	.158	3.975	<.001
White v. Black	.685	.179	.185	3.825	<.001
Gender (Female = 0)	-1.342	.204	-.371	-6.578	<.001
BMI x Asian	.123	.039	.111	3.160	.002
BMI x Latino	-.012	.040	-.010	-.309	.758
BMI x White	.028	.027	.043	1.042	.298
BMI x Gender	.076	.025	.110	3.016	.003

Note: Parameter estimates are from the full model, including the interaction terms; R^2 = .178 for Step 1; ΔR^2 = .454 for Step 2; ΔR^2 = .023 for Step 3 (p < .001).

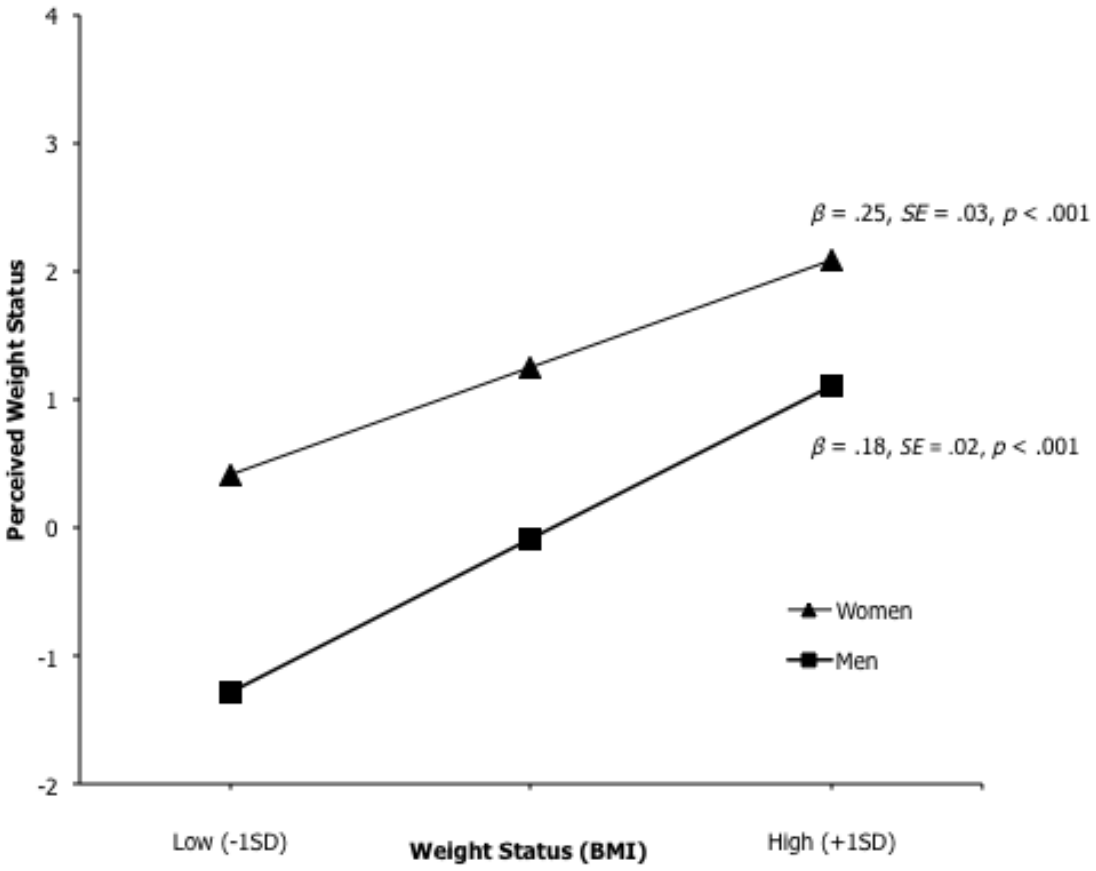

Figure 2. The moderating effects of gender on the association between weight status and perceived weight status

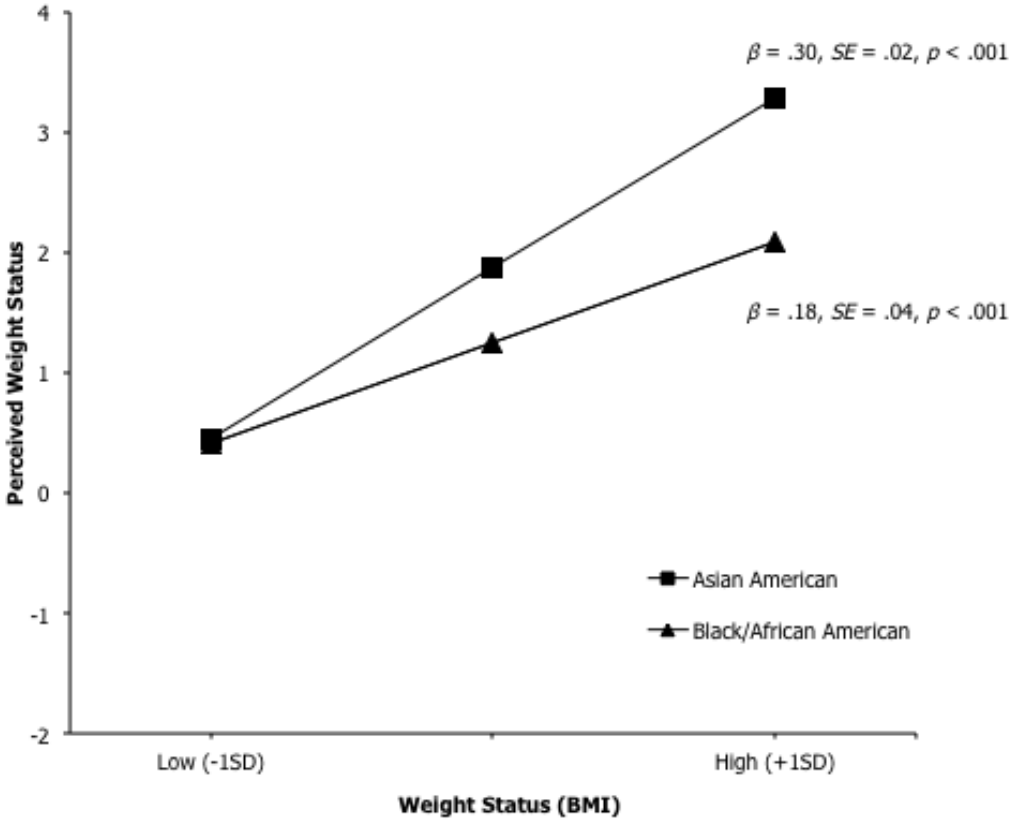

Figure 3. The moderating effects of race on the association between weight status and perceived weight status

Path B: An association between perceived weight status and perceived weight bias. Table 9 presents the results of a logistic regression that was conducted in order to test the association between participants' perceived weight status and their likelihood of having experienced bias attributed to weight. Control variables were entered into the first block and the main effect of perceived weight status was entered into the second block. A test of the full model against the constant only model was statistically significant, $\chi^2(6) = 34.44$, $p < .001$, indicating that the control variables and perceived weight status as a set reliably distinguished those who reported everyday discrimination attributed to weight. The model explained 12.0% (Nagelkerke R^2) of the variance in weight bias and correctly classified 90.8% of cases. Perceived weight status significantly enhanced prediction, $\chi^2(1) = 16.66$, $p < .001$, $B = .35$, $SE = .09$, $OR = 1.421$, CI = 1.187-1.701]. Consistent with my prediction, this result suggests that as perceived weight status increases by one unit, the odds of reporting the experience of discrimination based on their weight are 1.42 times more.

