3-4-2022

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Recommended Citation

Frederick, D. A., Tylka, T. L., Rodgers, R. F., Convertino, L., Pennesi, J. L., Parent, M. C., Brown, T. A., Compte, E. J., Cook-Cottone, C. P., Crerand, C. E., Malcarne, V. L., Nagata, J. M., Perez, M., Pila, E., Schaefer, L. M., Thompson, J. K., & Murray, S. B. (2022). Pathways from sociocultural and objectification constructs to body satisfaction among men: The U.S. Body Project I. *Body Image, 41*, 84–96. https://doi.org/10.1016/j.bodyim.2022.01.018

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HHS Public Access

Author manuscript

Body Image. Author manuscript; available in PMC 2023 June 01.

Published in final edited form as:

Body Image. 2022 June ; 41: 84–96. doi:10.1016/j.bodyim.2022.01.018.

Pathways from sociocultural and objectification constructs to body satisfaction among men: The U.S. Body Project I

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Author statement

The first author completed the Conceptualization, Methodology. The next three authors took the lead on writing and data analyses. All authors engaged in the writing, and made suggestions for interpreting and enhancing the Formal analysis. Along with the first author, the last authors engaged in Supervision. The first author was primarily involved with Funding acquisition (grant PI).

Conflict of interest statement

There are no conflicts of interest.

Abstract

According to the tripartite influence model, body dissatisfaction is shaped by internalizing cultural appearance ideals stemming from appearance-related family, peer, and media pressures. This model was developed for women, but emerging evidence points to its relevance for men's body image. This study advanced this budding research by (a) integrating muscular-ideal internalization alongside lean-ideal internalization and body surveillance into the model, (b) examining two positive dimensions of body image as outcomes (body image quality of life and appearance evaluation), and (c) testing this model in national online sample of 5293 men. Structural equation modeling supported the model. Family, peer, and media pressures related to higher lean-ideal internalization, which related to higher body surveillance and poorer body image outcomes. Peer and media pressures related to higher muscular-ideal internalization, which related to higher body surveillance but more adaptive body image outcomes. We further examined whether model variables and paths differed based on men's body mass index (BMI). Men with higher BMIs evidenced a stronger path between body surveillance and body image outcomes. These findings highlight the usefulness of sociocultural models for understanding men's body image experiences.

Keywords

Tripartite influence model; Objectification theory; Body image quality of life; Appearance evaluation; Body mass index; Men

1. Introduction

Research interest in men's body image and related eating pathology has increased exponentially in the last two decades (Frederick, Buchanan, et al., 2007; Frederick & Essayli, 2016; McCreary & Sasse, 2000; Mitchison, Mond, Slewa-Younan, & Hay, 2013; Murray et al., 2017; Pope, Phillips, & Olivardia, 2000; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011). National studies have found that many men are dissatisfied with their muscularity, physical appearance, and/or weight (Fallon, Harris, & Johnson, 2014; Frederick & Essayli, 2016; Frederick et al., 2020; Frederick, Lever, and Peplau (2007), Frederick, Sandhu, Morse, & Swami, 2016). This is concerning because men who are dissatisfied with their bodies report poorer physical quality of life and self-esteem, greater depression and anxiety (Griffiths et al., 2016; Wilson, Latner, & Hayashi, 2013). Furthermore, body image concerns among men have increasingly been implicated in risky behaviors, such as use of anabolic steroids (Pope, Khalsa, & Bhasin, 2017). Of note, most research on men's body image has been conducted with predominantly White, cisgender, heterosexual, young adult samples and the extent to which the findings extend to other groups of men is uncertain.

The negative consequences of poor body image has led researchers to investigate explanatory mechanisms for the development and maintenance of poor body image in men, with the goal of informing prevention and treatment interventions. In contrast to women's pursuit of the thin ideal (Swami, 2015; Swami et al., 2010), men are often focused on achieving the mesomorphic ideal that emphasizes defined muscularity coupled with low body fat or leanness (Gray & Frederick, 2012; McCreary & Sasse, 2000; Pope et al.,

2000). Men who strive for the mesomorphic ideal often engage in unhealthy muscle-building behaviors such as alternating phases of food overconsumption and restriction, as well as compulsive exercise (Murray, Griffiths, & Mond, 2016; Murray, Griffiths, Rieger, & Touyz, 2014). Although research on men's body image has increased, most theoretical models of body dissatisfaction have been developed for and evaluated with samples of adolescent girls and women (e.g., Stice, 2001; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). As a result, these models primarily examine thinness-based body image concerns and rarely address the dual leanness- and muscularity-based concerns that are the hallmark of men's body dissatisfaction.

The present study integrated two widely applied models of body image — the tripartite influence model and a model derived from objectification theory — to explore sociocultural pressures and endorsement of the lean and muscular ideals as they related to body image outcomes among a sample of men. This study is novel in that it relies on a national sample of adult men and examines how the factors related to men's body image vary according to men's body mass index (BMI).

1.1. Sociocultural models of body image

1.1.1. The tripartite influence model applied to men—

One of the most well-studied models of body dissatisfaction is the tripartite influence model (Thompson, Coovert, & Stormer, 1999; Thompson, Heinberg, et al., 1999). This sociocultural model posits that body dissatisfaction emerges from the internalization of cultural messages and pressure related to appearance, and the negative impacts of these beliefs. In its original form, this model focused on ways in which specific socializing agents — family members, peers, and mass media — promote thinness as the ideal. Appearance-related pressures to be thin from these societal agents encourages people to internalize (or adopt) these appearance ideals as their own personal standards for attractiveness. Given that the thin-ideal is unachievable for most individuals through healthy means, the pursuit of the thin-ideal is often accompanied by body dissatisfaction when the ideal is not met that then motivates individuals to engage in disordered eating and other unhealthy behaviors, with the goal of modifying shape and weight.

The tripartite influence model has garnered much empirical support among women (Girard, Rodgers, & Chabrol, 2018; Johnson, Edwards, & Gidycz, 2015; Keery, van den Berg, & Thompson, 2004; Rodgers, Chabrol, & Paxton, 2011). While it was originally developed for and tested in samples of women, extended and revised versions of this model have been applied to body image concerns in samples of men (Karazsia & Crowther, 2009, 2010; Rodgers, Ganchou, Franko, & Chabrol, 2012; Smolak, Murnen, & Thompson, 2005; Tylka, 2011; Tylka & Andorka, 2012). Rather than a focus on thinness-related social pressure and thin-ideal internalization as in the original model, some researchers have focused on social pressures to be lean and muscular (Tylka, 2011; Tylka & Andorka, 2012), and social encouragement to exercise (Karazsia & Crowther, 2009, 2010). Popular media representations often feature men who are simultaneously lean (i.e., have low body fat) and muscular (Burch & Johnsen, 2020; Frederick, Fessler, & Haselton, 2005); research has

found that lean- ideal and muscular-ideal internalization are linked to these social pressures (Karazsia & Crowther, 2009, 2010; Tylka, 2011; Tylka & Andorka, 2012).

