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Demographic predictors of body image satisfaction: The U.S. Body Project I

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Abstract

We examined how gender, body mass, race, age, and sexual orientation were linked to appearance evaluation, overweight preoccupation, and body image-related quality of life among 11,620 adults recruited via Mechanical Turk. Men were less likely than women to report low appearance evaluation, high overweight preoccupation, negative effects of body image on their quality of life, being on a weight-loss diet, and trying to lose weight with crash diets/fasting. Racial differences were generally small, but greater appearance evaluation was reported by Black men versus other groups and Black women versus White women. Across all measures, gay and bisexual men reported poorer body image than heterosexual men, with only small effect sizes observed for sexual orientation differences among women. Body mass, but not age, was strongly associated with body image. The prevalence of poor body image highlights the need for interventions. On the positive side, half of men and women reported high appearance evaluation. Examination of this group could identify factors promoting positive body image.

Keywords

Body image; Gender; Sexual orientation; Body mass index; Race; Age

1. Introduction

Body dissatisfaction, defined as negative attitudes about one's body (Cash, 1990), plays a critically important role in shaping physical and mental health (Frederick, Lever, et al., 2007; Gillen & Markey, 2018; Gillespie, Frederick, Harari & Grov, 2015; Ridolfi & Crowther, 2013). For example, in a national sample of adult Australian women, the degree of body dissatisfaction is associated with poorer mental health and psychosocial functioning as well as increased risk of impairment in physical health, even when controlling for body weight (Mond, Mitchison, Latner, Hay, Owen & Rodgers, 2013). Despite the importance of body dissatisfaction in many people's lives, little is known about body dissatisfaction on the national level in the United States (U.S.), across men and women with samples that are diverse in terms of body mass, race, age, and sexual orientation. Demographic characteristics have been an important focus of past research for the identification of at-risk populations for body image problems. Understanding the factors linked to body image across demographic groups is critical to guide effective public health policy and

interventions by better identifying population subgroups at risk, disparities, and facilitating more targeted and tailored resources for at risk subgroups.

Below, we highlight key findings and knowledge gaps from studies examining body satisfaction across men and women, and other demographic characteristics.

1.1. Gender Differences in Body Image

Sociocultural theories of body image emphasize that women face more intensive appearance-related pressures, particularly to be slender, and more recently, to be toned and fit. leading to more women than men experiencing high levels of body dissatisfaction (Fredrickson & Roberts, 1997; Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999). However, the magnitude of these differences varies depending on the specific aspect of body image being assessed. In meta-analyses, women report slightly lower physical appearance-related self-esteem than men ($d = 0.35$; Gentile, Grabe, Dolan-Pascoe, Twenge, Wells & Maitino, 2009), and moderately higher thinness-oriented body dissatisfaction ($d = 0.51$; Karazsia et al., 2017). For example, several national studies with one-item measures document that men are less likely than women to report overall dissatisfaction with their physical appearances (Fallon et al., 2014; Frederick, Sandhu, Morse & Swami, 2016; Frederick, Tomiyama, Bold & Saguy, 2020), less likely to say they were unhappy with their appearance than women, regardless of their marital status (Frederick, Garcia, Gesselman, Mark, Hatfield & Bohrnstedt, 2020), and that men were less likely than women to report overall dissatisfaction with their weights (Fallon et al., 2014; Frederick et al., 2020; Frederick, Sandhu, et al., 2016;). However, the magnitude of differences between the genders was small, with one national study finding no statistically significant difference between genders on evaluation of appearance (Fallon et al., 2014). In contrast, relatively large gender differences are found in overweight preoccupation, which assesses cognitions about weight as well as weight-loss diet behaviors. Men are less likely to report high overweight preoccupation (1.00–2.74 out of 5.00 on Likert scale) than women ($d = 0.45$; 9% vs. 22%; Fallon et al., 2014). However, this overweight preoccupation measure averages together cognitions (worrying about being or becoming fat) along with behaviors (fasting, crash dieting, and dieting to lose weight). Although these constructs are intercorrelated, the current study provided the opportunity to investigate the prevalence of these attitudes and behaviors as individual items and as composite scales to allow for cross-study comparisons with previous research.

The degree to which body image impacts quality of life is important for investigation; but remains an understudied topic within U.S. national studies. A convenience sample drawn in Canada found a more positive body image quality of life among men than women (Rusticus et al., 2008), as did studies of college students in Spain (Lobera & Rios, 2011) and in the United States (Cash et al., 2004). Further research is needed in this area.

Although national studies have documented differences in body image across gender, a paucity of research exists from an intersectionality framework (Burke, Schaefer, Hazzard & Rodgers, 2020). An intersectional approach highlights that body image experiences are shaped by multiple aspects of a person's identities and can bring attention to the unique experiences of people with multiple marginalized identities. For example, the experiences of

Black women and Asian women within the U.S. cultural context might differ markedly from each other (Cole, 2009). The current study builds upon the existing literature by examining how body mass, age, race, and sexual orientation are connected to body image experiences among women and among men in a national sample.

1.2. Body Mass Differences in Body Image

Men and women with higher BMIs report greater body dissatisfaction in national samples (Fallon et al., 2014; Frederick, Forbes, Grigorian & Jarcho, 2007; Frederick et al., 2020; Frederick et al., 2006; Frederick, Sandhu, et al., 2016; Kruger, Lee, Ainsworth & Macera, 2008; Peplau, Frederick, Yee, Maisel, Lever & Ghavami, 2009; Swami, Tran, Stieger & Voracek, 2015). Sociocultural ideals emphasize slenderness (Sypeck, Gray, Etu, Ahrens, Mosimann & Wiseman, 2006) or slenderness with large breasts and narrow waist-to-hip ratios for women (Burch & Johnsen, 2020), and about half of women report feeling worse about their bodies after exposure to these images (Frederick, Daniels, Bates & Tylka, 2017). In contrast, popular media features leanness, muscularity, and athleticism as the ideals for men (Burch & Johnsen, 2020; Frederick et al., 2005; Morrison & Halton, 2009). In parallel, many men report preferences for slender dating partners (Fales, Frederick, Garcia, Gildersleeve, Haselton & Fisher, 2016), and many women prefer relatively toned and muscular men (Frederick & Haselton, 2007; Gray & Frederick, 2012; Sell et al., 2017). Consistent with these sociocultural pressures, most women in industrialized cultures want to be thinner (Swami et al., 2010), and increasingly, fit and toned (Tiggemann & Zaccardo, 2015), whereas most young men want to be more muscular (Frederick, Buchanan, et al., 2007). Men and women with higher body weight are also the targets of greater prejudice and discrimination, leading to negative health consequences (Major et al., 2018).

In addition to this general linear association between BMI and body image satisfaction, the association may have a curvilinear component. Men with very low BMIs in some studies report higher body dissatisfaction than men in the "normal weight" range (Frederick, Forbes, et al., 2007; Frederick, Sandhu, et al., 2016). This curvilinear trend is also evident in the risk of anabolic steroids use among men, with men who describe themselves as either very underweight or very overweight being at greatest risk (Jampel, Murray, Griffiths & Blashill, 2016). This lower satisfaction among both very thin and very overweight men may reflect the fact that both body types deviate from the muscular or athletic ideal.

1.3. Racial Differences in Body Image

Body image experiences vary across racial groups, with differences theorized to be due to acculturation (Schooler, 2008), group differences in privilege and power (Cole, 2009), as well as sexual objectification experiences, particularly for women (Watson, et al., 2019). In a recent national study, Black women reported greater happiness with their appearance than White women (Frederick et al., 2020), while White women reported lower overall happiness with their appearance than Asian women, even when controlling for BMI (Frederick, Garcia, et al., 2020). In contrast, meta-analyses on racial differences in body satisfaction among women generally find small differences or no differences across Asian, White, and Hispanic women ($ds < 0.20$). Black women, however, tend to report greater body satisfaction than White women ($d = 0.29$, Grabe & Hyde, 2006; $d = 0.28$, Roberts, Cash, Feingold &

Johnson, 2006). The lack of group differences between White and Asian American women is somewhat surprising, given that Asian women tend to have lower BMIs than other groups (Ogden, Carroll, Fryar & Flegal, 2015) and BMI is strongly tied to body satisfaction. Some research on college students in California and Hawaii found that Asian American women report lower appearance evaluation, but not higher overweight preoccupation, than White women (Frederick & Forbes et al., 2007; Forbes & Frederick, 2008; Frederick, Kelly, Latner, Sandhu & Tsong, 2016), which is driven in part by differences in satisfaction with facial features (Frederick & Kelly et al., 2016).

Research on racial differences in body image among men is less common. Some studies found no differences across minority groups (Bucchianeri, Arikian, Hannan, Eisenberg & Neumark-Sztainer, 2013), while other studies observed that Asian American men reported higher levels of body dissatisfaction than other minority men (Frederick, Forbes, et al., 2017; Kelly, Cotter, Tanofsky-Kraff & Mazzeo, 2015). In a national study, White men reported lower appearance happiness than Black men ($d = 0.17$; $\beta = .26$) and Hispanic men ($d = 0.10$; $\beta = .16$). The experiences of minority men have been under-studied, and greater understanding of the experiences of all racial groups is needed at the national level.

1.4. Age Differences in Body Image

Understanding the impact of age on body image is important. Youthful appearance is routinely featured as attractive and prestigious in popular culture, creating a discrepancy between sociocultural ideals and normative age-related changes in body weight and appearance. As people age, however, they take on new social identities that can provide self-esteem and meaning (e.g., parenthood, employment) (Tiggemann, 2004; Greenleaf, 2005).

In some national studies, there are no statistically significant differences between specific age groups for men or women (Fallon et al., 2014). Other national studies find in regression analyses that men and women report slightly lower body satisfaction, but almost all associations between age and body image outcomes fall below $\beta = 0.20$ and most below $\beta = 0.10$ (Frederick et al., 2020; Frederick & Sandhu et al., 2016). These findings are consistent with longitudinal studies reporting that weight dissatisfaction in women remains relatively stable over time (Keel, Baxter, Heatherton & Joiner, 2007).

1.5. Sexual Orientation Differences in Body Image

Previous research suggests that sexual orientation relates to body image differently for men and women. Several theoretical frameworks have been used to understand differences in body image for gay, lesbian and bisexual individuals. Minority Stress Theory posits that individuals who identify as gay, lesbian, or bisexual are vulnerable to stigma, a chronic social stressor, in addition to 'normative' gender-related sociocultural pressure about appearance (Meyer, 1995). This combination of stressors may in turn increase risks for body dissatisfaction. (Morrison & McCutcheon, 2012). Relatedly, intersectionality, or recognition that individuals can have multiple and identities across sex, gender, race, class, and sexual orientation, can also be used to understand appearance-related experiences among sexual minorities (Cole, 2009; Morrison & McCutcheon, 2012).