Table 9.

Logistic Regression Predicting Likelihood of Having Experienced Weight Bias based on Perceived Weight Status

	B	*S.E.*	Sig. (*p*)	Exp(B)	95% CI for Odds Ratio	
					Lower	Upper
(Constant)	-2.641	.258	.000	.071		
Age	.038	.082	.647	1.038	.884	1.219
Relationship status	-.026	.082	.931	.974	.543	1.747
Self-esteem	-.659	.293	.024	.517	.292	.919
Health status	-.011	.008	.199	.989	.973	1.006
Health insurance	.538	.376	.152	1.713	.820	3.578
Perceived weight status	.351	.092	.000	1.421	1.187	1.701

Path C. An association between perceived weight bias and patient-provider relationship. Separate hierarchical regression analyses were conducted for each of the two measures of the patient-provider relationship: trust in physician (Table 10) and patient-provider relationship quality (Table 11). In both regressions, age, relationship status, health insurance status, health status, and self-esteem were entered into the first block as control variables, and grand-mean centered perceived weight bias was entered into the second block. Contrary to the proposed model, perceived weight bias was not a significant predictor of trust in physician (β = .14, *SE* = .08, p = .10) or overall relationship quality, (β = .23, *SE* = .20, p = .25).

Table 10.

Effects of Weight Bias on Trust in Physician

	B	*S.E.*	β	*t*	Sig. *(p)*
(Constant)	3.427	.072		47.474	<.001
Age	-.035	.014	-.095	-2.555	.011
Relationship status	-.005	.049	-.004	-.094	.925
Self-esteem	.420	.048	.364	8.745	<.001
Health status	.002	.001	.061	1.478	.140
Health insurance	.177	.073	.090	2.418	.016
Weight bias	.136	.083	.062	1.634	.103

Note. Dependent Variable: trust in physician; Parameter estimates are from the full model; R^2 = .169 for Step 1; ΔR^2 = .004 for Step 2 (p = .103).

Table 11.

Effects of Weight Bias on Patient-Provider Relationship Quality

	B	*S.E.*	β	*t*	Sig. *(p)*
(Constant)	5.079	.203		25.055	<.001
Age	-.043	.033	-.057	-1.292	.197
Relationship status	.023	.116	.009	.196	.845
Self-esteem	.418	.114	.179	3.677	<.001
Health status	.005	.003	.077	1.590	.113
Health insurance	.270	.203	.058	1.331	.184
Weight bias	.229	.198	.051	1.153	.250

Note. Dependent Variable: patient-provider relationship quality; Parameter estimates are from the full model; R^2 = .053 for Step 1; ΔR^2 = .003 for Step 2 (p = .250).

Path D: A moderated association between perceived weight bias and patient embarrassment. As mentioned previously, due to an extremely small number of participants reporting embarrassment due to their weight (n = 11, 1.7%), it was not possible to conduct meaningful inferential statistics. Thus, this path was not statistically tested in the present study.

Path E. An association between patient-provider relationship and health care utilization and attitudes. Because patient-provider relationship was assessed with two measures (trust in physician and patient-provider relation quality) and health care utilization and attitudes were assessed with six measures (presence of PCP, past year visits, years seeing PCP, past year appointment delay/cancellation, months since seeing a physician, and patient satisfaction), a series of regressions were conducted. More specifically, logistic regressions were conducted for two discrete outcome variables: likelihood of having a PCP and likelihood of having delayed or

cancelled a medical appointment in the past year. In each logistic regression analysis, control variables were entered into the first block and the main effect of trust in physician was entered into the second block. For two continuous outcome variables (years seeing PCP and patient satisfaction), hierarchical regressions were conducted. In each hierarchical regression analysis, control variables were entered into the first block and the main effect of trust in physician was entered into the second block. Finally, for two count outcome variables (number of past year visits, number of months since participants' last visit with a physician), Poisson regressions were conducted, with age, relationship status, health insurance status, health status, and self-esteem as covariates.

Trust in physician and presence of a PCP. Table 12 presents the results of a logistic regression. A test of the full model against the constant only model was statistically significant, $\chi^2(6) = 66.57$, $p < .001$, indicating that the control variables and perceived weight status as a set reliably distinguish those who report discrimination attributed to weight. The model explained 16.3% (Nagelkerke R^2) of the variance in presence of a PCP and correctly classified 79.6% of cases. Trust in physician significantly enhanced prediction, $\chi^2(1) = 8.46$, $p = .004$, $B = .54$, $SE = .18$, $OR = 1.707$, CI = 1.190-2.449. Consistent with my prediction, this result suggests that as trust in physician increases by one unit, the odds of currently having a PCP are 1.71 times more. That is, increased trust in physician was associated with an increased likelihood of currently having a PCP.

Table 12.

Logistic Regression Predicting Likelihood of Having a PCP based on Trust in Physician

	B	*S.E.*	Sig. *(p)*	Exp(B)	95% CI for Odds Ratio	
					Lower	Upper
(Constant)	-.238	.661	.718	.788		
Age	-.112	.059	.060	.894	.796	1.005
Relationship status	-.118	.219	.591	.889	.579	1.365
Self-esteem	.013	.226	.955	1.013	.650	1.577
Health status	.000	.006	.955	1.000	.987	1.012
Health insurance	-1.836	.271	<.001	.159	.094	.271
Trust in physician	.535	.184	.004	1.707	1.190	2.449

Trust in physician and past year delay/cancellation of a medical appointment. A logistic regression revealed that the full model against the constant only model was statistically significant, $\chi^2(6) = 21.52$, $p = .001$; however, the association between trust in physician and past year delay/cancellation of a medical appointment was not significant ($B = .200$, $SE = .17$, $OR = .818$, $p = .233$; see Table 13). This suggests that the significant increase in model fit was driven by relationship status ($B = -.416$, $SE = .20$, $OR = .659$, $p = .038$) and health status ($B = .200$, $SE = .17$, $OR = .981$, $p = .001$).

Table 13.