These dual pressures — leanness and muscularity — have led researchers to include two body image pathways in models examining men's body dissatisfaction: one path emphasizing dissatisfaction with body fat (associated with the desire to be lean) and the other path emphasizing dissatisfaction with muscularity (associated with the desire to be more muscular; Rodgers et al., 2012; Tylka, 2011; Tylka & Andorka, 2012). Such dual-path models represent an improvement over single-path models because they represent the two emphases of the mesomorphic ideal (i.e., low body fat, high muscularity). Research has found that muscularity dissatisfaction and body fat dissatisfaction are independently associated with psychological well-being in samples of men (Bergeron & Tylka, 2007; Blashill, 2010; Klimek, Murray, Brown, Gonzales, & Blashill, 2018), and therefore both constructs are important to consider in models for the development of men's body image.

1.1.2. Objectification theory applied to men—Another prominent and extensively researched sociocultural model for the development of body image concerns is objectification theory (Fredrickson & Roberts, 1997), which posits that sexual objectification occurs when individuals are reduced to their bodies to be used by others. Since this process has been historically enacted principally towards women, the perception in society is that the value of women is based on their physical appearance. Women then internalize this perspective of themselves as valued for their appearance through a process called "self-objectification." Self-objectification is behaviorally manifested through routine self-monitoring for flaws in appearance, or in contrast, conformity to appearance ideals and expectations. This process, referred to body surveillance, can result in body shame, lower evaluation of appearance, and eventually eating pathology and other negative mental health outcomes (Fredrickson & Roberts, 1997; McKinley & Hyde, 1996).

While this theory hinges on the concept that women hold a particular, objectified position in society, research has shown that men are subjected to scrutiny based on appearance, thus rendering objectification theory a relevant framework for exploring body image among men (Ricciardelli, Clow, & White, 2010). Nevertheless, clear gender-differences exist in terms of the extent and intensity of objectification (Strelan & Hargreaves, 2005); men are much less likely to be viewed solely as sexual objects to be used for pleasure. Furthermore, the hypothesized consequences of being sexually objectified, such as sexual assault, while occurring across genders, are faced much more by women than by men (Hines, Armstrong, Reed, & Cameron, 2012).

However, it is clear that boys and men regularly face appearance-related pressures, which could impact their body image and body-related behaviors. Indeed, the extent to which adolescent boys reported appearance-related social pressures via watching pornography was linked to their body surveillance through internalization of societal appearance ideals (Vandenbosch & Eggermont, 2013). It may be worthwhile, then, to explore whether body surveillance should be included in more complex models of men's body image, such as the tripartite model. One social pressure faced by men is that people evaluate them based on their physical appearance when choosing both long and short-term partners (Frederick

& Haselton, 2007; Gallup & Frederick, 2010; Li & Kenrick, 2006). In parallel, many men report that being more attractive to potential romantic partners is one of the reasons they wish to become more muscular (Frederick, Buchanan et al., 2007). Lean and muscular male body types are routinely held up as more prestigious in popular media (Burch & Johnsen, 2020; Frederick et al., 2005; Morrison & Halton, 2009), in toys like GI Joe (Baghurst, Hollander, Nardella, & Haff, 2006; Pope, Olivardia, Gruber, & Borowiecki, 1999), and in video game characters (Martins, Williams, Ratan, & Harrison, 2011). Furthermore, men who are high in body fat can be the target of appearance-based teasing in popular media (Ata & Thompson, 2010). Consequently, many boys report being teased about their weight, which is linked to poorer mental health in the short-term (Eisenberg, Neumark-Sztainer, & Story, 2003) and with body dissatisfaction and eating as a way to cope in adulthood (Puhl et al., 2017).

Many men associate being muscular and athletic with feeling more masculine (Frederick, Buchanan, et al., 2007; Luciano, 2007), and feel pressure to display strength or aggression when their masculinity or safety is threatened (Bosson & Vandello, 2011; Frederick et al., 2017; Geary, Winegard, & Winegard, 2016; Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986; Winegard, Winegard, & Geary, 2014). Men who are tough and formidable may also be judged more favorably as potential coalitional partners (i.e., allies, friends) by other men, particularly when under threat from other individuals or groups (Gul & Uskul, 2020). Men who appear more formidable are seen as better leaders (Lukaszewski, Simmons, Anderson, & Roney, 2015), more attractive to some women who live in dangerous environments (Snyder et al., 2011), and are in a position to display behavioral dominance (Sell, Hone, & Pound, 2012).

We highlight these findings to emphasize the fact that men face scrutiny over their appearance for multiple reasons, from both men and women, with important social consequences. As a result, many men may engage in surveillance of their appearance and develop concern about how their appearance is judged. For example, one study of college students found that 25% of men and 43% of women have high levels of body surveillance (Frederick, Forbes, Grigorian, & Jarcho, 2007), with similar results in the current national dataset (26% vs. 41%; Frederick, Pila, et al., 2022). Some studies have found that body surveillance has similar links to overall evaluation of appearance for men as for women (rs = −0.17 vs. −0.18; Frederick, Forbes, et al., 2007). Men with higher body surveillance report more excessive muscle building behavior, drive for muscularity, and drive for thinness in some studies (Davids, Watson, & Gere, 2019; Hallsworth, Wade, & Tiggemann, 2005; Heath, Tod, Kannis-Dymand, & Lovell, 2016; Martins, Tiggemann, & Kirkbride, 2007). Other studies, however, have found that body surveillance was not a predictor of men's drive for muscularity (Daniel & Bridges, 2010; Parent & Moradi, 2011). Further research is thus warranted, in particular to explore differential relationships between body surveillance and body image in men depending on the outcome of interest.

1.2. Integrated sociocultural model of body image

Notable similarities exist in the tripartite and objectification models of the development of body image concerns, and as such they are often viewed as compatible theories

(Fitzsimmons-Craft, 2011). Indeed, researchers have recently noted that social comparison from the tripartite model and body surveillance from objectification theory can be considered manifestations of how internalization of cultural ideals and objectification experiences are enacted in the individual (Fitzsimmons-Craft, 2011; Moradi, 2010). One of the items in the commonly used Body Surveillance subscale of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996) even explicitly assesses social comparison (i.e., "I rarely compare how I look with how other people look"). Both social comparison and body surveillance serve individuals in judging their own appearance against the cultural ideal.