In one meta-analysis, gay men were less satisfied with their body image than heterosexual men. The effect size was small ($d = 0.29$), but there were only 49 gay men per study on average (Morrison et al., 2004). National studies also consistently find that gay men report greater body dissatisfaction but with typically small or small-to-moderate effect sizes (Frederick et al., 2020; Frederick, Lever, & Peplau, 2007; Frederick, Sandhu, et al., 2016; Peplau et al., 2009). Gay men are more likely to report that their feelings about their body image have a negative impact on their quality of life as it relates to their sex life (Peplau et al., 2009). Furthermore, reviews of the literature indicated that sexual minority men are more likely than heterosexual men to report poorer body image (He, Sun, Lin & Fan, 2020) and to exhibit and report disordered eating patterns (Murray et al., 2017).

Patterns are less clear for how sexual orientation relates to body satisfaction among women. Existing research typically observed no differences or only small differences between lesbian and heterosexual women in their levels of body dissatisfaction (He et al., 2020; Moore & Keel, 2003; Moreno-Dominguez et al., 2019; Morrison et al., 2004). In the Morrison et al. (2004) meta-analysis, lesbian women reported slightly higher body satisfaction overall ($d = 0.12$), and when controlling for BMI ($d = 0.22$). Similarly, small or null effects are seen in national studies (Frederick et al., 2020; Frederick, Lever, & Peplau, 2007; Frederick, Sandhu, et al., 2016; Peplau et al., 2009).

1.6. National Body Image Studies

The first national body image study in the U.S. was conducted 50 years ago with *Psychology Today* (Berscheid et al., 1973; Frederick, Bohrnstedt, Hatfield & Berscheid, 2014), followed up with two additional studies (Cash et al., 1986; Garner & Kearney-Cooke, 1996). In the intervening years, few subsequent large-scale national studies focused specifically on affective body image – defined as how people feel about their appearance and bodies - were undertaken (for reviews, see Fiske, Fallon, Blissmer & Redding, 2014; Frederick, Jafary, Daniels & Gruys, 2012).

Over the past 20 years, most national studies in the United States focusing on affective body image have relied on one-item measures of key constructs (Frederick & Essayli, 2016; Frederick et al., 2006; Frederick et al., 2008; Frederick, Garcia, et al., 2020; Krueger et al., 2008; Lever et al., 2006; Lever, Frederick, Laird & Sadeghi-Azar, 2007; Peplau et al., 2009; Swami et al., 2015). This provided useful information, but body image is a multidimensional construct consisting of cognitive, behavioral, affective, and perceptual factors (Banfield & McCabe, 2002). One national study, which used a Mechanical Turk sample, relied on multi-item validated measures of affective body image and related constructs ($N = 1893$; Fallon et al., 2014). This study provided an important look at gender, body mass, and age differences on commonly used body image measures such as *appearance evaluation*, which assess people's feelings regarding their attractiveness and looks, and *overweight preoccupation*, which assesses both cognitions about weight and dieting/fasting behaviors (Brown et al., 1990; Cash, 2000). However, this study did not examine differences by sexual orientation, and comparisons by race were limited by the fact that there were fewer than 50 participants identifying with each racial group.

The current study, The U.S. Body Project I, was conceived as a follow-up to the important work conducted by Fallon et al. (2014) by examining additional dimensions of body image using well-validated measures, and examining body image differences from an intersection framework including body mass, race, age, and sexual orientation, across men and women. The current study recruited and analyzed a substantially larger sample ($N = 11,620$) than Fallon and colleagues (2014) which allowed larger subsamples of groups with marginalized identities such as gay, lesbian, and bisexual adults. Due to the rare opportunity afforded by this large national dataset, we provide a detailed and comprehensive summary of the prevalence and demographic predictors of body image concerns. Further, we identify the percentage of men and women who report a very negative impact of their body image on their quality of life.

Data derived from large, national samples that identifies how demographic factors relate to body image beliefs, attitudes, and behaviors is critical in order to identify differential risk factors for body dissatisfaction, provide inspiration for investigations of how sociocultural factors shape the body image experiences of different groups, evaluate sociocultural trends in body image at the population level, and inform more sensitive clinical and population-based body image interventions. Importantly, These data also have the potential to inform our understanding of factors that are associated with positive body image (Tylka & Wood-Barcalow, 2015), including people's perceptions of the positive impacts of their body image on different aspects of their lives (Cash & Fleming, 2002).

1.7. Hypotheses

1.7.1. Hypothesis 1: Gender Comparisons—
Based on the extant literature, we hypothesized significant gender differences between men and women, with women reporting more appearance evaluation, overweight preoccupation cognitions, overweight preoccupation behaviors, and poorer body image quality of life relative to men.

1.7.2. Hypothesis 2: BMI Comparisons—
We hypothesized that men and women with higher body mass would report poorer body image, and potentially an uptick in body dissatisfaction among very slender men and women.

1.7.3. Hypothesis 3: Racial Group Comparisons—
We hypothesized that Black men and women would report the most appearance satisfaction relative to other racial groups, while Asian men and women would report lower appearance evaluation than other groups. All other racial group differences were exploratory, and this study provided the rare opportunity to study these differences among men.

1.7.4. Hypothesis 4: Age Comparisons—
Consistent with the existing literature, we hypothesized age to be unrelated or weakly related to the body image variables.

1.7.5. Hypothesis 5: Sexual Orientation Comparisons—
Overall, relatively less research has examined body image for bisexual men and women; most studies have combined bisexual and gay orientations into a sexual minority group, likely due to small sample sizes. Taking these findings into account, we hypothesized small-to-moderate

differences among men with sexual minority men reporting poorer body image, and negligible differences among women across the sexual orientation groups.

1.7.6.   Additional Analyses: Examining Individual Items in Addition to Full Validated Measures—Finally, in addition to examining demographic differences on the full validated body image measures, we also selected some individual items to analyze as well. In particular, we focus on the items assessing weight-related behaviors in these scales (dieting; fasting) in contrast to the items assessing weight-related cognitions (e.g., being conscious of weight and changes in weight). This was done for two reasons. The first is that large national studies are often restricted to only a few items, so presenting the results for selected items of interest allows future national studies with that restriction to compare with the current study. The second is that analyzing scales on an item-by-item basis can reveal notable differences in absolute level of weight-related cognitions versus behaviors, even if both are connected by a single underlying factor. In terms of group differences, we hypothesized the same patterns for these items as the ones hypothesized in the aforementioned sections.

2.   Method

2.1.   Participants

Data were drawn from the U.S. Body Project I, which is described in detail in the Procedures section. The sample was restricted to include only participants who completed the full survey and who fit the following criteria: (a) reported currently living in the United States; (b) completed all key body image items; (c) were aged 18–65; (d) had body mass indexes (BMI) ranging from 14.50 to 50.50 based on self-reported height and weight. Age and BMI restrictions were placed on the sample to prevent outliers or mis-entered values from having undue influence on the effect size estimates. The data were collected in 2016. A total of 13,518 people clicked on the survey, 12,571 answered the first question, and 12,151 completed the full survey. After applying the inclusion criteria, the analyzed sample included 11,620 participants. Key demographics are shown in Table 1.

In addition to these demographics, men and women also reported their relationship status: married (men = 32.3%, n = 1712; women = 43.3%, n = 2738), cohabiting (15%, 793; 19%, 1204), dating one person exclusively (20%, 1060; 16%, 1013), dating multiple people (3.2%, 168; 1.8%, 113), widowed (0.3%, 18; 0.8%, 51), not currently involved (29.1%, 1542; 19.1%, 1208).

Looking across men and women with differing sexual orientations, the average BMIs ranged from 27.4 to 28.8 among heterosexual men (27.5), heterosexual women (27.5), gay men (27.3), lesbian women (28.1), bisexual men (28.2), bisexual women (28.4), other men (25.2) and other women (27.6). The average age for each of these groups, rounded to the nearest whole number, were 33, 36, 32, 34, 31, 29, 29, and 27, respectively. Looking across men and women with differing races, the BMIs for Asian women (23.3) and Asian men (24.6) were notably below that of White women (27.9), White men (27.8), Hispanic women (27.0), Hispanic men (27.4), Black Women (29.0), and Black men (27.6), other men (27.1) and

other women (27.6). The average ages for each of these groups were 30, 29, 36, 34, 31, 30, 34, 34, 31, and 32, respectively.

2.1.1. Comparison to Nationally Representative Datasets—Participants came from all 50 states as well as Washington D.C. and Puerto Rico. The current study relies on a national dataset, but the sample is not nationally representative. We provide nationally representative data as a comparison. In terms of BMI, the average body mass in 2015–2016 was 29.1 for men and 29.6 for women (Fryar, Kruszan-Moran, Gu & Ogden, 2018) which is slightly higher than the average BMI for men (27.5) and women (27.6) in our sample. In our sample, there are more non-Hispanic White participants (74.5% of men, 75.8% of women) compared to the population overall (60.7%, United States Census Bureau, 2018). The percentage of men and women in our sample with a high school degree (99.5% men, 99.3% women) and a college degree (57.3% men, 58.8% women) was higher than the national percentage of people with a high school degree (87%) and Bachelor's degree or higher (30.9%), respectively.

The percentage of men and women identifying as heterosexual was slightly lower in our sample (92.0% men, 85.3% women) than in nationally representative samples (95.1% men, 92.3% women), although the comparison national survey did not have an "other" option where participants could specify identities other than "bi-sexual," "homosexual, gay, or lesbian," "don't know," or "refused" (Copen et al., 2016). The seven states with the largest number of men and women came from California (11.7% men, 9.7% women), New York (6.1% men, 5.3% women), Florida (7.4% men, 7.0% women), Texas (6.3% men, 6.7% women), Pennsylvania (4.8% men, 5.5% women), Illinois (4.5% men, 4.2% women), and Ohio (4.4% men, 4.1% women) which also corresponds to the seven most populous states in the U.S. (United States Census Bureau, 2014).