Logistic Regression Predicting Likelihood of Having Delayed/Cancelled a Medical Appointment in the Past Year based on Trust in Physician

	B	*S.E.*	Sig. (*p*)	Exp(B)	95% CI for Odds Ratio	
					Lower	Upper
(Constant)	-.228	.616	.711	.796		
Age	.054	.056	.340	1.055	.945	1.178
Relationship status	-.416	.200	.038	.659	.445	.976
Self-esteem	.107	.211	.614	1.112	.735	1.683
Health status	-.019	.006	.001	.981	.970	.992
Health insurance	-.470	.343	.170	.625	.319	1.224
Trust in physician	.200	.168	.233	.818	.589	1.137

Trust in physician and past year visits. A Poisson regression revealed a significant main effect of trust in physician, $B = -.108$, $SE = .04$, $p = .009$; see Table 14. Specifically, greater trust in physician was associated with fewer health care visits in the past year.

Table 14.

Effects of Trust in Physician on Number of Past Year Visits

	B	*S.E.*	Wald	Sig. *(p)*
(intercept)	1.134	.171	43.978	<.001
Age	-.060	.015	15.321	<.001
Relationship status	.068	.052	1.721	.190
Self-esteem	-.008	.053	.023	.879
Health status	-.019	.001	183.091	<.001
Health insurance	.301	.092	10.639	.001
Trust in physician	-.108	.042	6.746	.009

Trust in physician and months since seeing physician. Contrary to my prediction, a Poisson regression revealed that there is no evidence that trust in physician is associated with months since seeing PCP, *B* = -.020, *SE* = .03, *p* = .551; see Table 15.

Table 15.

Effects of Trust in Physician on Months since Seeing Physician

	B	*S.E.*	Wald	Sig. *(p)*
(intercept)	2.291	.123	347.626	<.001
Age	.094	.011	78.025	<.001
Relationship status	-.056	.041	1.932	.165
Self-esteem	-.151	.040	14.055	<.001
Health status	.001	.001	1.180	.277
Health insurance	-.198	.059	11.325	.001
Trust in physician	-.020	.033	.355	.551

Trust in physician and years seeing PCP. A hierarchical regression revealed a significant relationship between trust in physician and the number of years an individual had been seeing their current PCP (β = .167, *SE* = .53, *p* = .001; see Table 16). This indicates that those who report greater trust in physicians also have a longer relationship with their PCP.

Table 16.

Effects of Trust in Physician on Years Seeing PCP

	B	*S.E.*	β	*t*	Sig. *(p)*
(Constant)	.539	2.176		.248	.804
Age	-.408	.179	-.105	-2.280	.023
Relationship status	.502	.623	.037	.807	.420
Self-esteem	-.904	.637	-.075	-1.419	.157
Health status	-.004	.018	-.012	-.237	.813
Health insurance	.254	1.167	.010	.218	.828
Trust in physician	1.786	.527	.167	3.392	.001

Note. Dependent Variable: years seeing PCP; Parameter estimates are from the full model; R^2 = .015 for Step 1; ΔR^2 = .024 for Step 2 (p = .001)

Trust in physician and patient satisfaction. Table 17 presents the results of a hierarchical regression predicting patient satisfaction. Consistent with the proposed model, trust in physician was a significant predictor of patient satisfaction (β = .662, SE = .03, p < .001). These results suggest that as individuals' trust in physician increases, so does satisfaction with health care.

Table 17.

Effects of Trust in Physician on Patient Satisfaction

	B	*S.E.*	β	*t*	Sig. *(p)*
(Constant)	1.221	.108		11.279	<.001
Age	-.027	.009	-.078	-2.847	.005
Relationship status	.000	.034	.000	-.013	.990
Self-esteem	.113	.035	.104	3.235	.001
Health status	.001	.001	.045	1.488	.137
Health insurance	.156	.050	.085	3.096	.002
Trust in physician	.624	.028	.662	126.98	<.001

Note. Dependent Variable: patient satisfaction; Parameter estimates are from the full model; R^2 = .194 for Step 1; ΔR^2 = .364 for Step 2 (p < .001).

Patient-provider relationship quality and presence of a PCP. The two items evaluating patient-provider relationship quality were only provided to those participants who indicated currently having a PCP. Thus, it did not logically follow to test this path statistically in the present study.

Patient-provider relationship quality and past year delay or cancellation of a medical appointment. A logistic regression revealed that a test of the full model against the constant only model was statistically significant, $\chi^2(6)$ = 15.579, p = .016; see Table 18. However, the effects of patient-provider relationship quality were non-significant (B = .064, SE = .08, OR = 1.066, p = .440), suggesting that the increase in model fit was driven by health status (B = -.019, SE = .01, OR = .981, p = .002).

Table 18.

Logistic Regression Predicting Likelihood of Having Delayed/Cancelled a Medical Appointment in the Past Year based on Patient-Provider Relationship Quality

	B	*S.E.*	Sig. (*p*)	Exp(B)	95% CI for Odds Ratio	
					Lower	Upper
(Constant)	-1.291	.479	.007	.275		
Age	.078	.060	.196	1.081	.961	1.217
Relationship status	-.320	.214	.135	.726	.477	1.104
Self-esteem	-.058	.212	.783	.943	.623	1.428
Health status	-.019	.006	.002	.981	.970	.993
Health insurance	-.174	.386	.651	.840	.394	1.790
Patient-provider relationship quality	.064	.083	.440	1.066	.906	1.255

Patient-provider relationship quality and past year visits. A Poisson regression revealed a significant main effect of patient-provider relationship quality, B = .078, SE = .02, p < .001; see Table 19. Specifically, more positive patient-provider relationship quality was associated with more past year visits.

Table 19.

Effects of Patient-Provider Relationship Quality on Number of Past Year Visits

	B	*S.E.*	Wald	Sig. *(p)*
(intercept)	.590	.184	10.265	.001
Age	-.054	.017	10.737	.001
Relationship status	.103	.055	3.458	.063
Self-esteem	-.180	.053	11.378	.001
Health status	-.020	.002	175.716	<.001
Health insurance	.408	.118	11.884	.001
Patient provider relationship quality	.078	.021	13.789	<.001

Patient-provider relationship quality and months since seeing physician. A Poisson regression revealed a significant main effect of patient-provider relationship quality, $B = -.068$, $SE = .02$, $p < .001$; see Table 20. Specifically, better patient-provider relationship quality was associated with fewer months since last seeing a physician.

Table 20.

Effects of Patient-Provider Relationship Quality on Months since Seeing Physician

	B	*S.E.*	Wald	Sig. *(p)*
(intercept)	2.389	.129	343.456	<.001
Age	.075	.012	37.664	<.001
Relationship status	.009	.045	.041	.840
Self-esteem	-.073	.042	2.982	.084
Health status	.005	.001	11.974	.001
Health insurance	-.249	.073	11.529	.001
Patient-provider relationship quality	-.068	.017	15.463	<.001

Patient-provider relationship quality and years seeing PCP. As predicted, a hierarchical regression revealed a significant main effect of the quality of patient-provider relationship (β = .282, *SE* = .23, $p < .001$; see Table 21), such that those who report more positive patient-provider relationship quality also have a longer relationship with their PCP.