Given these important commonalities, initial work has been conducted to integrate the tripartite and objectification theories. For instance, the tripartite influence model has been adapted to include body surveillance (Fitzsimmons-Craft et al., 2012, 2014); however, this integrated model has yet to be investigated among men. Consistent with this integrative model, and in line with prior research showing some men have high levels of body surveillance that is linked to body image issues (e.g., Frederick, Forbes, et al., 2007; Frederick, Pila, et al., 2022), the present study incorporates body surveillance in an adapted tripartite influence model for body image in men. A specific measure of social comparison, which is part of the tripartite influence model, was not available in the dataset. The body surveillance measure, however, incorporates items assessing monitoring of appearance as well as social comparison.

Furthermore, little research has examined whether the variables and pathways within sociocultural models differ based on participants' BMI. One study of college men and women found that body surveillance was more strongly related to appearance evaluation among heavier women than thinner women (Frederick, Forbes, et al., 2017). The authors reasoned that body surveillance might act to draw attention to how one's appearance does not match the conventional ideals among heavier women, while serve to have no effects or even positive effects on women whose body types approximate these ideals. Results for men, in contrast, were less clear; links between body surveillance and appearance evaluation varied by body mass, but not in a clear pattern.

Due to sociocultural weight stigma directed towards higher weight individuals (Hunger, Blodorn, Miller, & Major, 2018; Mensinger, Tylka, & Calamari, 2018; Puhl & Heuer, 2009; Tylka et al., 2014), men with high BMIs are likely to receive more critical cultural and interpersonal messages about their weight and appearance compared to men with BMIs with low to medium BMIs. Furthermore, men with high BMIs who internalize this cultural weight stigma would experience poorer body image than men lower in BMI (see Frederick, Pila, et al., 2022). Such differences across men with different BMIs may also be reflected in the strengths of the model pathways appearance-related pressures, internalization of appearance ideals, body surveillance, body image quality of life, and appearance evaluation.

1.3. Aims and hypotheses

The aim of the present study was to test a revised and expanded version of the tripartite influence model that includes body surveillance among a large sample of adult community men (see Fig. 1). In doing so, we examined body image quality of life and positive

appearance evaluation (i.e., appearance evaluation) as body image outcomes, and whether these pathways varied by BMI.

1.3.1. Hypothesis 1: the integrated sociocultural model of body image will be supported—

We hypothesized that our revised and expanded tripartite influence model would provide a good fit to the data. The sources of appearance pressure (family, peers, media) were expected to be associated with both greater lean- and muscular-ideal internalization, and lean- and muscular-ideal internalization were expected to be associated with greater body surveillance. Body surveillance and both lean- and muscular-ideal internalization were expected to be uniquely associated with lower levels of our two examined body image variables (body image quality of life and appearance evaluation).

1.3.2. Hypothesis 2: body surveillance will act as a mediator—

Related to this hypothesis, body surveillance would mediate the relationships between internalization of appearance ideals and body image outcomes (body image quality of life and appearance evaluation), supporting its inclusion in the model.

1.3.3. Hypothesis 3: BMI may moderate strength of pathways—

The model pathways may differ for men based on their BMI, as cultural weight stigma may impact men differently based on how far they deviate from the lean and muscular appearance ideals. Given the dearth of research and theory in this area, we did not have specific predictions for how the strength of the model paths would vary based on BMI.

2. Method

2.1. Participants

Data were drawn from the U.S. Body Project I, which is described in the Procedure 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 years; (d) had 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.

A total of 13,518 people entered the survey, 12,571 answered the first question, and 12,151 completed the full survey. After applying the inclusion criteria, this created the base dataset for The U.S. Body Project I of 11,620 participants. We then further restricted the sample to include only men for this paper. Key demographics are shown in Table 1 for the men included in the analyses (N= 5293). The participants were from all 50 states of the U.S, with the largest number of participants from California (11.7%), New York (6.1%), Florida (7.4%), Texas (6.3%), Pennsylvania (4.8%), Illinois (4.5%), and Ohio (4.4%; United States Census Bureau, 2014). For more detailed demographics and a discussion of how the current sample compares to nationally representative datasets, please see Frederick, Crerand et al. (2022).

2.2. Procedure and overview of the U.S. National 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, Huber, & Lenz, 2012, Buhrmester, Kwang, & Gosling, 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), internalization of societal appearance ideals (Schaefer et al., 2015), face satisfaction (Frederick, Kelly, Latner, Sandhu, & Tsong, 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 twenty 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 (Frederick, Crerand, et al., 2022) 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, et al., 2022).

The third set of papers use structural equation modeling 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 (current paper), 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 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 modeling to compare the effectiveness of nonlinear machine learning models versus linear regression for predicting body image outcomes (Liang et al., 2022).

2.3. Outcome measures

2.3.1. Multidimensional Body-Self Relations Questionnaire - Appearance Evaluation subscale—

Appearance evaluation was assessed with the 7-item Appearance Evaluation subscale of the Multidimensional Body-Self Relations Questionnaire (MBSRQ-Appearance Evaluation; Brown, Cash, & Mikulka, 1990; Cash, 2000), which measures feelings of physical attractiveness and satisfaction with one's appearance (e.g., "I like my looks just the way they are"). Responses were recorded on a 5-point Likert agreement scale with response options ranging from 1 (*Definitely Disagree*) to 5 (*Definitely Agree*), where higher scores indicate more positive evaluations of appearance. Cronbach's α was 93 for this sample of men.

2.3.2. Body Image Quality of Life Inventory—

Participants completed the 19-item Body Image Quality of Life Inventory (BIQLI; Cash & Fleming, 2002), which assesses participant's beliefs about how their bodies affect their lives. Participants indicated whether their feelings about their bodies had positive, negative, or no effects on various aspects of their lives (e.g., "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-type scale (1 = *Very Negative Effect*, 4 = *No Effect*, 7 = *Very Positive Effect*), where higher scores represent more positive perceived effects of body image on quality of life. Cronbach's α was.96 in the present sample of men.

2.4. Predictor measures

2.4.1. Objectified Body Consciousness Scale - Body Surveillance subscale—

Participants completed the 8-item Body Surveillance subscale of the Objectified Body Consciousness Scale (OBCS-Body Surveillance; McKinley & Hyde, 1996), which assesses the extent to which people monitor how they appear to others (e.g., "During the day, I think about how I look many times"). Responses were recorded on a 7-point Likert agreement scale with response options ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), where higher scores indicate greater levels of body surveillance. Cronbach's α was.84 for the present sample of men.

2.4.2. Sociocultural Attitudes Towards Appearance Questionnaire-4: internalization subscales—

The thin-ideal internalization subscale of the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4; Schaefer et al., 2015) measures participants' desire to have a body with low body fat and to have a thin body. Given that men desire to have low body fat but do not endorse wanting to be thin, as thin may be equated with being 'scrawny' or having a small body with little muscle (Ridgeway & Tylka, 2005), we used one item assessing desire for leanness and one item assessing desire for low body fat to estimate this variable ("I want my body to look very lean" and "I think a lot about having very little body fat"). Items were each recorded on a 5-point Likert scale ranging from 1 (*Definitely Disagree*) to 5 (*Definitely Agree*) and averaged, with higher

scores indicated higher thin-ideal internalization. Cronbach's α for these two items was.70 (r = 0.54, p < .001) for the present sample of men.