2.2. Procedure and Overview of The U.S. Body Project I

The first author's university institutional review board approved the study. Adult participants were recruited via Amazon Mechanical Turk, a widely used online panel system used by researchers to access adult populations (Berinsky et al., 2012, Buhrmester et al., 2011, Kees, Berry, Burton & Sheehan, 2017; Paolacci et al., 2010; Robinson, Rosenzweig, Moss & Litman, 2019). Participants were paid 51 cents for taking the survey. The survey was advertised with the title "Personal Attitudes Survey," and the description explained that "We are measuring personal attitudes and beliefs. The survey will take roughly 10–15 min to complete." The general wording of the advertisement was used to avoid selectively recruiting people particularly interested in body image. After clicking on the advertisement, the participants read a consent form providing more details about the content of the study, including that it would contain items related to sex, love, work, and appearance. They were then given the option to continue with the survey or exit.

After providing informed consent, participants completed the numerical textbox questions (e.g., hours per week worked, number of times in love, sex frequency per week, longest relationship), followed by appearance evaluation (Cash, 2000), the Sociocultural Attitudes Towards Appearance Questionnaire-4 (Schaefer et al., 2015), face satisfaction (Frederick,

Kelly, et al., 2016), overweight preoccupation (Cash, 2000), body image quality of life (Cash & Fleming, 2002), body surveillance (McKinley & Hyde, 1996), and finally demographics.

This manuscript is part of a series of papers emerging from The U.S. Body Project I. This project invited over 20 body image and eating disorder researchers, four sexuality researchers, and six computational scientists to apply their content and data-analytic expertise to the dataset. This project resulted in the following set of 11 papers for this special issue.

The first two papers examine how demographic factors (gender, sexual orientation, BMI, age, race) are related to body satisfaction and overweight preoccupation (current paper) and to measures derived from objectification theory and the tripartite influence model, including body surveillance, thin-ideal and muscular/athletic ideal internalization, and perceived peer, family, and media pressures (Frederick, Pila, et al., 2022). The second set of papers examine how these measures and demographic factors predict sexuality-related body image (Frederick, Gordon, et al., 2022) and face satisfaction (Frederick, Reynolds, Barrera, Alley, Garcia & Murray, 2022).

The third set of papers use structural equation modelling to examine the links between sociocultural appearance concerns and body satisfaction among women and across BMI groups (Frederick, Tylka, Rodgers, Pennesi, et al., 2022), among men and across different BMI groups (Frederick, Tylka, Rodgers, Convertino, et al., 2022), across racial groups (Frederick, Schaefer, et al., 2022) and across sexual orientations (Frederick, Hazzard, Schaefer, Rodgers, et al., 2022).

The fourth set of papers focus on measurement and statistical issues by examining measurement invariance of the scales across different demographic groups (Hazzard, Schaefer, Thompson, Rodgers & Frederick, 2022) and conducting a psychometric evaluation of an abbreviated version of the Body Image Quality of Life Inventory (Hazzard, Schaefer, Thompson, Murray & Frederick, 2022). Finally, the last paper uses machine learning modelling to compare the effectiveness of nonlinear models versus linear regression for predicting body image outcomes (Liang et al., 2022).

2.3. Body Image Outcome Measures

For all of the measures below, we report the Cronbach's alpha for the participants overall and by gender. The measures showed high measurement invariance across different demographic groups (e.g., race, sexual orientation), which can be viewed in another manuscript emerging from this dataset (Frederick, Hazzard, Schaefer, Thompson, et al., 2022).

2.3.1. Multidimensional Body-Self Relations Questionnaire - Appearance Evaluation Subscale—Participants completed the Appearance Evaluation subscale of the Multidimensional Body-Self Relations Questionnaire (Brown et al., 1990; Cash, 2000). This scale measures feelings of physical attractiveness and satisfaction with one's appearance and contains seven items (e.g., "I like the way I look without my clothes on"). Responses were recorded on a 5-point Likert scale (1 = *Definitely Disagree* to 5 = *Definitely Agree*). Items

were all coded or reverse-coded and then averaged so that higher scores indicated more positive evaluations of appearance. The scale showed high internal reliability for the overall sample, for men, and for women, respectively ($\alpha = 0.93;0.93;0.93$).

2.3.2. Multidimensional Body-Self Relations Questionnaire – Overweight Preoccupation Subscale—Participants completed the Overweight Preoccupation subscale of the Multidimensional Body-Self Relations Questionnaire (Brown et al., 1990; Cash, 2000). This scale measures fat anxiety, weight vigilance, dieting, and eating restraint. There are four items, two of which measure thoughts about weight (i.e., "I constantly worry about being or becoming fat;" "I am very conscious of even small changes in my weight") and two of which measure weight loss dieting attempts (i.e., "I am on a weight loss diet;" "I have tried to lose weight by fasting or going on crash diets"). Responses to the first three questions were recorded on the previously described 5-point Likert scale (1 = *Definitely Disagree*; 5 = *Definitely Agree*), whereas the last question was recorded on a different scale (1 = *Never*, 5 = *Very Often*). Items were examined individually and averaged into a scale, with higher scores indicating more preoccupation with weight. Good internal reliability was obtained for the overall sample, men, and women, respectively ($\alpha = 0.80;0.78;0.79$). All of the items were analyzed individually as well.

2.3.3. Body Image Quality of Life Inventory—This 19-item measure assesses participants' beliefs about how their body image affects their lives (Cash & Fleming, 2002). Participants indicated whether their feelings about their bodies had positive, negative, or no effects on various aspects of their lives, including "My day-to-day emotions," "How confident I feel in my everyday life," and "How happy I feel in my everyday life." Participants responded on a 7-point Likert scale (1 = *Very Negative Effect* to 7 = *Very Positive Effect*). Scores on all 19 items were averaged to create a mean scale score. Higher scores indicated more positive effects of one's body image on quality of life. Items were averaged into a scale, with higher scores indicating more positive effects of body image on quality of life. Internal reliability was high in the overall sample and among men and women ($\alpha = 0.96;0.96;0.96$).

2.4. Demographic Variables

Participants self-reported their age, height in feet and inches, weight in pounds, sexual orientation, highest level of education, current relationship status, sex, and current U.S state, and race (e.g., 10 options where they could check all that apply; see Table 1 for distribution of commonly reported races).

Using the self-reported height and weight data, we calculated BMI. We then divided participants into the traditional BMI categories used by the CDC: Underweight (14.5–18.49), Normal or Healthy (18.5–24.9), Overweight (25–29.9), Obese I (30–34.9), Obese II (35–39.9), and Obese III (40 and above). We hasten to add that these widely-used categories were chosen as a heuristic so that the BMI results could be compared to existing studies, and do not represent uniform endorsement of the categories by the entire authorship team in terms of semantic accuracy or as clear indicators of a person's health status (e.g., see Tomiyama, Hunger, Nguyen-Cuu & Wells, 2016). To avoid any stigmatizing effects of

these labels, we instead label these BMI groups as Lowest (Underweight), Low (Normal), Medium (Overweight), and High (Obese) BMI groups from this point forward.

2.5. Overview of Data Analytic Approach

2.5.1. Effect Sizes—What is considered a small, moderate, or large effect size can vary dramatically based on the research question of interest. As a very rough guide, Cohen (1988) suggests that effect size d can be interpreted as small (0.20), moderate (0.50), or large (0.80). These values correspond to Pearson's r correlations of .10, .24, and .37. Ferguson (2009, p. 533) suggested somewhat higher thresholds for what should be considered the "recommended minimum effect size representing a 'practically' significant effect for social science data" ($d = 0.41$; β or $r = .20$).

With very large sample sizes, it is possible for even miniscule effects to be statistically significant at traditional thresholds ($p < .05$). Therefore, we note in the tables whether effects were significant at the $p < .05$. 01, or .001 levels and emphasize effect sizes when presenting and discussing the results with an emphasis on the results significant at the $p < .001$ level due to the large sample size and multiple statistical comparisons.

For this paper, we elected to highlight statistically significant findings with Cohen's d values greater than $|0.19|$, β values greater than $|.09|$, and percentage differences greater than eight percentage points. We draw particular attention to Cohen's d values greater than $|0.29|$ and β values greater than $|.19|$.

2.5.2. Frequency Distributions and Percentages—Consistent with past research, we present frequency distributions showing the percentage of participants falling on different points on the Likert scale to highlight the distribution of low and high body satisfaction across different groups (e.g., Cash & Henry, 1995; Fallon et al., 2014; Frederick & Forbes et al., 2007; Frederick & Kelly et al., 2016; Peplau et al., 2009). For example, we present the percentage of people who systematically are on the "agree" end of the Likert scale when asked if they want their body to look very thin. This strategy of reporting the percentage of people in each group who embrace this attitude maximizes the accessibility of the findings to the lay public, clinicians, and scientists, in conjunction with the more advanced statistical analyses. Additionally, it encourages thinking about differences across groups in terms of not just the central tendencies, but also to the variations of experiences with groups and the overlaps in experiences across groups.

For each of the measures with 5-point scales, we calculated the percentage of people who systematically fell below the midpoint of the Likert scale (Low: mean scores of 1.00–2.74), around the midpoint (Neutral: 2.75–3.25), or systematically above the midpoint (High: 3.26–5.0). For example, the "high appearance evaluation (*agree*)" category included the participants who systematically agreed that they liked the way they looked, whereas the "low appearance evaluation (*disagree*)" category included the participants who systematically disagreed that they liked the way they looked. For the 7-point scales, consistent with past research, we used the categories Low (1–3.49), Neutral (3.5–4.5), and High (4.51–7.0). For the body image quality of life measure, low indicates that participants overall reported their

body image had a "*negative*" effect on their quality of life and high indicates that it had a "*positive*" effect.

2.5.3. Analyses Examining Demographic Predictors of Body Image—We first conducted multiple regression analyses with each of the demographic predictors entered: gender, age, BMI, BMI-squared (curvilinear effect), education, sexual orientation, and race (Tables 2a 2b). The regression analyses allowed us to examine the association of each predictor variable to the outcome with control variables included. For dummy codes, men were coded as 0 (versus women), heterosexuals were coded as 0 (versus gay/lesbian, bisexual, and an "other" category collapsing all other respondents), and Whites were coded as 0 (versus Black, Hispanic, Asian, and an "other" category collapsing all other respondents). The "other" categories were created because each individual response for sexual orientation (e.g., asexual, pansexual, demisexual) and race (e.g., Pacific Islander, Biracial: White-Black) contained small sample sizes. Collapsing them into one category was done only to ensure they were not excluded from the regression analyses via listwise deletion and is not meant to indicate that the "other" category represents a shared overarching psychological construct or identity.