Table 21.

Effects of Patient-Provider Relationship Quality on Years Seeing PCP

	B	*S.E.*	β	*t*	Sig. *(p)*
(Constant)	-.518	1.682		-.308	.758
Age	-.387	.176	-.099	-2.204	.028
Relationship status	.554	.608	.041	.911	.363
Self-esteem	-.866	.592	-.072	-1.462	.144
Health status	-.008	.018	-.023	-.470	.639
Health insurance	.023	1.161	.001	.020	.984
Patient-provider relationship quality	1.445	.233	.282	6.198	<.001

Note. Dependent Variable: years seeing PCP; Parameter estimates are from the full model; R^2 = .014 for Step 1; ΔR^2 = .076 for Step 2 ($p < .001$)

Patient-provider relationship quality and patient satisfaction. Table 22 presents the results of a hierarchical regression. Consistent with the proposed model, patient-provider relationship quality was a significant predictor of patient satisfaction (β = .319, *SE* = .02, $p < .001$). This suggests that better patient-provider relationship quality is associated with greater satisfaction with health care.

Table 22.

Effects of Patient-Provider Relationship Quality on Patient Satisfaction

	B	*S.E.*	β	*t*	Sig. *(p)*
(Constant)	2.662	.122		21.787	<.001
Age	-.031	.013	-.089	-2.314	.021
Relationship status	-.010	.047	-.008	-.210	.834
Self-esteem	.320	.046	.299	6.929	<.001
Health status	.001	.001	.028	.656	.512
Health insurance	.209	.081	.099	2.574	.010
Patient-provider relationship quality	.146	.018	.319	8.110	<.001

Note. Dependent Variable: patient satisfaction; Parameter estimates are from the full model; R^2 = .172 for Step 1; ΔR^2 = .096 for Step 2 ($p < .001$)

Path F: As association between patient embarrassment and health care utilization and attitudes. Again, due to an extremely small number of participants reporting embarrassment due to their weight (*n* = 11, 1.7%), it was not possible to conduct meaningful inferential statistics. Thus, this path was not statistically tested.

Test of the overall theoretical model. I initially intended to test the entire theoretical causal model using Structural Equation Modeling (SEM). However, I elected

to forgo this step based on the results of the individual regression analyses because there was no evidence supporting an association between weight bias and patient-provider relationship (Path C), clearly suggesting that overall model fit would be poor.

Discussion

The overall purpose of the present study was to examine the role of weight status in health care utilization and attitudes among emerging adults (ages 18-25) by addressing two research questions. The first research question examined whether the associations between weight status and health care utilization and attitudes were mediated by perceived weight status, weight bias, patient-provider relationship, and patient embarrassment. The second research question sought to determine whether race, gender, and individual characteristics (i.e., body esteem and anxiety) moderate the relationships among the aforementioned primary variables. In order to address these two questions, I developed a theoretical mediation model that explains how weight status is associated with negative health care outcomes through perceived weight bias, negative patient-provider relationship quality, and weight-related embarrassment. Although the majority of the paths proposed in the model were supported by the findings in the present study, evidence supporting a critical link between perceived weight bias and patient-provider relationship or weight-related embarrassment (Paths C & D in Figure 1) was absent. More specifically, the first two paths in the model (Paths A & B) were supported. Not surprisingly, the degree to which individuals perceived themselves as being larger than society's definition of ideal body size depended on their actual weight status (BMI). However, as predicted, the strength

of such association differed across gender, such that the relation between BMI and perceived weight status was significantly stronger for women than for men. This finding is consistent with existing evidence that men tend to perceive themselves and be perceived by others as healthy up to a much higher BMI, as compared to women (Post et al., 2011; Robinson & Hogenkamp, 2015). The association between BMI and the perception that one is larger than society's definition of ideal body size was also moderated by race, such that this association was significantly stronger for Asian American individuals than for Black, White, or Latino individuals (there was no difference between Blacks and Whites, Blacks and Latinos, or Whites and Latinos). This finding that Asian American individuals exhibited the strongest association between BMI and perceived weight status is consistent with previous research. For instance, one study found that Asian women indicated the strongest need for conformity and were significantly more likely than other minority women to hold themselves to mainstream Western beauty standards (Chin-Evans & McConnell, 2003). The present study is novel in that it confirms these findings among a sample including male participants. The proposed association between perceived weight status, or the perception of oneself as larger than society's definition of ideal body size, and weight bias was also supported. More specifically, as the discrepancy between an individual's perception of their present body size and their perception of society's definition of ideal body size increases (i.e., one believes that they are larger than the social ideal), the likelihood of having experienced weight bias in daily life also increases.

Finally, the last path in the proposed model (Path E), the associations between patient-provider relationship (i.e., trust in physicians, patient perception of overall relationship quality) and health care outcomes and attitudes, was partially supported by the current findings. More specifically, individuals who reported higher levels of trust in their physician were more likely than individuals who reported lower levels of trust to currently have a PCP and to report a longer relationship with their current PCP, fewer health care visits in the past year, and greater satisfaction with health care in general. In addition, individuals who reported having positive relationships with their PCP were more likely than individuals who reported negative relationships to report a longer relationship with their current PCP, more health care visits in the past year, less time since their last health care visit, and greater satisfaction with health care in general. Two points should be noted here. First, the two constructs representing the patient-physician relationship (i.e., trust, overall relationship quality) had opposite relationships with number of past year health care visits, with individuals who had greater trust in physicians reporting fewer health care visits in the past year, and individuals who had a more positive relationship with their PCP having reporting more health care visits in the past year. Although this was not predicted, it makes sense in the context of recent literature. Specifically, both positive patient-provider relationships and trust in physicians generally predict positive health care outcomes and attitudes; however, relationship quality has been found to be associated with decreased anxiety and increased desire to seek regular health care (Buxton & Snethen, 2013), whereas greater trust in physicians has been found to be associated with increased patient

empowerment to make informed decisions and increased patient ownership of health goals (Leske et al., 2012). Thus, the present findings could reflect that individuals with greater trust in physicians are less likely to obtain unnecessary health care or to require second opinions. Future studies should further investigate the distinctive associations of these two constructs with various outcomes, as this line of research has important implications for interventions targeting both underutilization and overutilization of health care. For instance, it may be advantageous to focus on promoting more positive interpersonal relationships between physicians and patients with conditions that require continual inpatient care, in order to encourage appointment adherence. On the other hand, individuals with conditions that necessitate continuous self-management of symptoms may benefit more from patient-centered interventions promoting trust in the health care system. The second major point is that, contrary to prediction, neither indicator of the patient-provider relationship was associated with the likelihood of having delayed or cancelled a medical appointment in the past year. These null findings may be in part due to the overall low rates of delay/avoidance reported by this sample or the subsequent treatment of this variable as discrete. Conversely, the lack of association could be reflective of the present sample of emerging adults, particularly the potential influence of this unique transitional period on health care utilization and attitudes. A more detailed discussion of this theory can be found later in this discussion. Overall, these findings suggest that positive patient-provider relationships are associated with generally positive health care outcomes.