The muscular-ideal internalization subscale of the SATAQ-4 assesses participants' desire to have a muscular, athletic body. While it contains five items, three items are cognitive (e.g., "It is important for me to look athletic," "I think a lot about looking muscular," and "I think a lot about looking athletic") and two are behavioral ("I spend a lot of time doing things to look more muscular," "I spend a lot of time doing things to look more athletic"). Given that we only wanted to assess cognitive aspects of muscular-ideal internalization and to be consistent with the thin-ideal internalization measure that assesses only cognitive aspects, we only used the three cognitive items. Responses were also recorded on the previously described 5-point Likert scale ranging from 1 (*Definitely Disagree*) to 5 (*Definitely Agree*) and were averaged, with higher scores reflecting greater muscular-ideal internalization. Cronbach's α for these three items representing cognitive aspects of muscular-ideal internalization was.87 in the present study.

Of note, the thin-ideal and muscular-ideal internalization subscales were only weakly correlated in the present study (r = 0.35), indicating that they are two distinct variables, as conceptualized and identified via factor analysis as distinct constructs (Schaefer, Harriger, Heinberg, Soderberg, & Thompson, 2017). Therefore, in the present study, we treated them as distinct variables.

2.4.3. Sociocultural Attitudes Towards Appearance Questionnaire-4: appearance pressure subscales—

The family pressure (e.g., "I feel pressure from my family to improve my appearance), peer pressure (e.g., "I get pressure from my peers to decrease my level of body fat"), and media pressure (e.g., "I feel pressure from the media to look in better shape") subscales of the SATAQ-4 (Schaefer et al., 2015) were used to assess participants' perceptions of appearance-related pressures from family, peers, and media, respectively. Although each subscale contains four items, one item on each subscale assesses thinness, i.e., "I feel pressure from family/peers/media to look thinner," and was therefore removed. Items were recorded on the previously described 5-point Likert scale ranging from 1 (*Definitely Disagree*) to 5 (*Definitely Agree*), and the three items within each subscale were averaged, with higher scores indicating greater appearance-related pressure. Cronbach's α were.85 for the family pressure,.92 for the peer pressure, and.94 for the media pressure subscales for the present sample of men.

2.5. Moderator variable: body mass index

We calculated their weight classification (based on BMI) from these self-report data. Our "Lowest BMI" group included those with BMIs from 14.5 to 18.49 (classified as "underweight" by the Center for Disease Control [CDC]). Our "Low BMI" group included those with BMIs between 18.5 and 24.9 classified as "normal" or "healthy" weight by the CDC. Our "Medium BMI" group included those with BMIs between 25 and 29.9 classified as "overweight" by the CDC. Our "High BMI" group included those with BMIs 30 and above classified as "obese" by the CDC: "Obese I" (BMI: 30–34.9), "Obese II" (BMI: 35–39.9), and "Obese III" (BMI: 40 and above). We clustered participants classified as "obese"

(Obese I, II, III) into one "High BMI" category to limit the number of groups in our model to four, as meaningful group comparisons become increasingly difficult as the number of comparison groups increases (Vandenberg & Lance, 2000). These CDC categories were chosen as a heuristic so that the BMI results could be compared to existing studies and included in the multiple group analyses, and do not represent uniform endorsement of the categories by the authorship team in terms of semantic accuracy or as indicators of a person's health status (e.g., Tomiyama, Hunger, Nguyen-Cuu, & Wells, 2016).

2.6. Data analysis

We used Pearson *r* correlations to calculate the relationships between the study variables. 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 very small effects to be statistically significant at traditional thresholds. We therefore 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. For the purpose of this paper, we elected to draw particular attention to statistically significant findings with Cohen's *d* greater than.20 and β values greater than.10.

We used latent variable structural equation modeling (SEM) via Mplus Version 6.1 (Muthén & Muthén, 1998–2011) with maximum likelihood estimation to examine all models. We created a latent variable for each source (i.e., family, peers, media) of appearance-related pressure by allowing its respective three SATAQ-4 pressure items to estimate it. Similarly, we used the two 'lean' SATAQ-4 items to estimate the lean-ideal internalization latent variable, and the three SATAQ-4 items representing the cognitive component of muscular-ideal internalization to estimate the muscular-ideal internalization latent variable. For the latent variables representing body surveillance, appearance evaluation, and body image quality of life, we constructed three parcels (i.e., measured indicators) following the method specified by Russell, Kahn, Spoth, and Altmaier (1998). More specifically, we performed an exploratory factor analysis using the maximum likelihood (ML) method of extraction for the items representing each variable and extracted a single factor. Next, from each exploratory factor analysis, we ranked-ordered the items based on their factor loadings and successively assigned the items to one of three parcels; this helped equalize the average loadings of each parcel on its respective latent factor. We then averaged items within each parcel to obtain a total parcel score. Last, we used the three total parcel scores to estimate their respective latent variable within the SEM analyses.

We determined model fit via consensus among three indices recommended by Hu and Bentler (1999): Comparative Fit Index (CFI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA). Specifically, CFI values around ≥ 0.95, SRMR values around ≤ 0.08, and RMSEA values around ≤ 0.06 indicate that

a model provides a good fit to the data. CFI values under.90 as well as RMSEA and SRMR values above.10 indicate a poor fit of the model to the data. To examine our hypothesis of whether body surveillance mediated the paths between internalization of appearance ideals and body image, we used Shrout and Bolger's (2002) bootstrap procedures to estimate the significance of the indirect effect, which indicates mediation. More specifically, we specified Mplus to create 10,000 bootstrap samples from the data set by random sampling with replacement, and then generate indirect effects.

We then used Mplus to conduct two multiple-group analyses to determine whether the pathways in Figs. 2 and 3 were similar in strength for individuals based on their BMI. We expected that the variable paths will be different for individuals based on how BMI is treated in society (e.g., weight stigma). We excluded the low BMI group from the multiple group analyses due to small sample size. We then generated an invariant model for each analysis (the first with body image quality of life as an endogenous variable, the second with appearance evaluation as the endogenous variable) that constrained all paths to be equal for the BMI groups. We compared these invariant models with their variant counterparts, in which all paths were freed to vary. When the invariant and variant models differ, we then compared the invariant model with a series of models in which only one path was allowed to vary at a time. If the invariant model provided a worse fit than the model with one variant path, then the strength of that particular variant path was significantly different between the BMI groups.