Across all regression analyses, collinearity diagnostics did not identify high degrees of multicollinearity (most VIF values below 2.0, all below 4.5). Regression analyses were conducted first for the whole sample and then separately by gender. All continuous predictor and outcome measures were z-scored prior to the regressions, both for the full sample and then separately within each gender for the gender-specific analyses.

Gender differences in the overall prevalence of low, neutral, and high body image are presented along with t-tests and Cohen's *d* comparing mean differences (Table 3). Body mass, racial, age, and sexual orientation differences in the prevalence of poor body image among each gender were examined using descriptive statistics (Table 4), and t-tests and Cohen's *d* compared differences between specific racial and sexual orientation groups (Table 5).

3. Results

3.1. Gender Differences in Body Image (Hypothesis 1)

We hypothesized that women would be more likely than men to report poor body image. In regression analyses, women reported lower appearance evaluation ($\beta = -.13$), lower body image quality of life ($\beta = -.18$), and higher overweight preoccupation ($\beta = .47$) than men when controlling for other demographic variables in the model (Table 2a). Fewer than half of men and women reported overall low appearance evaluation (30% men vs. 36% women), negative effects of body image on quality of life (16% men vs. 24% women), and high preoccupation with weight (15% men vs. 30% women). Encouragingly, a majority or near majority of men and women reported high appearance evaluation (57% men vs. 51% women), low overweight preoccupation (62% men vs. 45% women), and positive effects of body image on their quality of life (57% men vs. 49% women) (Table 3).

The absolute level of body dissatisfaction varied notably across some individual items from the same validated measures and revealed interesting patterns (Table 3). Analyses of individual items revealed that men reported lower overweight preoccupation than women on all four items in the overweight preoccupation scale ($ds = |0.25-0.44|$). For example, approximately half of women endorsed overweight preoccupation cognitions (49–55% of women), but far fewer reported engaging in overweight preoccupation behaviors such as dieting and fasting (15–27% of women). Men were also more likely to report these cognitions (31–34%) than engaging in the behaviors (7–19%).

3.2. BMI Differences in Body Image Among Men and Women (Hypothesis 2)

We hypothesized that people with higher body mass would report poorer body image than people with lower body mass. For both men and women, there was a strong linear association of BMI to appearance evaluation, overweight preoccupation, body image quality of life, and individual items from these scales, with almost all βs exceeding $|.20|$. There were also weak curvilinear associations in some analyses, with all $\beta s < |.15|$ (Tables 2a and 2b).

These associations are visually apparent Figs. 1–3, and they allow us to identify the BMI ranges where positive versus negative body image are common. As shown on Fig. 1, high appearance evaluation was reported by the majority of women with BMIs 17–27 and men with BMIs 17–31. However, low appearance evaluation was reported by the majority of women with BMIs above 31 and among men with BMIs above 32. As shown in Fig. 2, high overweight preoccupation was reported by over a quarter of women with BMIs above 27 and men with BMIs above 34. As shown in Fig. 3, overall negative effects of body image on quality of life were reported by over one-fourth of women with BMIs above 29 and men with BMIs above 32. Overall positive effects of body image on quality of life were reported by over half of women with BMIs 19–27 and men with BMIs 18–31.

The links between BMI and body image were immediately apparent when looking across the BMI categories used by the CDC. As shown in Table 4, only 16% of men and 15% of women classified as normal weight reported overall low appearance evaluation, compared to 52% and 59% of men and women classified as High BMI I. Similarly, only 10% of men and 11% of women classified as normal weight reported overall low appearance evaluation, compared to 27% and 37% of men and women classified as High BMI I. Despite being classified as Low BMI, 8% of men and 19% of women reported high overweight preoccupation, compared to 24% and 44% of men and women classified as High BMI I.

3.3. Racial Differences in Body Image Among Men and Women (Hypothesis 3)

We hypothesized that Asian men and women would report the poorest body image, and Black men and women would report the highest body image. Consistent with past meta-analyses, in regression analyses, Black women reported better body image than White women, including higher appearance evaluation ($\beta s = 0.46$), lower overweight preoccupation ($\beta = -.27$), and higher body image quality of life ($\beta = .35$). Black men reported higher appearance evaluation ($\beta s = 0.48$), higher body image quality of life ($\beta = .42$), but not lower overweight preoccupation ($\beta = 0.08$). Hispanic participants did not consistently differ from Whites, but when there was a difference, it was in the direction of Hispanics reporting better

body image than Whites. Compared to White men and women, Asian men and women reported lower appearance evaluation (βs = −0.21 men, −0.24 women), but not lower body image quality of life, and only Asian men tended towards reporting greater overweight preoccupation (β = .10).

The links between race and body image are evident when looking at the frequency distributions. As shown in Table 4, low appearance evaluation was reported by only 15% of Black men compared to 26%– 32% of other race groups. Both White men (32%) and women (39%) reported higher prevalence rates of low appearance evaluation compared to the other groups. More Hispanic men (19%) and women (35%) reported high overweight preoccupation compared to the other groups. White women (25%) were more likely than other groups to report negative body image, and more White men (17%) indicated more negative body image quality of life compared to Hispanic (10%) and Black men (10%).

In multiple regression analyses (see Tables 2a and 2b), Black men and women reported more appearance evaluation body image concerns, and less overweight preoccupation and worry about fat compared to White individuals. Hispanic women also reported significantly greater appearance evaluation, body image quality of life, worry about fat, and being very conscious of even small weight changes. Hispanic men reported more positive body image quality of life when compared to White men.

Asian men and women also reported lower appearance evaluation and more constant worry about fat than White participants. These differences are also apparent when examining racial differences without covariates (see Table 5). When not considering covariates, Asian women reported greater appearance evaluation than White women, and Asian men did not differ from Whites. Once covariates such as BMI are included in regression models, the patterns flip to Asian men and women reporting lower appearance evaluation than White men and women (β = −0.21; −0.24).

3.4. Age Differences in Body Image Among Men and Women (Hypothesis 4)

We hypothesized that age would be unrelated or only weakly related to body image. In regression analyses (see Table 2a–b), age was not strongly associated with appearance evaluation and body image quality of life measures or the individual items we highlighted (βs < 0.10). Older men and women were less likely to report overweight preoccupation (βs = −0.11 men, −0.11 women), and the only item that exceeded βs = |.10| was that older men and women were less likely to constantly worry about fat (βs = −0.14 men, −0.15 women).

As shown in Table 4, without controls for covariates with age such as body mass, the prevalence of low appearance evaluation increased with age for men, ranging from 24% for 18–24 year-old men to 34% for 50–65 year-old men. A similar pattern observed for women, with rates ranging from 32% for women aged 18–24 years to 42% of women aged of 50–65 years. Rates of high overweight preoccupation were greater among younger versus older men (15% younger men vs. 9% older men) and younger versus older women (31% younger women vs. 27% women), although percentages were consistently higher for women than men across all age ranges. Similar trends were observed for items pertaining to constant worry about fat, current dieting, and trying to lose weight via fasting or crash dieting.

3.5. Sexual Orientation Differences in Body Image Among Men and Women (Hypothesis 5)

We hypothesized that sexual minority men would report poorer body image than heterosexual men, and that there would be no differences or negligible differences among women. Consistent with previous research, compared to heterosexual men, regression analyses revealed that gay men reported lower appearance evaluation ($\beta = -0.25$) and body image quality of life ($\beta = -0.41$), and higher overweight preoccupation ($\beta = 0.39$). Gay men also reported poorer body image on every individual item ($\beta s = |.17 \text{ to} .41|$; Tables 2a–2b). Compared to heterosexual men, bisexual men reported lower appearance evaluation ($\beta = -0.27$) and body image quality of life ($\beta = -0.30$), but not significantly higher overweight preoccupation ($\beta = 0.13$). Consistent with this pattern, mean comparisons without controlling for covariates revealed small to medium effect size differences between gay and heterosexual men on appearance evaluation, overweight preoccupation, and body image quality of life, and between bisexual and heterosexual men on appearance evaluation and body image quality of life (Table 5).

The patterns identified in the regressions were apparent in the frequency distributions (see Table 4). More gay men (39%) and bisexual men (40%) reported low appearance evaluation compared to 29% of heterosexual men. Similarly, 30% of gay men and 24% of bi-sexual men reported low body image quality of life compared to only 15% of heterosexual men. High overweight preoccupation was reported by 24% of gay men and 20% of bisexual men, versus 15% of heterosexual men. Of interest, however, was that constantly worrying about fat and being conscious about small changes in weight were substantially higher among gay men (52% worry, 48% conscious) than among heterosexual men (30% worry, 33% conscious) and bisexual men (38% worry, 35% conscious).

In regression models, compared to heterosexual women, lesbian women reported lower overweight preoccupation ($\beta = -0.23$), and bisexual women reported lower body image quality of life ($\beta = -0.19$), but they did not differ on the other measures (see Table 2a–b). In mean comparisons, bisexual women demonstrated a small to moderate effect size difference on body image quality of life compared to heterosexual women (see Table 5). Looking at the frequency distributions, minimal differences were observed across sexual orientations among women in appearance evaluation (36–39%), overweight preoccupation (25–30%), and body image quality of life (23–31%).

4. Discussion

4.1. Summary of Key Findings

This study evaluated how gender, BMI, race, age, and sexual orientation were related to appearance evaluation, overweight preoccupation, and body image quality of life in a large U.S. national sample. Results for gender were consistent with previous research finding slightly to moderately higher body image concerns in women compared to men (e.g., Fallon et al., 2014; Frederick et al., 2016, 2020). These gender differences are also consistent with sociocultural theories, including objectification theory (Fredrickson & Roberts, 1997) and the tripartite theory of body image and eating disturbance (Thompson et al., 1999),

highlighting that intense and disproportionate pressures for women from media, potential partners, family, and friends to pursue a thin body may lead them to internalize and adopt these pressures, leading to body dissatisfaction. However, the gap between these cultural pressures for women and men may be narrowing in recent years, and research also supports the application of these social pressures and the tripartite theory in men (Tylka, 2011).

Results regarding BMI are consistent with previous research showing strong links between body image-related quality of life and BMI (Fallon et al., 2014; Frederick et al., 2020; Frederick, Lever, & Peplau, 2007; Frederick, Sandhu, et al., 2016; Peplau et al., 2009). There are likely several routes through which BMI is related to body image. Having a higher BMI may put greater stress on joints as people age, leading to more physical pain, leading to poorer body image and negative impacts of body image people's daily emotions and quality of life. Much of the link between BMI and body image, however, is likely mediated through internalization of the thin-ideal and weight-based stigma from others. There is pervasive weight-based stigma and fat-phobia in the United States (Puhl et al., 2008), which can render harmful effects on mental health and well-being (Tomiyama, 2014). This may be compounded by the fact that the overvaluation of thinness is prevalent in industrialized, Western countries (Swami et al., 2010).