No concrete conclusions can be drawn regarding the association between perceived weight bias and patient embarrassment (Path D), due to extremely low numbers of participants reporting embarrassment-related motives for delaying or cancelling care. These findings may reflect a fault in the present study's assessment of motives. Future research may benefit from asking participants to indicate the extent to which each motive has influenced their decision to delay or cancel care on a continuous scale. Even in spite of this potential design flaw, it is still surprising how few participants responded affirmatively to embarrassment-related motives in the present study, as previous studies examining weight and health care have found much higher incidences of these types of motives (Amy et al., 2006; Drury & Louis, 2002). However, this discrepancy may be because each of the previous studies was conducted with older, entirely female samples. Additional research is necessary to determine whether and how motives for delaying or cancelling health care differ among men and among emerging adults. In the future, researchers should consider examining internalized weight bias as a broader alternative to weight-related embarrassment. Weight bias internalization is when an individual with overweight/obesity adopts negative feelings towards themself, based on experiences with weight bias and weight-related stereotypes. Recent research suggests that internalized weight bias is a similar but more universal construct (Pearl & Puhl, 2014; Ratcliffe & Ellison, 2015), which could allow researchers to capture greater variability in participant experiences among diverse samples. More specifically, internalized weight bias encompasses feelings of shame and

self-hate and attribution of negative stereotypes to oneself, in addition to feelings of weight-related embarrassment.

As mentioned earlier, there was no evidence that perceived weight bias negatively impacts the patient-provider relationship; what was anticipated to be a critical link in understanding the mechanisms underlying the relationship between weight status and health care utilization and attitudes. Though it is possible that the patient-provider relationship does not explain at all why higher weight status is associated with more negative health care outcomes, the evidence supporting patient-provider relationship as a critical mediator is rather strong (Amy et al., 2006; Ferrante et al., 2010). The present sample is unique in its inclusion of male participants and racially diverse female participants and thus it is feasible that the proposed theoretical model, which was informed primarily by studies of White women, lacks relevance to these other social groups or is missing key variables. However, follow up analyses conducted with only White female participants revealed that neither BMI nor weight bias were related to any additional health care outcomes for this subgroup. This suggests that the null results are not a function of the diversity of the present sample. Next I propose other methodological and theoretical interpretations of these results.

One simple explanation is that the measure of weight bias used in the present study failed to accurately measure the variable of interest. For instance, assessing daily weight bias using a discrete measure did not allow for adequate variability in responses. It may have been more informative to ask participants to indicate the degree to which they attribute unfair treatment in their daily life to their weight, as opposed to whether

they attribute it to their weight at all. Fortunately, a number of weight bias assessment tools have begun to be designed and systematically tested in recent years. For instance, the modified Stigmatizing Situations Inventory (Puhl & Brownell, 2006), a 50-item measure designed to assess lifetime frequency of a variety of common weight-stigmatizing encounters (e.g., job discrimination, inappropriate comments from doctors), has exhibited excellent internal consistency and provides a comprehensive account of experiences with weight stigma.

A second methodological explanation for these null findings is the inability to examine the association between physician-specific weight bias and the patient provider relationship. Due to the low number of participants reporting physician-specific weight bias, I was unable to conduct inferential statistics examining how physician-specific weight bias relates to the patient-provider relationship and thus was only able to examine the effects of daily weight bias. The low endorsement of physician-specific weight bias may correctly indicate that the sample simply did not experience weight bias, but it could also be a function of the measure. In order to ensure that these rates reflect the reality of the situation, as opposed to measurement error, future research should utilize improved measures of physician-specific weight bias. For instance, it may have been more informative to ask participants to indicate the degree to which they have experienced bias or unfair treatment from physicians due to their weight, instead of asking whether they have experienced weight bias from physicians at all. Additionally, previous studies of racial discrimination have found that single-item measures of bias (such as those used in the current study) are insufficient, and suggest

using validated, multi-item measures whenever possible (Krieger, Smith, Naishadham, Hartman, & Barbeau, 2005).

The absence of a functional measure of physician-specific weight bias and the subsequent use of daily weight bias as a proxy has theoretical implications for the interpretation of these findings as well. For instance, it may be the case that weight bias experienced in daily life is distinct from weight bias experienced in a health care setting and, as such, has little to no impact on the patient-provider relationship. While previous studies examining racial discrimination have found strong associations among daily racial bias, broader cultural or medical mistrust, and health care outcomes (Hammond, 2010; LaVeist, Isaac, & Williams, 2009), it has not been established whether these associations persist for weight bias. Unlike in the African American community, there is no prolonged history of medical mistrust among individuals with overweight/obesity. Thus, experiencing weight bias in daily life alone may not have meaningful implications for the patient-provider relationship. In light of this research, the current data must be interpreted with caution and future researchers are advised to use more sensitive measures of weight bias and physician-specific weight bias.

Another possible explanation for these null findings is that individuals with overweight/obesity ascribe more significance to instances of discrimination or bias from peers, close friends, and/or family members, as opposed to from service providers (e.g., physicians) or strangers (Eisenberg, Berge, Fulkerson, & Neumark-Sztainer, 2011). Weight bias is unique both in the frequency with which it manifests in close personal relationships (Puhl et al., 2008) and in the social permissibility of its explicit

expression (Crandall et al., 1994; Crandall, Eshelman, & O'Brien, 2002; Puhl & Brownell, 2001). A recent study on obesity stigmatization found that 92.5% of the young adult respondents endorsed at least one stigmatizing attitude, suggesting that weight stigma has become the status quo for this age group (Ambwani, Thomas, Hopwood, Moss, & Grilo, 2014). Accordingly, patients with overweight/obesity may be desensitized to or even not perceive, more subtle instances of bias conveyed by health care providers. Likewise, even if they do perceive unfair or differential treatment based on their weight status, individuals with overweight/obesity may underreport the frequency of these experiences because they blame themselves. For example, Crocker, Cornwell, and Major (1993) found that when overweight women experienced weight discrimination from a White male, they were more likely to view the discrimination as warranted, blaming themselves rather than their antagonist. A recent qualitative synthesis of obesity in primary care came to a similar conclusion—that patients with obesity concentrated on their own 'personal failure' when describing their health care experiences, as opposed to allocating responsibility to their provider (Henderson, 2015). This speculative hypothesis could help to explain why evidence of weight bias in health care is generally much stronger when health care providers, rather than patients, are surveyed. In order to test this theory, future studies should incorporate measures of physician weight bias from multiple sources (i.e., patient and physician self-report questionnaires, objective third-party ratings of recorded/transcribed appointments) and assess the discrepancies between these sources.