3. Results

Means, standard deviations, and bivariate correlations for the model variables are included in Table 2. The variables were inter-correlated in the expected directions, supporting the testing of the hypothesized model. There were no missing data because only participants who completed the full survey were included in analyses. Skewness and kurtosis values for all items and parcel indicators used in the SEM analyses were lower than the absolute values of 3 for skewness and 10 for kurtosis (Kline, 2010), which indicate that no item or parcel indicator needed to be transformed (actual skewness values < |1.11|, actual kurtosis values < |1.39|).

3.1. Test of the hypothesized models

The number of cases in this study (N= 5293) exceeded the $N \geq 200$ criterion specified for complex models which have internally consistent and highly interrelated indicators (Weston and Gore, 2006). All of the BMI categories (other than underweight) also had more than 200 participants. Indicators (items and parcels) within each latent variable were indeed internally consistent (α range =0.70 to.97, average α = 0.89) and strongly related (rs = 0.54 to.92, average r = 0.76). Given these findings, we proceeded to test our model as originally specified. Figs. 4 and 5.

3.1.1. Examination of the measurement model—The measurement model provided a good fit to the data (CFI =0.964, SRMR =0.036, RMSEA =0.058, 90% CI:.056–0.059), $\chi^2(202, N = 5293) = 3750.66$, $p < .001$. Item/parcel factor loadings were all significant (all ps < 0.001) and ranged from.77 to.87 for the family pressure latent variable,.85 to.94 for the

peer pressure latent variable,.88 to.94 for the media pressure latent variable,.60 and.90 for the lean-ideal internalization latent variable,.77 to.89 for the muscular-ideal internalization variable,.74 to.89 for the body surveillance latent variable,.89 to.91 for the appearance evaluation latent variable, and.94 to.97 for the body image quality of life latent variable.

3.1.2. Examination of the structural models

3.1.2.1. Body image quality of life.: The hypothesized model predicting body image quality of life provided an adequate fit to the data, CFI = 0.957, SRMR = 0.069, RMSEA = 0.065 (90% CI:.064,.067), $\chi^2(155) = 3661.20$, $p < .001$, upholding our hypothesis. All estimated model paths were significant, except the path from family pressure to muscular-ideal internalization.

Modification indices (MIs) further revealed that three paths should be estimated in the model: a path from family pressure to body image quality of life, a path from media pressure to body surveillance, and a path from media pressure to body image quality of life. We therefore included these three paths, as well as removed the nonsignificant path, and examined this revised model. Overall, the fit indices revealed that the revised model provided a better fit to the data than the hypothesized model, CFI = 0.963, SRMR = 0.036, RMSEA = 0.062 (90% CI:.060,.063), $\chi^2(153) = 3220.59$, $p < .001$, $\Delta\chi^2(2) = 446.61$, $p < .001$, and was therefore retained. This model accounted for 33.4% of the variance in body surveillance and 22.4% of the variance in body image quality of life.

3.1.2.2. Appearance evaluation.: The hypothesized model predicting appearance satisfaction also provided an adequate fit to the data, CFI = 0.950, SRMR = 0.071, RMSEA = 0.067 (90% CI:.066,.069), $\chi^2(155) = 3889.10$, $p < .001$. Similar to the model predicting body image quality of life, all hypothesized paths were significant except the path from family pressures to muscular-ideal internalization, and MIs further revealed that a path from family pressure to appearance evaluation, a path from media pressure to body surveillance, and a path from media pressure to appearance evaluation should be estimated. The fit indices revealed that the revised model provided a better fit to the data than the hypothesized model, CFI = 0.957, SRMR = 0.038, RMSEA = 0.063 (90% CI:.061,.065), $\chi^2(153) = 3352.18$, $p < .001$, $\Delta\chi^2(2) = 536.92$, $p < .001$. Thus, we retained this revised model, which again accounted for 33.4% of the variance in body surveillance and 22.0% of the variance in appearance evaluation.

3.1.3. Body surveillance as a mediator—Next, we examined our hypothesis of whether body surveillance mediated the paths between internalization of appearance ideals and body image using Shrout and Bolger's (2002) bootstrap procedures. Consistent with our hypothesis, body surveillance mediated the paths between lean-ideal internalization and body image quality of life (indirect effect $\beta = -0.104$, $p < .001$, B = −0.171, SE =0.017, 95% CI: −0.206, −0.141) and lean-ideal internalization and appearance evaluation (indirect effect $\beta = -0.079$, $p < .001$, B = −0.097, SE =0.010, 95% CI: −0.118, −0.079). Body surveillance also mediated the paths between muscular-ideal internalization and body image quality of life (indirect effect $\beta = -0.110$, $p < .001$, B = −0.148, SE =0.014, 95% CI: −0.177, −0.121)

and muscular-ideal internalization and appearance evaluation (indirect effect β = −0.085, $p <$ .001, B = −0.085, SE =0.009, 95% CI: −0.104, −0.068).

3.2. Model differences based on BMI: multiple group analyses

3.2.1. Body image quality of life—While the invariant model provided a good fit to the data, CFI = 0.958, SRMR = 0.050, RMSEA = 0.062 (90% CI:.060,.064), $\chi^2(511) = 3927.50$, $p < .001$, the variant model, CFI = 0.958, SRMR = 0.046, RMSEA = 0.063 (90% CI:.061,.065), $\chi^2(485) = 3858.04$, $p < .001$, provided a significantly better fit, $\Delta\chi^2(26) = 69.46$, $p < .001$.

This finding indicates that at least one path was different in strength between the BMI groups, supporting hypothesis 3. The invariant model provided a worse fit than three models with one variant path, indicating that three paths were significantly different between the BMI groups.

First, the link between body surveillance and lower body image quality of life was significantly stronger for men in the high BMI group compared to those in the medium and low BMI groups, $\Delta\chi^2(2) = 38.60$, $p < .001$. Second, the link between lean-ideal internalization and lower body image quality of life was stronger for those with medium BMI compared to those with high and low BMI, $\Delta\chi^2(2) = 9.46$, $p = .009$. Third, the link between muscular-ideal internalization and lower body image quality of life was stronger for those in the medium BMI group than those in the high and low BMI groups, $\Delta\chi^2(2) = 7.60$, $p = .022$.

3.2.2. Appearance evaluation—Again, the invariant model, CFI = 0.951, SRMR = 0.053, RMSEA = 0.064 (90% CI:.062,.065), $\chi^2(511) = 4106.70$, $p < .001$, provided a worse fit to the data than the variant model, CFI = 0.952, SRMR = 0.048, RMSEA = 0.065 (90% CI:.063,.066), $\chi^2(485) = 4017.15$, $p < .001$; $\Delta\chi^2(26) = 89.55$, $p < .001$, further upholding hypothesis 3.