In terms of race, White women reported greater body image concerns compared to racial minority groups when covariates were not included. The largest of these effects, however, was small-to-moderate, which aligns with previous meta-analyses supporting minimal differences in body satisfaction among White, Black, Hispanic, and Asian American women in the United States (Grabe & Hyde, 2006). Black men reported higher appearance evaluation than the four other groups and the effect sizes were moderate. Black men also reported higher body image quality of life than White men. All other racial differences were small. Of note, the measures included within the present study were developed and evaluated in populations of predominantly White participants and thus, results should be interpreted within this context. The small racial differences observed in overall body image, however, do not necessarily indicate that the factors contributing to body (dis)satisfaction are the same for each group. For example, experiences of appearance-based discrimination due to skin color and other phenotypic features likely vary across races, genders, and the intersection between these identities (Cole, 2009; Burke et al., 2020).

However, our findings relating to race highlight the importance of including covariates when comparing appearance evaluation among Asian and White women. Without controlling for personal characteristics such as BMI, White women reported lower appearance evaluation than Asian women. When controlling for these characteristics, however, the pattern reversed, with Asian women reporting lower appearance evaluation. Previous research on how race and gender intersect with experiences of oppression, sexism, and racism for Asian American women (Brady, Kaya, Iwamoto, Park, Fox & Moorhead, 2017) suggests that factors contributing to these observed differences may include satisfaction with facial appearance (Frederick, Kelly, et al., 2016), including eye size (Brady et al., 2017), skin tone (Brady et al., 2017) and breast size (Forbes & Frederick, 2008). It will be important for future research to measure these body image concerns and how body image may be linked to experiences of racism when comparing White and Asian women.

Regarding age, results support that even the strongest associations between age and body image were relatively small, consistent with past cross-sectional age cohort research (Tiggemann, 2004; Frederick et al., 2020; Frederick & Sandhu et al., 2016). Thus, overall, body image concerns appear relatively stable across age cohorts from 18 to 65, with some differences supporting a trend towards individuals in midlife reported less concerns regarding their bodies. While this could be consistent with the premise that across genders individuals may become more accepting of their bodies as they age (Forrester-Knauss & Stutz, 2012; Hughes et al., 2016), the cross-sectional cohort design and small to negligible effects observed limit the conclusions that can be drawn in this manner.

The small to moderate effect size differences between gay men and heterosexual men are consistent with previous research demonstrating higher body image concerns for sexual minority men (Brown & Keel, 2012; Frederick & Essayli, 2016; Morrison et al., 2004; Peplau et al., 2009). These differences for men may reflect the influence of sexual minority stress from being part of a marginalized group and/or sociocultural pressures from media, friends, family, partners, and within the sexual minority male community (Meyer, 1995; Tylka & Andorka, 2012). Also consistent with previous research (Moore & Keel, 2003; Moreno-Dominguez et al., 2019; Morrison et al., 2004; Frederick et al., 2020; Frederick, Lever, & Peplau, 2007; Frederick, Sandhu, et al., 2016; Peplau et al., 2009), almost all differences among lesbian, bisexual, and heterosexual women were small and/or not statistically significant. These findings indicate relatively similar levels of body image concerns among lesbian, bisexual, and heterosexual women, but do not necessarily indicate that the factors contributing to these overall levels of body image are identical across the groups. The pathways that lead to body dissatisfaction and how these may differ for lesbian, bisexual, and heterosexual women require further exploration.

Finally, presenting the results for individual items revealed some interesting results. Overweight preoccupation cognitions were endorsed more frequently than were overweight preoccupation behaviors. Despite the fact that the measure shows high internal reliability, averaging these cognitions and behaviors into the same scale into one mean score obscures these differences between cognitions and behaviors. The item-by-item analyses highlights the importance of considering the extent to which there are demographic differences in degree of endorsement across items within a scale.

4.2. Strengths and Limitations

The present study benefited from several strengths including a diverse, large, national sample of men and women across a broad range of ages, sexual orientations, race, and body masses. To our knowledge, this represents the largest national study of body image using validated multi-item measures.

However, with these strengths there are also limitations of note. First, while this study used a national sample with participants drawn from all 50 states, it was not a nationally representative or national probability sample. For example, people with a college degree were overrepresented in the sample relative to the national population. The sample was drawn from Mechanical Turk, which may limit the generalizability of the sample. Conducting comparisons with nationally representative samples could help mitigate this

concern. Additionally, all measures were trait-based and taken at one time point, even though body image satisfaction is known to have state components that can vary moment-to-moment and day-to-day (Colautti, Fuller-Tyszkiewicz, Skouteris, McCabe, Blackburn & Wyett, 2011).

Of note, the topic of the survey was not revealed in the survey description, minimizing concerns regarding self-selection into the study by people with heightened body image concerns. While the inclusion of body image quality of life items is a strength, it is possible that potential comorbidities that may lead to body image concerns, such as depression, may have influenced responses. These comorbidities limit conclusions regarding whether body image may be the primary concern impacting functioning for all assessed. Additionally, results from the present study are descriptive and cross-sectional, and therefore no causal or temporal associations can be inferred. Longitudinal studies are needed to better understand the relationships between age and body image.

While the sample benefited from assessing sexual orientation, we were not able to examine body image concerns across gender identities, including transgender, gender nonconforming, or non-binary individuals. Body mass index was based on self-reported height and weight, and therefore it is very likely that the link between BMI and body image is not precisely identified due to some degree of measurement error. Additionally, BMI as a metric itself is not without criticism (Gutin, 2018; Nuttall, 2015), meaning that results using this measure should be interpreted with this in mind.

Although the racial diversity of the sample was a strength, sample sizes only permitted comparison of White, Black, Hispanic, and Asian racial groups, limiting the ability to explore body image concerns among groups outside of these categories. While the present study was able to examine the intersection variations within each gender (e.g., racial differences in body image among men), we did not have the sample size to examine more nuanced relationships between multiple social identities that may affect body image (e.g., crossing between gender, sexual orientation, and race), which will be a critical future direction for body image research how the intersections of identities and social factors impact people's experiences. Additionally, the level of acculturation was not assessed, which prevents a more in depth understanding of associations between racial background and body dissatisfaction. Given the diverse identities of participants in the present study, it is possible that participants may have responded to the same questions in distinct ways based on their demographics and lived experiences, which may impact our ability to draw conclusions across groups. Partially mitigating this concern, concurrent research using the same sample as in the present study supports that the body image measures used demonstrate measurement invariance across gender, sexual orientation, race, and weight status (Frederick, Hazzard, Schaefer, Thompson, et al., 2022). However, it is still plausible that differential responding across participants may have impacted the results.

4.3. Clinical and Public Health Implications

This study has potential implications for both body image assessment and intervention and adds to the evidence base for identifying patterns of body image-related concerns and related mental and physical health impacts. A prominent theoretical model for the development of

eating disorders and disordered eating purports sociocultural factors influence body image and eating disturbances (Ata et al., 2015). Thus, as sociocultural factors change, large scale, nationally representative studies need to be regularly conducted to examine cultural trends in putative risk factors for eating disorders. Multiple studies are needed at any given time point because estimates can vary due to sampling error and variation in methods across studies.

While large, national studies can provide helpful information on cultural trends and patterns, it is also important to consider where the boundary is placed in terms of deciding what constitutes a clinically-meaningful effect in large-scale survey studies. It is important that researchers consider how we use this information to make decisions with regards to directing preventative or intervention efforts to ensure we are not overinterpreting our data. The widespread prevalence of body dissatisfaction within the present study is notable and begs consideration regarding whether these data reflect the phenomena of "normative discontent," (Rodin et al., 1984; Tantleff-Dunn et al., 2011) or to levels of body dissatisfaction that impair daily functioning. Considering factors like replication across different samples and studies may be helpful to ensure responsible data interpretation.

The current study provides insights into health disparities across different demographic groups. One concern raised with focusing on group differences is that it can obscure variation within each group. For example, it can be easy for relative difference (men reported higher body satisfaction than women) to be encoded in people's minds as a categorical difference (men are satisfied, women are dissatisfied), causing them to view people on the basis of their category membership rather than their own individual needs and experiences. To help address this concern, we have used truncated frequency distributions to highlight the variability of experiences within each demographic group as well. For example, many men and women report low appearance evaluation, but many men and women also report high appearance evaluation. While keeping this variability within each group in mind, the purpose of this paper was to identify groups that have elevated risks for body dissatisfaction. This can lead to examination of what factors might underly this elevated risk that could be targeted. For example, the pressures on gay men who have poor body image may differ on average from the pressures on heterosexual men who have poor body image, whose pressures differ from heterosexual women. These heightened or different pressures are valuable for clinicians to keep in mind when interacting with people with one or more risk factor for body dissatisfaction.

While caution should be employed in deriving clinical implications from cross-sectional research, results from the present study align with recent research on body image interventions in specific demographic groups. Within the present study, limited differences in body dissatisfaction across age coincide with recent research supporting importance of programs promoting a healthy body image are relevant across the lifespan (Lewis-Smith et al., 2016). Given that the present study and previous research support elevated rates of body dissatisfaction in sexual minority men, developing body image programming specific to this population's unique needs may be useful and has shown initial promise (Brown & Keel, 2015).

While media literacy interventions have found some support (McLean, Wertheim, Marques & Paxton, 2019; Rodgers et al., 2018), interventions involving the addition of warning labels to popular media have generally not been effective in promoting enhanced body image (Danthinne et al., 2020). Exposure to media messages emphasizing that high body mass is not inherently dangerous, uncontrollable, and/or unacceptable to stigmatize have been effective in reducing anti-fat prejudice compared to messages framing high body mass as dangerous, controllable, and/or acceptable to stigmatize (Frederick, Saguy, & Gruys, 2016; Frederick, Saguy, Sandhu & Mann, 2016; Frederick, Tomiyama, et al., 2020; Saguy et al., 2014). Scaling down to the individual level, physical activity, such as participation in yoga, can be beneficial in promoting improved body image (Borden & Cook-Cottone, 2020; Cox, Ullrich-French, Cook-Cottone, Tylka & Neumark-Sztainer, 2020; Halliwell, Jarman, Tylka & Slater, 2018).