Finally, the lack of support for an association between weight bias and the patient-provider relationship may reflect characteristics of the current sample. The distribution of weight status, in particular the low proportion of obesity, may limit experiences of weight bias, making it difficult to examine the hypothesized relationships. Future studies may wish to limit their samples to individuals with overweight/obesity. Furthermore, the age group of the present sample may also play an important role in these findings. Emerging adulthood is a unique developmental period and as such these individuals may have experiences with weight, weight bias or health care that are distinctive from those of other age groups. For instance, the transition to college often disrupts long-standing patient-provider relationships or necessitates the acquisition of a new PCP. Thus, individuals' health care experiences prior to this transition would not necessarily be associated with their current or future health care utilization or attitudes. Relatedly, emerging adults exhibit varying levels of autonomy when it comes to making health care decisions. For individuals who still rely heavily on a parent (e.g., to schedule appointments, to make treatment decisions), correlates of health care utilization have been found to differ drastically, compared to individuals who are more responsible for their own health care (Ryan, Stewart, Campbell, Koval, & Thind, 2011). Consequently, for emerging adults with low health care autonomy, parental attitudes and experiences may have a greater impact on patterns of health care utilization than the attitudes and experiences of the patient. Thus, it is possible that the proposed model, specifically the negative association between weight bias and the patient-provider relationship, would be supported in an

older sample. Unfortunately, previous studies examining weight and health care are limited almost entirely to middle-aged adults or children, and this lack of relevant research among emerging adults makes it challenging to discern how this population differs from other age groups in those regards. Clearly, further research is needed to understand factors that impact health care utilization and attitudes during emerging adulthood, and to determine whether weight status is one of them.

Limitations and Directions for Future Research

The findings from the present study should be interpreted in light of the following limitations. First, as discussed earlier, some of the findings of this study may reflect poor instrument selection. Specifically, the measures used to assess weight bias from physicians and motives for delaying or cancelling an appointment could be improved upon. Future research should utilize well-validated measures with continuous scales in order to more fully capture variability in the constructs of interest. For example, the Modified Internalized Weight Bias Scale (Pearl & Puhl, 2014), a recently validated measure of internalized weight bias, could be used to better capture weight-related embarrassment.

In addition to these measurement issues, the current study possesses additional methodological limitations that should be amended in future studies. First, the cross-sectional nature of this study design limits the ability to infer causation. Future research should more directly test the causal influence of weight status on health care utilization and attitudes by assessing these variables longitudinally. For instance, participants could be asked to complete measures of weight status, weight bias, and patient

satisfaction immediately following all medical interactions and to track and report frequency of and motives for cancelling or rescheduling appointments over a period of several years. This study design would allow for the examination of within-subject variations in health care utilization and attitudes over time, and particularly in relation to weight status and acute patient-provider interactions. Additionally, as weight status and body image tend to fluctuate over the lifetime, such longitudinal data would also be interesting from a developmental perspective. Relatedly, the present study did not ask participants to indicate for how long they had been at their present weight status, a variable that may moderate the relationship between participants' current weight and their previous health care experiences or utilization. For instance, individuals who are newly overweight/obese are likely to have significantly less, if any, experience with weight bias. Alternatively, individuals who have been overweight/obese for a significant length of time (i.e., since childhood) may be desensitized to weight bias. If a longitudinal design is not feasible, future studies should incorporate this item, as well as a measure of participants' intent to utilize health care in the future. Another limitation is the present study's reliance on self-report measures, which are subject to response bias (e.g., social desirability bias, fatigue effects) and may have impacted the accuracy of the results. Participants were permitted to complete the survey at their own pace in hopes of alleviating fatigue effects, and the web-based, anonymous nature of the study may have mitigated some of the influence of social desirability bias. Still, in the future, researchers should consider including more objective (e.g., appointment transcripts), or more open-ended (e.g., semi-scripted interviews, focus groups), measures of physician-

specific weight bias. These data collection methods may prove to be more reliable in capturing the subtle intricacies of the patient-provider relationship, particularly given the exceptionally low rates of bias reported by the present sample.

Finally, the current study is limited to a convenience sample of relatively healthy college students attending an urban university with a diverse student body. This may reduce generalizability to individuals of other age groups, individuals with chronic illness, students who attend colleges in rural and suburban areas and/or colleges that are racially homogenous, and emerging adults who are not enrolled in a four-year university. More specifically, greater age and chronic illness are strongly associated with increased rates of health care utilization, which has implications for the patient-provider relationship and health care outcomes (Finney Rutten et al., 2006). College attendance and regional diversity, on the other hand, have been found to influence perceptions of social and personal weight norms and thus may impact perceived weight status and experiences with weight bias (Fitzsimmons-Craft et al., 2012; Frech, 2014; Robinson & Hogenkamp, 2015). For example, Robinson and Hogenkamp (2015) found that individuals from countries where obesity is more prevalent (e.g., the United States) were worse at correctly perceiving overweight/obesity status than individuals from countries where obesity is less prevalent (e.g., Sweden). Thus, future research should test the generalizability of the present findings to other populations.

Conclusion

Previous studies have demonstrated that weight bias in the health care setting negatively impacts health care utilization and attitudes among individuals with

overweight/obesity. However, the current study did not find support for this, indicating that the role of weight in health care differs for emerging adults. These findings suggest that the current understanding of how weight influences health care utilization and attitudes may not generalize to populations other than adult White women. Clearly, additional research is needed in order to identify and better comprehend weight-related barriers to appropriate health care among diverse populations.

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Appendix A

Short-Form Health Survey (SF-36)

1. In general, would you say your health is:

1	2	3	4	5
Excellent				Poor

2. Compared to one year ago, how would your rate your health in general now?

1	2	3	4	5
Much better now than one year ago				Much worse now than one year ago

The following items are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

1	2	3
Yes, limited a lot		No, not limited at all

3. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports
4. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf
5. Lifting or carrying groceries
6. Climbing several flights of stairs
7. Climbing one flight of stairs
8. Bending, kneeling, or stooping
9. Walking more than a mile
10. Walking several blocks
11. Walking one block

12. Bathing or dressing yourself

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

0	1	2
Yes		No

13. Cut down the amount of time you spent on work or other activities
14. Accomplished less than you would like
15. Were limited in the kind of work or other activities
16. Had difficulty performing the work or other activities (for example, it took extra effort)

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

YES NO

17. Cut down the amount of time you spent on work or other activities
18. Accomplished less than you would like
19. Didn't do work or other activities as carefully as usual

20. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

1	2	3	4	5
Not at all				Extremely

21. How much bodily pain have you had during the past 4 weeks?

1	2	3	4	5	6
None					Very severe

22. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

1	2	3	4	5
Not at all				Extremely

These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the past 4 weeks . . .