The same three paths were significantly different between the BMI groups for this model with appearance evaluation. First, the link between body surveillance and lower appearance evaluation was stronger for the high BMI group compared to the medium and low BMI groups, $\Delta\chi^2(2) = 36.66$, $p < .001$. Second, the link between lean-ideal internalization and lower appearance evaluation was stronger for those with medium and high BMI compared to those with low BMI, $\Delta\chi^2(2) = 46.41$, $p < .001$. Third, the link between muscular-ideal internalization and lower appearance evaluation was higher for those in the high and medium BMI groups compared to those in the low BMI group, $\Delta\chi^2(2) = 11.30$, $p = .004$.

4. Discussion

4.1. Overview of findings

4.1.1. Support for integrated sociocultural model of body image—This study tested an integrated sociocultural model of body image combining constructs from the tripartite influence model and objectification theory within a large national sample of community adult men, and explored whether the model pathways differed according to

men's BMIs. The results provide support for this integrated model as an explanatory framework for men's body image, extending previous findings among young adult samples of men (Karazsia & Crowther, 2009, 2010; Rodgers et al., 2012; Tylka, 2011; Tylka & Andorka, 2012). In addition, support was found for the integration of body surveillance (a variable that is often studied within the context of objectification theory) as a key construct linking variables within the tripartite influence model with men's body image quality of life and appearance evaluation. Furthermore, almost all of the statistically significant pathways between variables had effect sizes that exceeded stronger than $\beta = 0.10$. In all models, for all BMI groups, the pathways from muscular-ideal and lean-ideal internalization to body surveillance exceeded $\beta = 0.20$, as did the links from muscular-ideal internalization and body surveillance to appearance evaluation and body image quality of life. These strong effect sizes suggest the importance of investigating these associations further as potential targets for interventions.

Both final models provided a good fit to the data, explaining 22.4% of the variance in body image quality of life and 22% of the variance in appearance evaluation; these models also explained 33.4% of the variance in body surveillance. Consistent with previous work among samples of adolescent boys (Rodgers et al., 2012) and predominantly college men (Tylka, 2011; Tylka & Andorka, 2012), peer and media appearance pressures were significantly associated with lean- and muscular-ideal internalization. Family pressures were related to higher lean-ideal internalization, but were unrelated to muscular-ideal internalization.

Additionally, and novel to this study, family and media appearance-related pressures were related to other model variables. Media appearance pressure was uniquely associated with higher body surveillance, poorer body image quality of life, and lower appearance evaluation. Family appearance pressure was associated with poorer body image quality of life and lower appearance evaluation. These findings indicate that pressure to change appearance by family and media (e.g., through comments, teasing, criticism) may be associated with men's higher body surveillance, as well as poorer body image quality of life and lower appearance evaluation, even if men do not personally desire to be lean and muscular. Thus, overt pressure from sociocultural sources such as family, may lead to decreased body image quality of life through the emotional and cognitive impact of those overt pressures, regardless of an individual's personal appearance beliefs. While the strengths of these paths tended to be small in effect size (i.e., $\beta s \leq |.20|$), our findings nevertheless support the role of various sources in transmitting appearance ideals that are then internalized by men and are linked to their body monitoring and body image, consistent with the propositions set forth in sociocultural theories developed for women (Fredrickson & Roberts, 1997; Thompson, Coovert, et al., 1999; Thompson, Heinberg, et al., 1999).

In both final models, indirect relationships emerged between both lean- and muscular-ideal internalization and body image quality of life and appearance evaluation, via body surveillance. The internalization of appearance ideals was related to poorer appearance evaluation and body image quality of life in part via men's adoption of an external judgmental perspective of their body. These findings are similar to the analysis of the women's data from this dataset as they relate to thin-ideal internalization (Frederick, Tylka, Rodgers, Pennesi, et al., 2022), suggesting a somewhat parallel process is occurring for

both genders. Interestingly, however, no direct pathway emerged between muscular-ideal internalization and body surveillance in women's data, whereas in the current sample the path was moderate in strength for men. This finding reaffirms that the muscular and lean ideal is a standard by which men evaluate their bodies, appearance, and body image quality of life (Ridgeway & Tylka, 2005; Tylka, Bergeron, & Schwartz, 2005), whereas the thin-ideal is the primary standard by which women evaluate their bodies, appearance, and body image quality of life (Swami, 2015).

Furthermore, lean-ideal internalization was weakly related to lower body image quality of life and appearance evaluation among men, while muscular-ideal internalization was moderately related to higher levels of these positive aspects of body image. The latter part of this finding is somewhat contradictory to the bivariate correlations that show weak positive relationships between muscular-ideal internalization and body image outcomes. The paths from muscular-ideal internalization to both body image quality of life and appearance evaluation may be strengthened in the models because muscular-ideal internalization's shared variance with lean-ideal internalization (as well as body surveillance, and family and media pressure) is removed. That is, muscular-ideal internalization may be less beneficial to men's body image when it is also combined with lean-ideal internalization. Notions that the muscular ideal is positive only in the absence of the lean ideal have surfaced in recent studies of men (Griffiths, Murray, Mitchison, Castle, & Mond, 2019), and the present study aligns with this finding.

4.1.2. Support for BMI as a moderator of model pathways—Another novel contribution of the present study was its exploration of how participants' BMI classification may alter the model variables and paths. Directing attention to how BMI can impact the model variables and relationships due to BMI's close ties to cultural weight stigma is important to consider within the context of moderation (or multiple group analyses), rather than considering it as a covariate. As hypothesized, our findings also confirmed that the strength of the variable pathways varied according to BMI, suggesting that the influence of sociocultural pressures on adult community men's body image quality of life and experience of appearance evaluation may be impacted by their weight.

The strength of three model pathways differed based on the BMI group men belonged to. Compared to the other BMI groups, body surveillance was more strongly related to poorer body image quality of life and lower appearance evaluation among men with high BMI. The strength of these group differences was moderate. Lean-ideal internalization was more strongly linked to poorer body image quality of life for men with medium BMI compared to men with low and high BMI. Similarly, lean-ideal internalization was more strongly linked to lower appearance evaluation for men with high BMI compared to those with low BMI. These group differences were small.

Lastly, muscular-ideal internalization was more strongly linked to higher body image quality of life for men with medium and high BMI compared to those with low BMI. This link was also stronger for appearance evaluation among men with medium BMI compared to the other two BMI groups. These group differences were also small.

Perhaps due to experiencing and/or internalizing cultural weight stigma, men with high (and, in some cases, medium) BMI may experience poorer body image quality of life and lower appearance evaluation when they habitually evaluate their appearance and internalize the lean ideal. Moreover, men who have medium or high BMI tend to have lower appearance evaluation when they internalize the lean ideal, and higher appearance evaluation when they internalize the muscular ideal, compared to men with low BMI. Men who have medium BMI tend to have lower body image quality of life when they internalize the lean ideal and higher body image quality of life when they internalize the muscular ideal compared to those with low or high BMI. These findings highlight the importance of investigating how BMI influences the strength of the model paths. Although it is important to determine whether these results can be replicated, the large sample size of the present study increases our confidence in these findings.