4.4. Conclusions

A key finding from this study is that no demographic group was immune to negative body image. We suggest that a critical next step in body image research is to examine the sociocultural pressures that shape body image satisfaction in these groups, and to specifically design measures that assess body image concerns that may vary across these groups, such as concern with hair and skin tone (Harper & Choma, 2019), as well as facial features (Frederick & Kelly et al., 2016). The one demographic factor that was strongly related to body image was weight status (body mass), with many Medium and High BMI men and women expressing body image dissatisfaction – a topic that should continue to be investigated in future research.

Identifying factors that promote body satisfaction is critical because of its link to better mental health, higher self-esteem, and engagement in fewer unhealthy dieting behaviors, and more positive health-related behaviors (Gillen, 2015). Encouragingly, some proportion of every demographic group reported satisfaction with their appearance, and across the High BMI range, 20%– 40% of men and women reported that their feelings about their body had a positive effect on their quality of life. Our findings underscore the importance of identifying the factors that enable some people to maintain positive body image (Tylka & Wood-Barcalow, 2015; Wood-Barcalow et al., 2010) and greater body appreciation (Alleva, Paraskeva, Craddock & Diedrichs, 2018; Homan & Tylka, 2018).

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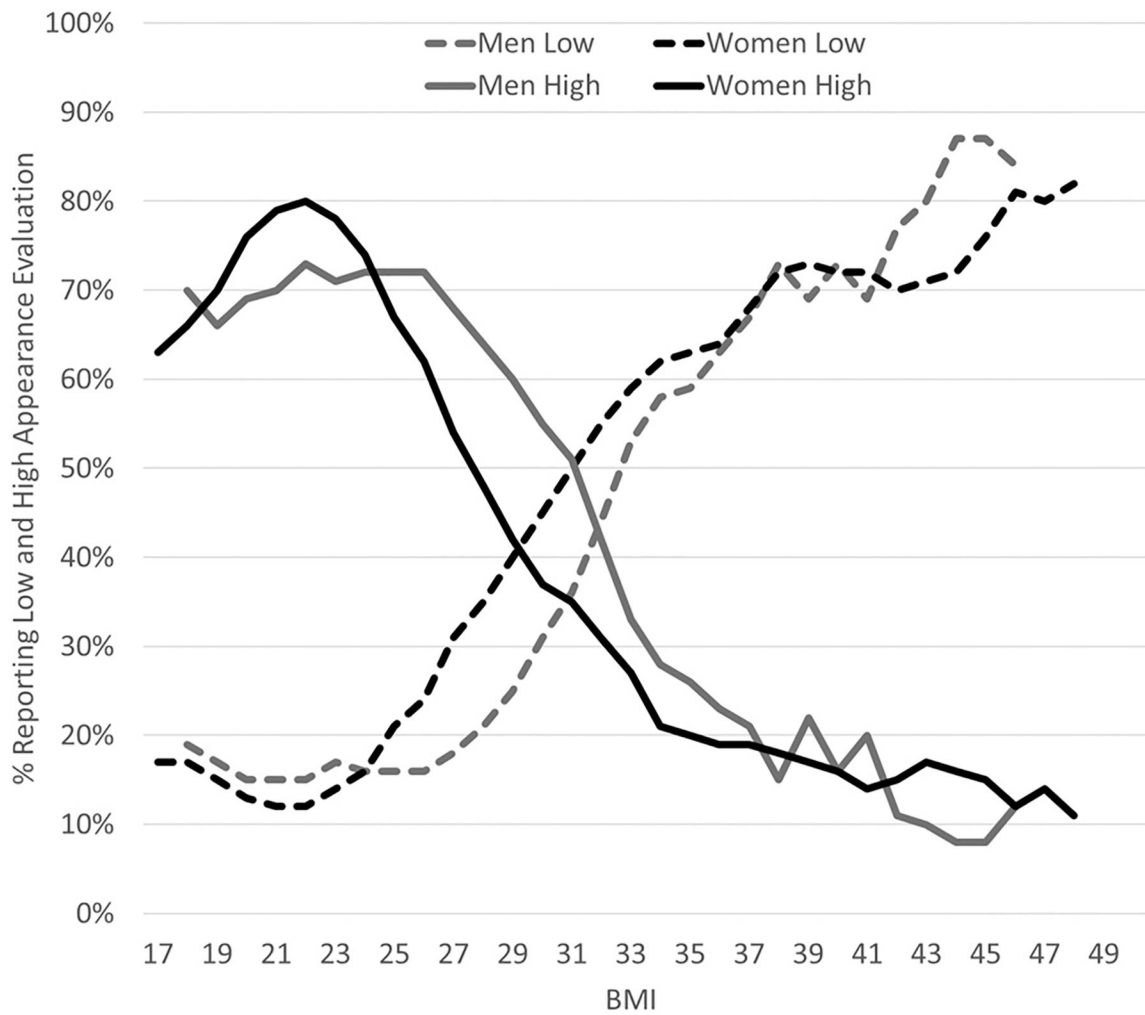
Fig. 1. The Percentage of Men and Women Reporting Low or High Appearance Evaluation By BMI.

Note. The darker lines represent women and the lighter lines represent men. BMI was strongly associated with likelihood of reporting low (1.00–2.74) and high (3.26–5.00) appearance evaluation on the Likert scale. High appearance evaluation was reported by a majority of women with BMIs 17–27 and men with BMIs 17–31. Low appearance evaluation was reported by a majority of women with BMIs above 31 and men with BMIs above 32. The values represent moving averages. Only cells with at least 20 participants are plotted.
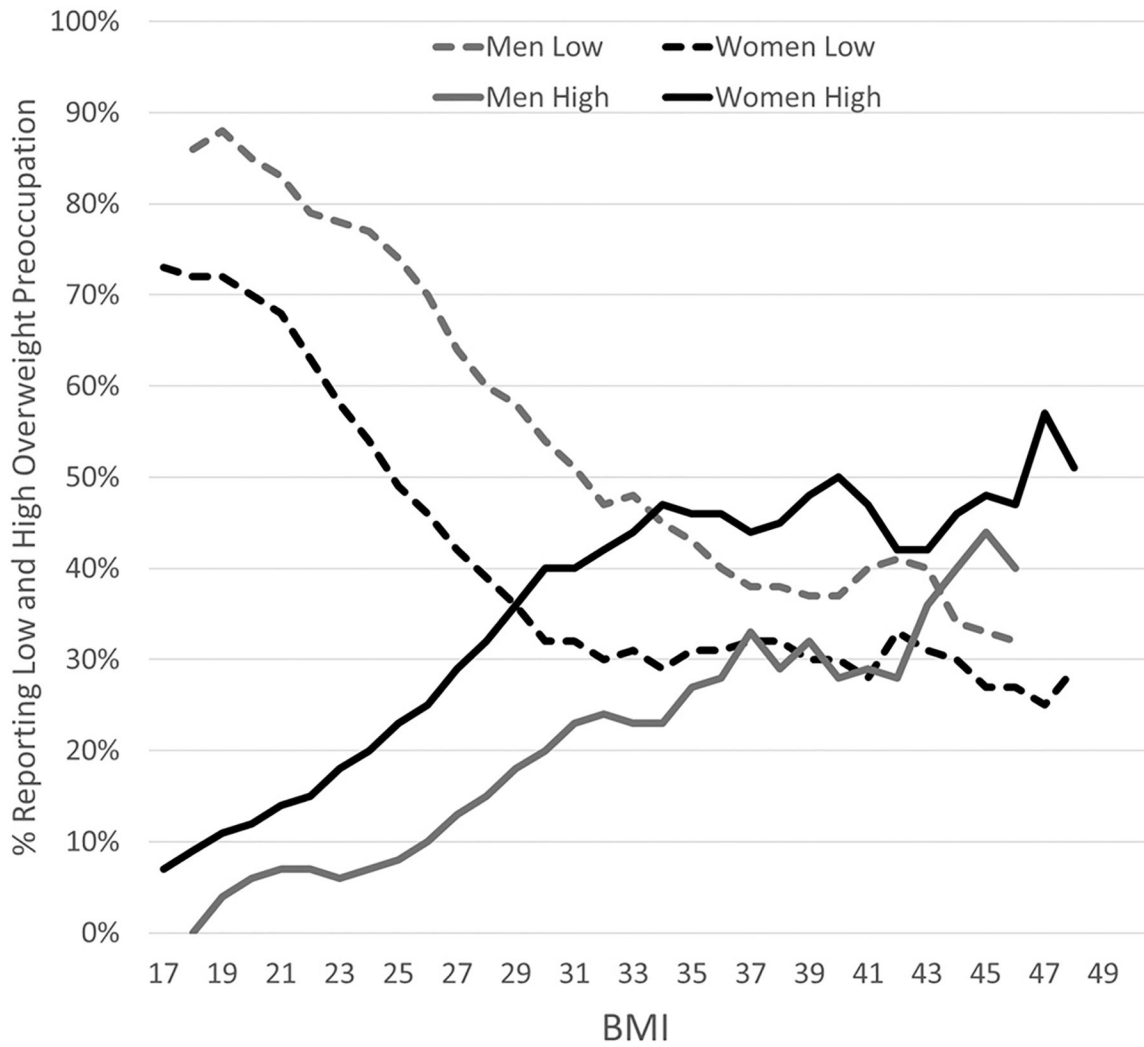
Fig. 2. The Percentage of Men and Women Reporting Low or High Overweight Preoccupation By BMI.