1	2	3	4	5	6
All of the time				None of the time	

23. Did you feel full of pep?
24. Have you been a very nervous person?
25. Have you felt so down in the dumps that nothing could cheer you up?
26. Have you felt calm and peaceful?
27. Did you have a lot of energy?
28. Have you felt downhearted and blue?
29. Did you feel worn out?
30. Have you been a happy person?
31. Did you feel tired?

32. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?

1	2	3	4	5
All of the time				None of the time

How TRUE or FALSE is <u>each</u> of the following statements for you.

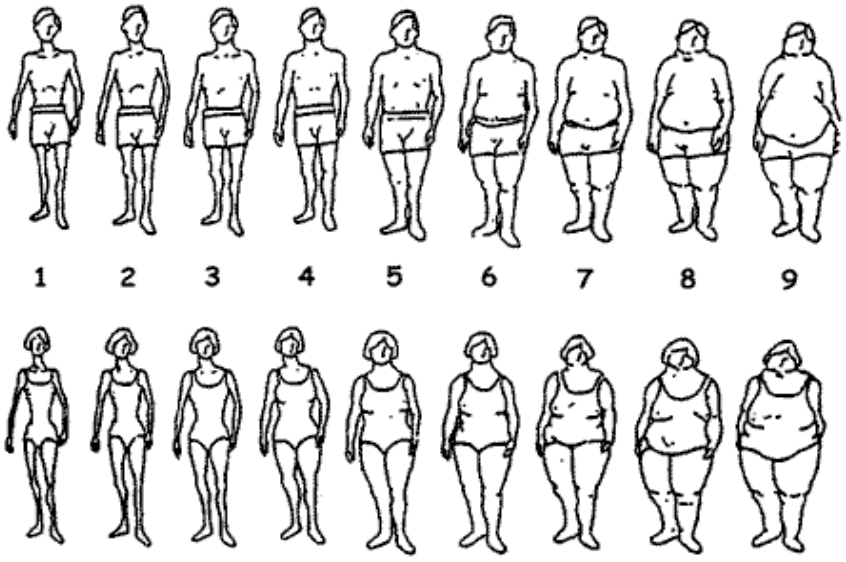
1	2	3	4	5
Definitely true				Definitely false

33. I seem to get sick a little easier than other people
34. I am as healthy as anybody I know
35. I expect my health to get worse
36. My health is excellent

Appendix B

Stunkard Figural Stimuli Rating Scale

1. Select the silhouette that best represents your PRESENT body size:
2. Select the silhouette that best represents your IDEAL body size:
3. Select the silhouette that best represents SOCIETY'S IDEAL body size:



Appendix C

Eating Disorder Diagnostic Screening (EDDS)

Over the past 3 months…	Not at all						Extremely
1. Have you felt fat?	0	1	2	3	4	5	6
2. Have you had a definite fear that you might gain weight or become fat?	0	1	2	3	4	5	6
3. Has your weight influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6
4. Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6

---

5. During the past 6 months have there been times when you felt you have eaten what other people would regard as an unusually large amount of food (e.g., a quart of ice cream) given the circumstances?

YES NO

6. During the times when you ate an unusually large amount of food, did you experience a loss of control (feel you couldn't stop eating or control what or how much you were eating)? . . . .

YES NO

7. How many DAYS per week on average over the past 6 MONTHS have you eaten an unusually large amount of food and experienced a loss of control?

8. How many TIMES per week on average over the past 3 MONTHS have you eaten an unusually large amount of food and experienced a loss of control?

During these episodes of overeating and loss of control did you…

9. Eat much more rapidly than normal?

YES NO

10. Eat until you felt uncomfortably full?

YES NO

11. Eat large amounts of food when you didn't feel physically hungry?
YES NO

12. Eat alone because you were embarrassed by how much you were eating?
YES NO

13. Feel disgusted with yourself, depressed, or very guilty after overeating?
YES NO

14. Feel very upset about your uncontrollable overeating or resulting weight gain?
YES NO

---

15. How many times per week on average over the past 3 months have you made yourself vomit to prevent weight gain or counteract the effects of eating?
0 1 2 3 4 5 6 7 8 9 10 11
12 13 14

16. How many times per week on average over the past 3 months have you used laxatives or diuretics to prevent weight gain or counteract the effects of eating?
0 1 2 3 4 5 6 7 8 9 10 11
12 13 14

17. How many times per week on average over the past 3 months have you fasted (skipped at least 2 meals in a row) to prevent weight gain or counteract the effects of eating?
0 1 2 3 4 5 6 7 8 9 10 11
12 13 14

18. How many times per week on average over the past 3 months have you engaged in excessive exercise specifically to counteract the effects of overeating episodes?
0 1 2 3 4 5 6 7 8 9 10 11
12 13 14

Appendix D

Short-Form Patient Satisfaction Questionnaire (PSQ-18)

1	2	3	4	5
Strongly disagree				Strongly agree

1. Doctors are good about explaining the reason for medical tests
2. I think my doctor's office has everything needed to provide complete medical care
3. The medical care I have been receiving is just about perfect
4. Sometimes doctors make me wonder if their diagnosis is correct
5. I feel confident that I can get the medical care I need without being set back financially
6. When I go for medical care, they are careful to check everything when treating and examining me
7. I have to pay for more of my medical care than I can afford
8. I have easy access to the medical specialists I need
9. Where I get medical care, people have to wait too long for emergency treatment
10. Doctors act too businesslike and impersonal toward me
11. My doctors treat me in a very friendly and courteous manner
12. Those who provide my medical care sometimes hurry too much when they treat me
13. Doctors sometimes ignore what I tell them
14. I have doubts about the ability of the doctors who treat me
15. Doctors usually spend plenty of time with me
16. I find it hard to get an appointment for medical care right away
17. I am dissatisfied with some things about the medical care I receive
18. I am able to get medical care whenever I need it

Appendix E

Trust in Physician Scale

1	2	3	4	5
Strongly disagree				Strongly agree

1. I doubt that my doctor really cares about me as a person.
2. My doctor is usually considerate of my needs and puts them first.
3. I trust my doctor so much that I always try to follow his/her advice.
4. If my doctor tells me something is so, then it must be true.
5. I sometimes distrust my doctor's opinion and would like a second one.
6. I trust my doctor's judgment about my medical care.
7. I feel my doctor does not do everything he/she should for my medical care.
8. I trust my doctor to put my medical needs above all other considerations when treating my medical problems.
9. My doctor is a real expert in taking care of medical problems like mine.
10. I trust my doctor to tell me if a mistake was made about my treatment.
11. I sometimes worry that my doctor may not keep the information we discuss totally private.