4.2. Limitations and strengths

The present study is not without limitations. First, it is important to note that the order of presentation of the measures was not counterbalanced, and therefore the order in which they were completed may have altered the findings. Second, we did not include appearance-related pressures from partners within our model. Partners can be a significant source of pressures that are linked to men's body image and eating behaviors (Tylka, 2011; Tylka & Andorka, 2012), and integrating partners as a source of appearance related pressure would be an important direction for future work. Third, while appearance-related pressures are a source of weight stigma, we did not assess men's internalized weight stigma. Determining how internalized weight stigma differs from other types of internalization (i.e., lean-ideal internalization, muscular-ideal internalization) and whether it is a unique variable in the model for men may be a direction for future research. Fourth, it is important to note that BMI does not differentiate between body fat and adipose tissue (Ganson, Murray, & Nagata, 2019), is not a precise indicator of an individual's actual health status (e.g., Tomiyama et al., 2016), and does not distinguish between fat-free muscle mass and body fat as contributors to overall mass. The present findings associated with BMI should be interpreted with this in mind.

Fifth, the use of cross-sectional data precludes from examining the directionality of relationships, and replication of these findings using prospective designs will be important. Sixth, the future research would benefit from separately measuring the "monitoring" aspect of body surveillance and the "social comparison" which are currently measured through different numbers of items within the body surveillance scale. Seventh, we removed some items from the SATAQ-4 to make it more consistent with men's experiences (e.g., removing items emphasizing "very thin" to focus on the lean ideal rather than the thin ideal). It is important to note, however, a number of important strengths of the study that counterbalance these limitations including the large sample from a non-student population, the use of two indicators of positive body image that go beyond the frequently used assessments of body dissatisfaction, and the inclusion of established measures of internalization of both leanness- and muscularity-related appearance ideals.

Eighth, our study relied on a large national sample, but this sample was not nationally representative and was limited to Mechanical Turk workers (for a more detailed discussion of how this sample compares to national samples, see Frederick, Crerand, et al., 2022). Finally, we did not separately assess sex from gender, so the results are limited to people who identified as male and we are unable to examine how results may vary for people who identify as cis men, nonbinary, or trans men.

4.3. Conclusion

This study extended the initial work examining the tripartite influence model with adult community men and found support for its usefulness as an explanatory framework for body image in this group. Findings provide additional empirical evidence for considering both lean-ideal and muscular-ideal internalization and appearance-related pressures when conceptualizing men's body image outcomes (Ridgeway & Tylka, 2005; Tylka et al., 2005) and men's BMI when exploring the strengths of and connections between model variables. These findings also underscore the initial research supporting the integration of men into interventions capable of buffering individuals from the effects of appearance pressures on body image (Brown, Forney, Pinner, & Keel, 2017) and of focusing efforts on trying to modify the environment to be more supportive of positive body image for individuals of all body sizes.

Funding

This research was supported by the National Institute of General Medical Science (1P20GM134969-01A1), and the Kay Family Foundation Data Analytic Grant.

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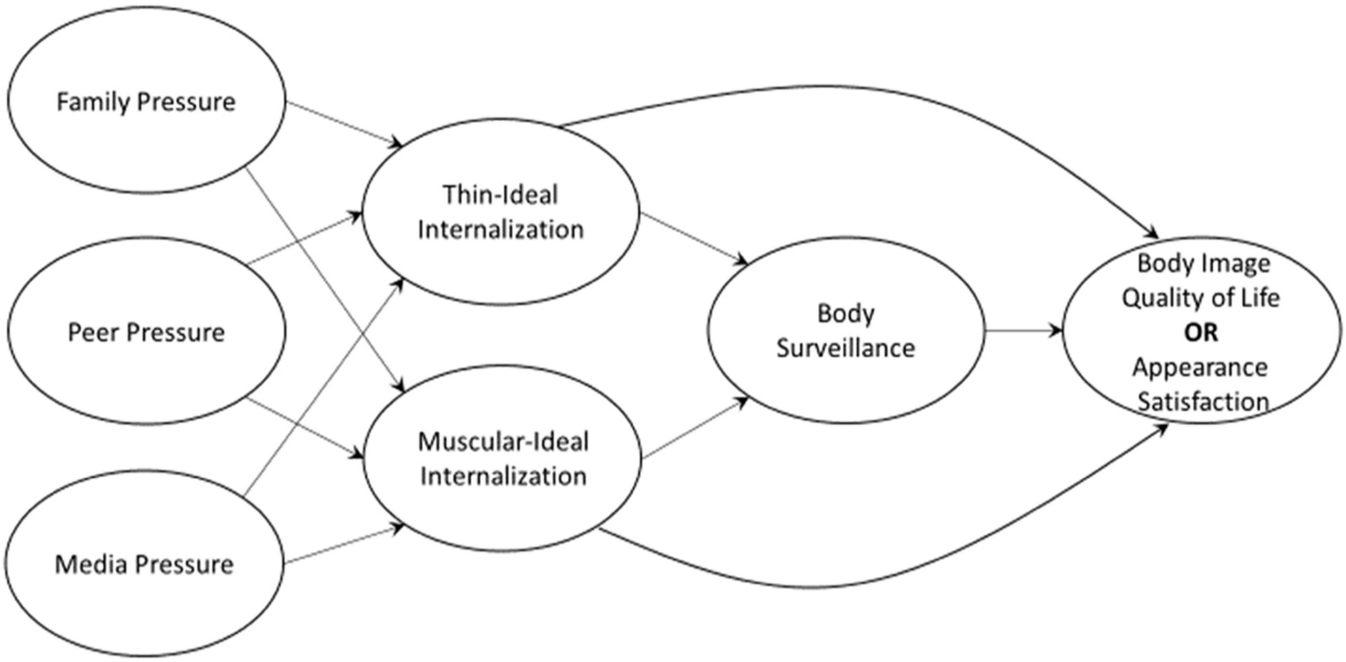

Fig. 1.

Hypothesized model. *Note.* Appearance evaluation is labeled here as "appearance satisfaction" to denote that higher scores indicate more positive body image.