Note. The darker lines represent women and the lighter lines represent men. BMI was strongly associated with likelihood of reporting low (1.00–2.74) and high (3.26–5.00) overweight preoccupation on the Likert scale. High overweight preoccupation was reported by over one-fourth of women of women with BMIs above 27 and men with BMIs above 34. The values represent moving averages. Only cells with at least 20 participants are plotted.
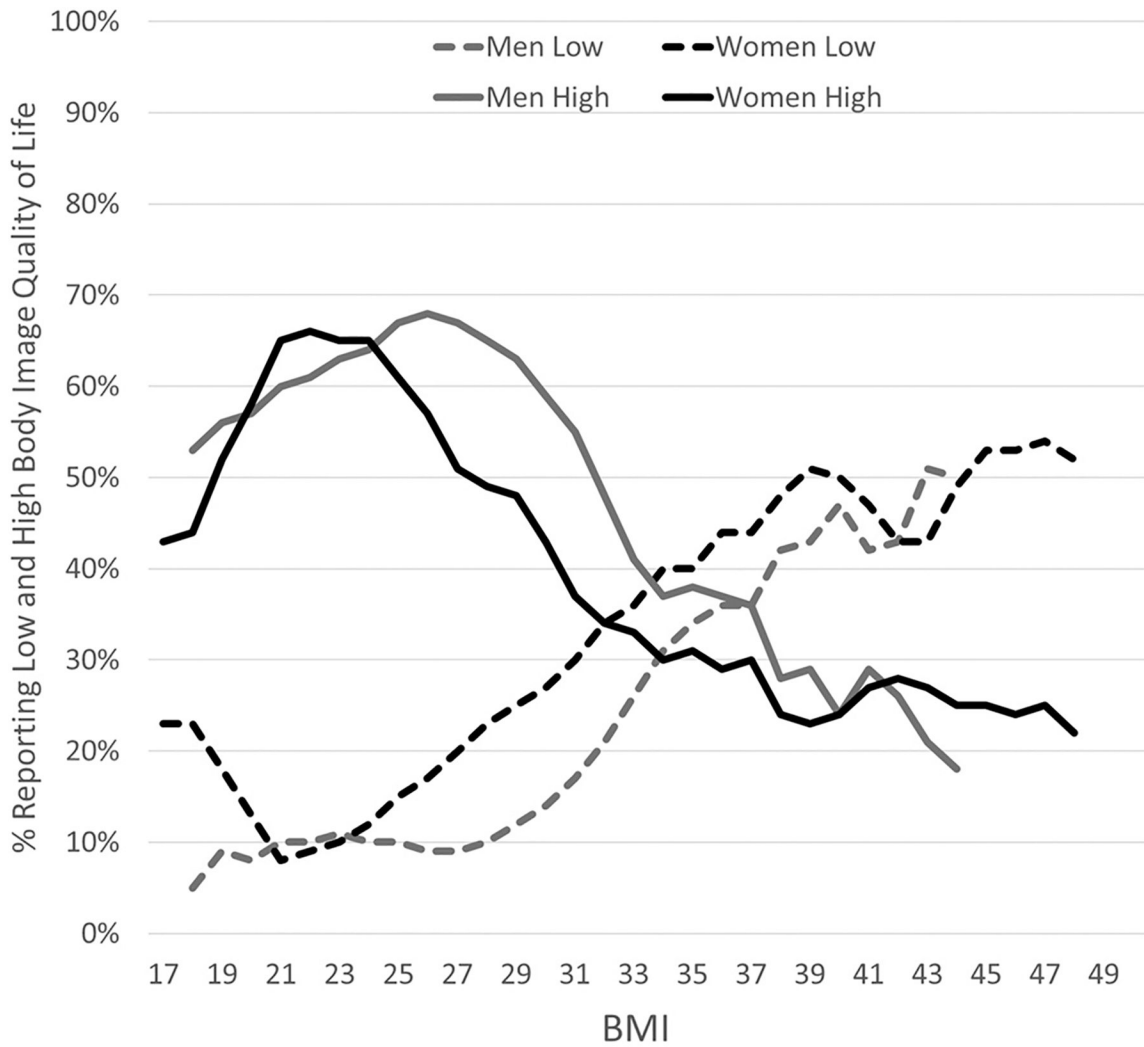
Fig. 3. The Percentage of Men and Women Reporting Low or High Body Image Quality of Life By BMI.

Note. The darker lines represent women and the lighter lines represent men. BMI was strongly associated with likelihood of reporting negative (low: 1.00–3.49) and positive (high: 4.51–7.00) effects of body image on quality of life on the Likert scale. Overall negative effects of body image were reported by over one-fourth of women with BMIs above 29 and men with BMIs above 32. Overall positive effects of body image were reported by over half of women with BMIs 19–27 and men with BMIs 18–31. The values represent moving averages. Only cells with at least 20 participants are plotted.

Table 1

Demographics.

Demographics	Overall	Men	Women	Demographics	Overall	Men	Women
Age (*M, SD*)	34.1 (10.7)	33.0 (10.0)	34.1 (10.7)	Hours Worked (*M, SD*)	33.1 (15.6)	36.1 (14.4)	33.1 (15.6)
Years in U.S. (*M, SD*)	33.1 (11.3)	32.0 (10.5)	33.1 (11.3)	BMI (*M, SD*)	27.6 (6.3)	27.5 (5.6)	27.6 (6.3)
Gender (%, *N*)				Education (%, *N*)			
Men	45.6 (5293)	—	—	Some High School or Less	0.6 (74)	0.5 (28)	0.7 (46)
Women	54.4 (6327)	—	—	High School Degree	9.1 (1052)	9.8 (518)	8.4 (534)
Race (%, *N*)				Some College	32.3 (3749)	32.5 (1718)	32.1 (2031)
White	75.2 (8742)	74.5 (3945)	75.8 (4797)	College Degree	44.2 (5131)	43.7 (2311)	44.6 (2820)
Hispanic	4.0 (470)	5.0 (265)	3.2 (205)	Advanced Degree	13.9 (1614)	13.6 (718)	14.2 (896)
Black	6.7 (774)	5.6 (297)	7.5 (477)	Orientation (%, *N*)			
Asian	6.1 (714)	7.0 (370)	5.4 (344)	Heterosexual	88.3 (10264)	92.0 (4869)	85.3 (5395)
Indian	0.3 (34)	0.3 (16)	0.3 (18)	Gay or Lesbian	3.5 (407)	3.7 (194)	3.4 (213)
Native American	0.5 (55)	0.5 (26)	0.5 (29)	Bisexual	6.8 (792)	3.7 (194)	9.5 (598)
Pacific Islander	0.1 (16)	0.1 (6)	0.2 (10)	Asexual	0.5 (56)	0.2 (9)	0.7 (47)
White-Hispanic	1.9 (225)	2.0 (108)	1.8 (117)	Other	0.9 (101)	0.5 (27)	1.2 (74)
White-Black	0.8 (90)	0.5 (29)	1.0 (61)	BMI (%, *N*)			
White-Asian	1.0 (119)	1.0 (54)	1.0 (65)	Lowest BMI (Underweight)	1.6 (190)	1.2 (64)	2.0 (126)
White-Middle Eastern	0.9 (110)	0.9 (45)	1.0 (65)	Low BMI (Normal Weight)	39.0 (4535)	36.2 (1918)	41.4 (2617)
Other	2.3 (271)	2.3 (132)	2.2 (139)	Medium BMI (Overweight)	31.3 (3632)	36.8 (1947)	26.6 (1685)
In College (%, *N*)	17.4 (2021)	18.7 (988)	16.3 (1033)	High I BMI (Obese I)	15.1 (1755)	15.4 (815)	14.9 (940)
Born In U.S. (%, *N*)	94.0 (10923)	94.1 (4981)	93.9 (5942)	High II BMI (Obese II)	7.2 (840)	6.5 (343)	7.9 (497)
				High III BMI (Obese III)	5.7 (668)	3.9 (206)	7.3 (462)

Table 2

(a) Multiple Regression Analyses Predicting Body Image Outcomes.

	Appearance Evaluation			Overweight Preoccupation			Body Image Quality of Life		
	All	Men	Women	All	Men	Women	All	Men	Women
	β	β	β	β	β	β	β	β	β
Gender	−0.13 ***	—	—	.47 ***	—	—	−.18 ***	—	—
BMI	−0.50 ***	−.46 ***	−.60 ***	.43 ***	.49 ***	.46 ***	−.32 ***	−.28 ***	−0.39 ***
BMI²	.01 *	−.00	.08 ***	−0.09 ***	−.03 **	−.13 ***	−.01	.00	.04 ***
Age	−0.02 *	−.01	−.01	−0.10 ***	−.11 ***	−.11 ***	.03 ***	.01	.06 ***
Education	.05 ***	.03 **	.06 ***	.03 **	.05 **	.02	.04 ***	.06 ***	.03 **
Hispanic	.13 **	.08	.20 **	.08	.09	.11	.20 ***	.24 ***	.16 *
Black	.46 ***	.48 ***	.46 ***	−0.20 ***	−.08	−.27 ***	.37 ***	.42 ***	.35 ***
Asian	−0.21 ***	−.21 ***	−.24 ***	.05	.10 *	.02	−.05	−.06	−0.07
Other Race	.07 *	.08	.07	.01	.05	−.02	.02	.04	.00
Gay/Lesbian	−0.13 **	−.25 ***	−.04	.06	.39 ***	−.23 ***	−.26 ***	−.41 ***	−0.13
Bisexual	−0.07 *	−.27 ***	−.00	−0.01	.13	−.06	−.23 ***	−.30 ***	−.19 ***
Other Orientation	−0.14 *	−.33 *	−.08	−0.31 ***	−.16	−.36 ***	−.33 ***	−.33 *	−.31 ***
Adjusted. R²	.26 ***	.22 ***	.29 ***	.18 ***	.15 ***	.14 ***	.13 ***	.11 ***	.14 ***
F	334.7	135.4	233.2	206.6	83.0	91.9	147.4	59.1	92.9
df	12, 11607	11, 5281	11, 6315	12, 11607	11, 5281	11, 6315	12, 11607	11, 5281	11, 6315

(b) Multiple Regression Analyses Predicting Body Image Outcomes.

	OP: I Am On A Weight Loss Diet			OP: Try Lose Weight By Fasting/Crash Diets		
	All	Men	Women	All	Men	Women
	β	β	β	β	β	β
Gender	.25 ***	—	—	.35 ***	—	—
BMI	.41 ***	.44 ***	.45 ***	.36 ***	.39 ***	.37 ***
BMI²	−.10 ***	−.03 ***	−.14 ***	−.07 ***	−.02 ***	−.07 ***
Age	−.05 ***	−.07 ***	−.05 ***	−.08 ***	−.10 ***	−.07 ***

(b) Multiple Regression Analyses Predicting Body Image Outcomes.