Appendix F

Additional Health Care Items

1. Do you currently have health insurance?

   YES NO

2. Have you ever been told by a physician that you have any of the following conditions?

   - Diabetes (Type I)
   - Diabetes (Type II)
   - Hypertension or high blood pressure
   - Heart disease
   - Angina
   - Stroke
   - Heart attack
   - Cancer
   - Arthritis
   - Polycystic ovarian disease (PCOS)
   - Kidney disease
   - Lung disease
   - Autoimmune disease
   - Psychiatric disease
   - Gallstones
   - Pancreatitis
   - Sleep apnea
   - Asthma
   - Eating disorder (including anorexia and bulimia)

     If cancer, what type:
     If psychiatric disease, what type:
     If eating disorder, what type:

3. During the past 12 months, about how many times have you seen a doctor or other health care professional about your own health at a doctor's office, a clinic, student health, or some other place? Do not include times you were hospitalized overnight, visits to hospital emergency rooms, home visits, dental visits, psychiatry visits, or telephone calls.

___ times

4. In what month and year did you last see a physician?

___ ___

5. Do you have a primary care physician (PCP)?

YES NO

6. What is the title of your PCP (i.e., family doctor, ob/gyn, general practitioner)

_____

7. For how many years have you been seeing your primary care physician?

___ years

8. How would you classify your overall relationship with your PCP?

1 2 3 4 5 6 7
Extremely negative Extremely positive

9. How would you classify your PCP's attitude towards you?

1 2 3 4 5 6 7
Extremely negative Extremely positive

10. Has your weight ever been a barrier to getting appropriate health care?

YES NO

11. Have you ever delayed seeking health care or preventive screening/tests because of your weight?

YES NO

12. Has any health care professional ever *treated you differently than other patients* specifically because of your weight?

    YES NO

13. Has your current primary care physician ever *treated you differently than other patients* specifically because of your weight?

    YES NO

14. Have you received any of the following preventive screenings in the past 3 years? (Check all that apply)

    - o Cardiovascular disease screening
    - o Cervical and vaginal cancer screening
    - o Diabetes screening
    - o HIV screening
    - o Other STI testing
    - o Prostate cancer screening
    - o Mammogram
    - o Pap smear
    - o Clinical breast exam
    - o Influenza shot

15. Have you delayed or canceled a medical appointment in the past 12 months?

    YES NO

16. If yes… How many times?

    - o 1-2 times
    - o 3-5 times
    - o 5-10 times
    - o More than 10 times

17. Check any of the following reasons that apply:

    - o I had important, conflicting plans
    - o I did not want to undress [W, E]
    - o The issue I was having went away on its own
    - o I am uncomfortable with my physician [T]
    - o I knew I would be weighed [W, E]
    - o I did not want to be touched

- I was concerned about inadequate equipment (e.g., too small gowns or exam tables)
- I could no longer afford my appointment
- I was embarrassed about my medical condition
- I planned on losing weight prior to the appointment [W]
- I did not have transportation
- I was embarrassed about my weight [W, E]
- I wanted to avoid shots or needles
- I knew I would be ridiculed about my weight [W, T]
- I did not want to discuss my weight with my physician [W, E]
- I did not want to be told to lose/gain weight [W]
- I wanted to avoid pain
- I have been traveling
- I could not find/afford childcare
- I could not get an appointment
- I just kept putting it off
- I was afraid to find out I had cancer or another serious condition
- I had too many other health problems
- I felt discriminated against by my physician [T]
- Other: _____

Note: [W] = weight-related [T] = trust/relationship [E]= embarrassment

Appendix G

The Everyday Discrimination Scale

In your day-to-day life, how often do any of the following things happen to you?

1	2	3	4	5	6
Never				Almost everyday	

1. You are treated with less courtesy than other people are
2. You are treated with less respect than other people are
3. You receive poorer service than other people at restaurants or stores
4. People act as if they think you are not smart
5. People act as if they are afraid of you
6. People act as if they think you are dishonest
7. You are called names or insulted
8. You are threatened or harassed

What do you think is the main reason for these experiences? (check more than one if applicable)

- o Your ancestry or national origins
- o Your gender
- o Your race
- o Your age
- o Your religion
- o Your height
- o Your weight
- o Some other aspect of your physical appearance
- o Your sexual orientation
- o Your education or income level
- o A physical disability
- o Your shade of skin color
- o Other (please specify): _____

Appendix H

Social Physique Anxiety Scale (SPAS)

1	2	3	4	5
Not at all characteristic of me				Extremely characteristic of me

1. I am comfortable with the appearance of my physique or figure.
2. I would never worry about wearing clothes that might make me look too thin or overweight.
3. I wish I wasn't so up-tight about my physique or figure.
4. There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively.
5. When I look in the mirror I feel good about my physique or figure.
6. Unattractive features of my physique or figure make me nervous in certain social settings.
7. In the presence of others, I feel apprehensive about my physique or figure.
8. I am comfortable with how fit my body appears to others.
9. It would make me uncomfortable to know others were evaluating my physique or figure.
10. When it comes to displaying my physique or figure to others, I am a shy person.
11. I usually feel relaxed when it's obvious that others are looking at my physique or figure.
12. When in a bathing suit, I often feel nervous about how well proportioned my body is.

Appendix I

Body Esteem Scale for Adolescents and Adults (BESAA)

1	2	3	4	5
Never				Always

1. I like what I look like in pictures
2. Other people consider me good looking
3. I am proud of my body
4. I am preoccupied with trying to change my body weight
5. I think my appearance would help me get a job
6. I like what I see when I look in the mirror
7. There are lots of things I'd change about my looks if I could
8. I am satisfied with my weight
9. I wish I looked better
10. I wish I looked like someone else
11. People my own age like my looks
12. My looks upset me
13. I'm as nice looking as most people
14. I'm satisfied with how I look
15. I feel I weigh the right amount for my height
16. I feel ashamed of how I look
17. My weight makes me unhappy
18. My looks help me to get dates
19. I worry about the way I look
20. I think I have a good body
21. I look as nice as I'd like to

Appendix J

Rosenberg Self-Esteem Scale (RSES)

1	2	3	4
Strongly disagree			Strongly agree

1. On the whole, I am satisfied with myself.
2. At times, I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

Appendix K

Demographics

1. How old are you (in years)
   ___ years

2. What is your gender
   - Male
   - Female
   - Other
   - Would rather not say

3. With which race(s) do you most closely identify (Check all that apply)
   - White/Caucasian American
   - Black/African American
   - Asian American
   - Hispanic/Latino American
   - Native American
   - International Student
   - Multiracial/Other

4. What is your height (in inches; 5 ft. = 60 in)? If uncertain, please give your best estimate.

   ___ inches

5. What is your weight (in pounds)? If uncertain, please give your best estimate.

   ___ pounds

6. What is your class standing?

   - Freshman (<24 credits)
   - Sophomore (24-53 credits)

- Junior (54-84 credits)
- Senior (>85 credits)
- Other

7. What is your major?

   _____

8. What is your current relationship status?
   - Single
   - In a relationship (<6 months)
   - In a relationship (>6 months)
   - Married
   - Separated/Divorced
   - Other

Vita

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