	OP: I Am On A Weight Loss Diet			OP: Try Lose Weight By Fasting/Crash Diets		
	All	Men	Women	All	Men	Women
	β	β	β	β	β	β
Education	−.04 ***	.04 **	.05 ***	−.01	.01	−.01
Hispanic	−.01	.05	−.05	.05	.05	.06
Black	−.21 ***	−.15 **	−.25 ***	−.10 **	−.05	−.12 **
Asian	.04	.06	.05	.09 *	.14 **	.04
Other Race	−.06	.00	−.10 *	.05	.01	.07
Gay/Lesbian	.02	.20 **	−.15 *	.06	.27 ***	−.11
Bisexual	−.05	.12	−.09 *	.01	.07	−.01
Other Orientation	−.26 ***	−.23	−.26 **	−.22 **	.0	−.28 **
Adjusted. R^2	.13 ***	.12 ***	.13 ***	.12 ***	.09 ***	.10 ***
F	144.1	64.2	83.6	129.2	46.2	63.8
df	12, 11607	11, 5281	11, 6315	12, 11607	11, 5281	11, 6315

	OP: I Constantly Worry About Fat			OP: Very Conscious of Small Changes Weight		
	All	Men	Women	All	Men	Women
	β	β	β	β	β	β
Gender	.42 ***	–	–	.45 ***	–	–
BMI	.41 ***	.48 ***	.44 ***	.17 ***	.22 ***	.18 ***
BMI²	−.08 ***	−.03 ***	−.13 ***	−.05 ***	−.02 ***	−.07 ***
Age	−.13 ***	−.14 ***	−.15 ***	−.05 ***	−.04 *	−.08 ***
Education	.03 ***	.07 ***	.02	.01	.03 *	.01
Hispanic	.14 **	.11	.20 **	.09	.05	.15 *
Black	−.21 ***	−.11 *	−.28 ***	−.09 *	.07	−.19 ***
Asian	.13 **	.15 ***	.13 *	−.09 *	−.03	−.15 **
Other Race	.04	.08	.01	.01	.04	−.02
Gay/Lesbian	.07	.41 ***	−.23 ***	.04	.33 ***	−.21 **
Bisexual	.00	.13	−.04	.00	.08	−.04
Other Orientation	−.25 **	−.10	−.31 ***	−.24 **	−.16	−.29 **

(b) Multiple Regression Analyses Predicting Body Image Outcomes.

	OP: I Am On A Weight Loss Diet			OP: Try Lose Weight By Fasting/Crash Diets		
	All	**Men**	**Women**	**All**	**Men**	**Women**
	β	β	β	β	β	β
Adjusted. R²	.16 ***	.16 ***	.13 ***	.07 ***	.03 ***	.03 ***
F	187.7	89.2	84.9	72.7	15.7	17.0
df	12, 11607	11, 5281	11, 6315	12, 11607	11, 5281	11, 6315

Note.

***
$p < .001$,

**
$p < .01$,

*
$p < .05$.

OP: Overweight Preoccupation; BIQLI: Body Image Quality of Life Inventory.

Table 3

Prevalence of Low, Neutral, and High Scores on Body Image Measures.

	Men					Women					
	Disagree %	Neutral %	Agree %	M	SD	Disagree %	Neutral %	Agree %	M	SD	Vs. d
Appearance Evaluation	30	13	57	3.28	0.92	36	13	51	3.14	0.99	0.15 ***
Overweight Preoccupation	62	23	15	2.32	0.95	45	25	30	2.78	1.02	−0.47 ***
Constantly worry about fat	53	16	31	2.60	1.30	37	14	49	3.15	1.35	−0.41 ***
Conscious small change weight	50	16	34	2.69	1.29	32	13	55	3.27	1.33	−0.44 ***
I am on a weight loss diet	69	12	19	2.12	1.25	59	14	27	2.45	1.37	−0.25 ***
Try lose weight by fasting or crash diets	75	17	7	1.85	1.01	63	22	15	2.23	1.17	−0.35 ***
	Negative %	None %	Positive %	M	SD	Negative %	None %	Positive %	M	SD	Vs. d
Body Image Quality of Life	16	27	57	4.66	1.15	24	27	49	4.43	1.24	0.19 ***

Note.

*** $p < .001$,

** $p < .01$,

* $p < .05$.

[†] These two items were not reverse coded for this analysis (e.g., high scores indicate agreeing that I am physically unattractive). Frequency distributions are provided to show the percentage of men and women who scored on the low, neutral, or high end of each body image measure. For example, 30% of men reported low appearance evaluation with responses systematically below the midpoint of the Likert scale (1–2.74 out of 5.0). Means and standard deviations for each sex are presented. Effect size d and statistical significance for differences between men and women are shown in the last column. A positive effect size indicates that men scored higher on the measure than women (e.g., men reported higher appearance evaluation, $d = 0.15$). A negative effect indicates that men scored lower on the measure than women (e.g, men reported lower preoccupation with weight, $d = -0.47$).

Table 4

Prevalence of Low Appearance Evaluation, High Weight Preoccupation, and Negative Effects of Body Image.

	White %	Hispanic %	Black %	Asian %	Lowest BMI %	Low BMI %	Medium BMI %	High BMI I %	High BMI II %	High BMI III %
Low Appearance Evaluation	32 (39)	27 (25)	15 (26)	26 (31)	27 (22)	16 (15)	22 (37)	52 (59)	68 (70)	84 (75)
High Overweight Preoccupation	15 (31)	19 (35)	13 (25)	13 (27)	05 (12)	08 (19)	15 (33)	24 (44)	30 (48)	31 (45)
Constantly worry about fat	31 (49)	36 (63)	28 (42)	31 (48)	13 (25)	18 (37)	32 (53)	46 (62)	57 (66)	60 (64)
Conscious small change weight	34 (56)	35 (62)	39 (50)	31 (46)	28 (41)	28 (51)	36 (59)	41 (59)	38 (56)	42 (57)
I am on a weight loss diet	19 (28)	19 (26)	14 (22)	15 (23)	05 (10)	08 (15)	20 (32)	29 (42)	35 (42)	38 (42)
Try lose weight fasting/crash diets	07 (15)	10 (17)	08 (12)	08 (11)	05 (06)	04 (09)	07 (14)	11 (21)	17 (26)	15 (29)
Negative Body Image Quality Life	17 (25)	10 (20)	10 (21)	15 (18)	14 (24)	10 (11)	11 (23)	27 (37)	39 (47)	49 (49)

	Hetero. %	Gay/Les %	Bisexual %	Other %	Lowest BMI % 18–24 %	Low BMI % 25–29 %	Medium BMI % 30–39 %	High BMI I % 40–49 %	High BMI II % 50–65 %	High BMI III %
Low Appearance Evaluation	29 (36)	39 (37)	40 (39)	– (44)	24 (32)	30 (31)	29 (39)	35 (39)	34 (42)	
High Overweight Preoccupation	15 (30)	24 (25)	20 (34)	– (18)	15 (31)	18 (31)	15 (32)	15 (28)	09 (27)	
Constantly worry about fat	30 (49)	52 (40)	38 (53)	– (38)	32 (53)	33 (51)	32 (50)	34 (47)	20 (42)	
Conscious small change weight	33 (55)	48 (48)	35 (56)	– (45)	32 (54)	34 (57)	35 (56)	36 (51)	29 (54)	
I am on a weight loss diet	18 (28)	27 (21)	24 (27)	– (21)	17 (24)	19 (25)	19 (30)	20 (28)	19 (28)	
Try lose weight fasting/crash diets	07 (15)	12 (12)	09 (14)	– (14)	07 (17)	10 (15)	07 (15)	06 (14)	03 (11)	
Negative Body Image Quality Life	15 (23)	30 (25)	24 (31)	– (30)	14 (25)	15 (22)	16 (25)	23 (25)	17 (23)	

Note. The first number indicates the percentage of men with poor body image and the number in parentheses represents women (e.g., "low" appearance evaluation, 1.00–2.74; "high" overweight preoccupation, 3.26–5.00; "low" body image quality of life, 1.00–3.49). For example, 32% of White men (and 39% of White women) reported overall low appearance evaluation. Data is shown for cells with at least 40 participants.

Table 5

Racial and Sexual Orientation Differences in Body Image Outcomes.

	Appearance Evaluation		Overweight Preoccupation		Body Image Quality of Life	
	Men	Women	Men	Women	Men	Women
Race						
White M (SD)	3.24 (0.92)	3.09 (0.99)	2.32 (0.95)	2.80 (1.02)	4.60 (1.15)	4.38 (1.22)
Hispanic M (SD)	3.34 (0.89)	3.35 (0.98)	2.40 (0.98)	2.92 (1.01)	4.89 (1.13)	4.59 (1.21)
Black M (SD)	3.69 (0.88)	3.46 (1.04)	2.24 (0.91)	2.61 (1.04)	5.09 (1.18)	4.73 (1.35)
Asian M (SD)	3.30 (0.85)	3.27 (0.92)	2.25 (0.92)	2.60 (1.05)	4.75 (1.06)	4.60 (1.24)
Racial Comparisons White vs. Hispanic d	−0.11	−0.26 ***	−0.08	−0.12	−0.25 ***	−0.17 *
White vs. Black d	−0.49 ***	−0.37 ***	0.08	0.19 ***	−0.43 ***	−0.28 ***
White vs. Asian d	−0.07	−0.18 **	0.07	0.20 ***	−0.13 *	−0.18 **
Hispanic vs. Black d	−0.40 ***	−0.11	0.17 *	0.30 ***	−0.17 *	−0.11
Hispanic vs. Asian d	0.05	0.08	0.16 *	0.31 ***	0.13	−0.01
Black vs. Asian d	0.45 ***	0.19 **	−0.01	0.01	0.30 ***	0.10
Sexual Orientation						
Heterosexual M (SD)	3.30 (0.91)	3.15 (0.99)	2.30 (0.94)	2.78 (1.02)	4.69 (1.14)	4.48 (1.24)
Gay/Lesbian M (SD)	3.09 (0.99)	3.08 (1.00)	2.66 (0.99)	2.60 (1.03)	4.22 (1.19)	4.27 (1.10)
Bisexual M (SD)	3.00 (0.95)	3.06 (1.00)	2.45 (0.99)	2.84 (1.04)	4.27 (1.15)	4.11 (1.20)
Sexual Orientation Comparisons Heterosexual vs. Gay/Lesbian d	0.23 **	0.07	−0.38 ***	0.18 *	0.41 ***	0.17 *
Heterosexual vs. Bisexual d	0.33 ***	0.09 *	−0.16 *	−0.06	0.37 ***	0.30 ***
Gay/Lesbian vs. Bisexual d	0.09	0.02	0.21 *	−0.23 **	−0.04	0.14

Note.

***
$p < .001$,

**
$p < .01$,

*
$p < .05$.

Means and standard deviations for each group are presented. Effect size d and statistical significance for differences between each group are shown. A positive effect size indicates that the first group listed scored higher than the second group (e.g., Black men reported higher appearance evaluation than White men, $d = 0.45$). A negative effect size indicates the first group listed scored lower than the second group listed (White men reported lower overall appearance evaluation than Black men, $d = −0.49$).