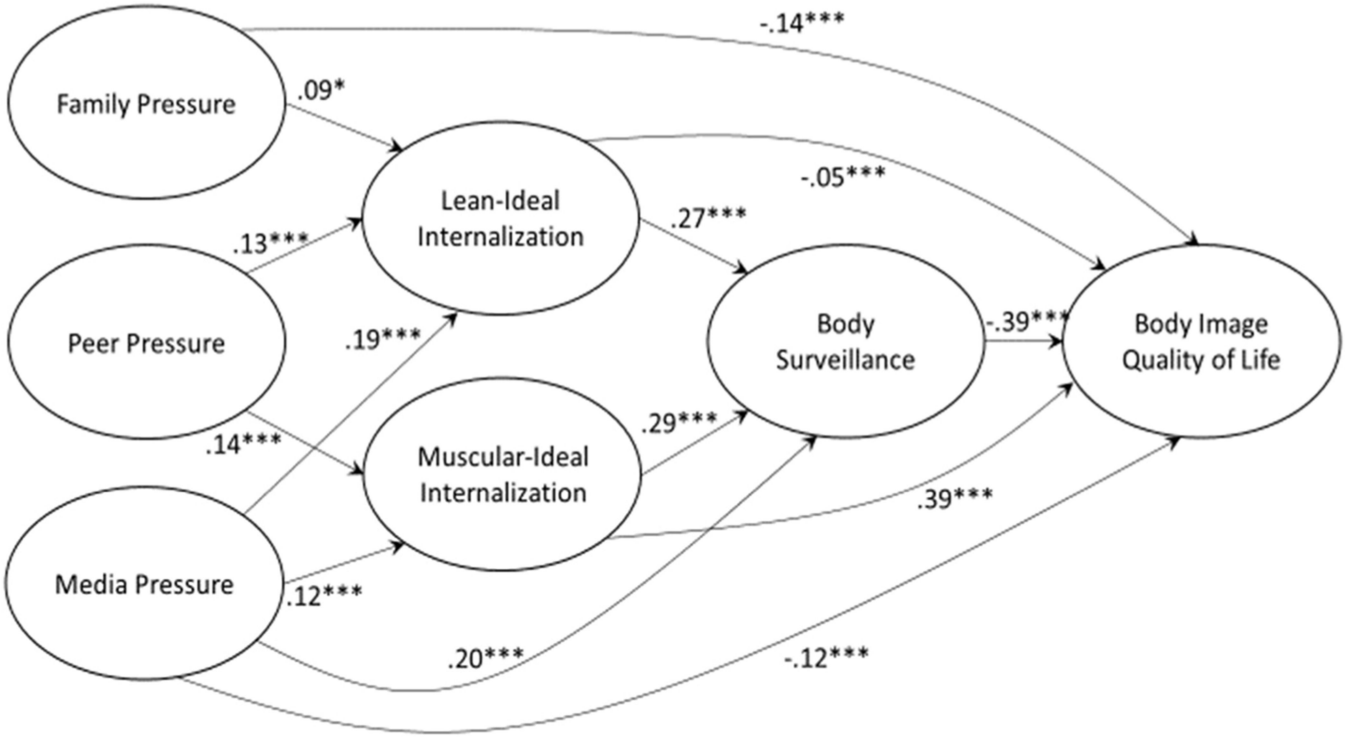

Fig. 2.

Model Examining Body Image Quality of Life. *Note.* Evaluation of the structural model with body image quality of life using latent variable structural equation modeling on the full sample. Standardized betas are presented as the path coefficients. *** $p < .001$, ** $p < .01$, * $p < .05$.

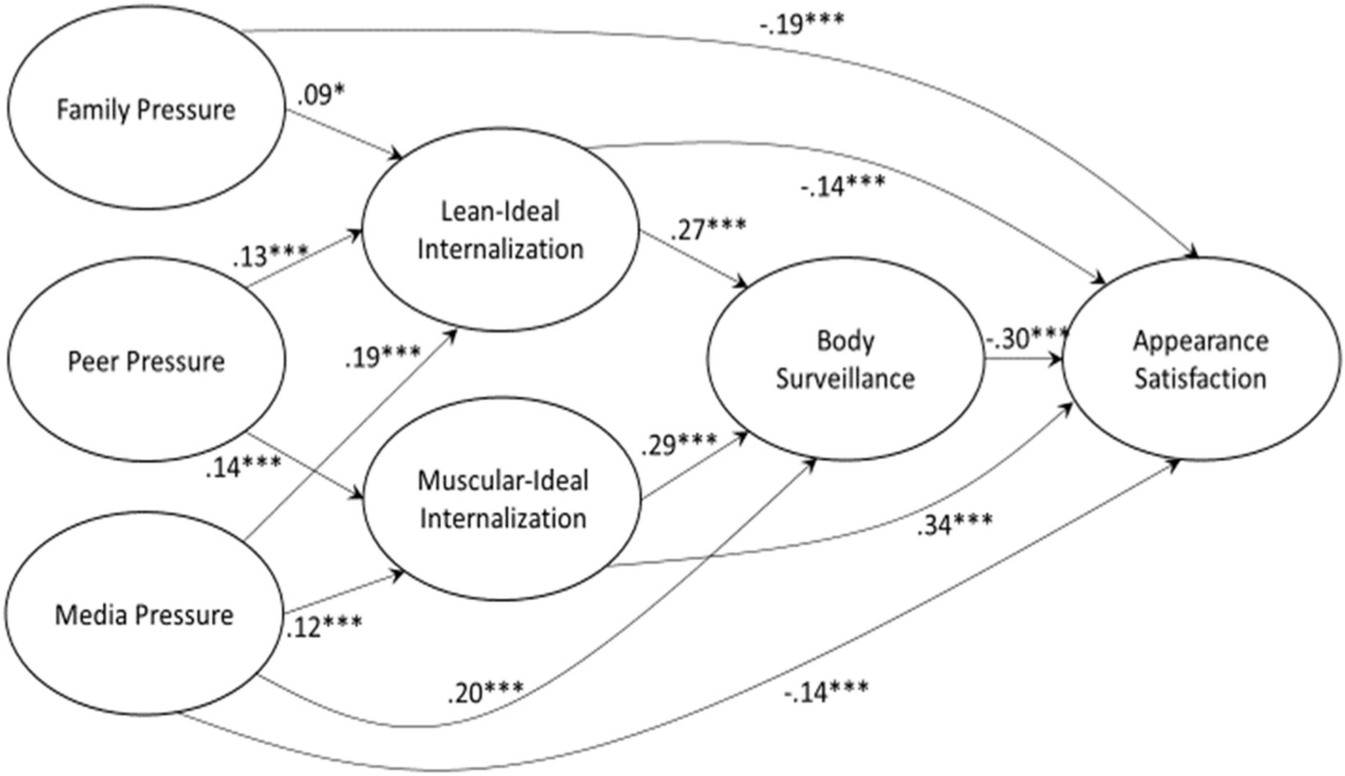

Fig. 3.

Model Examining Appearance Evaluation. *Note.* Evaluation of the structural model with appearance evaluation using latent variable structural equation modeling on the full sample. Standardized betas are presented as the path coefficients. Appearance evaluation is labeled here as "appearance satisfaction" to denote that higher scores indicate more positive body image. *** $p < .001$, ** $p < .01$, * $p < .05$.

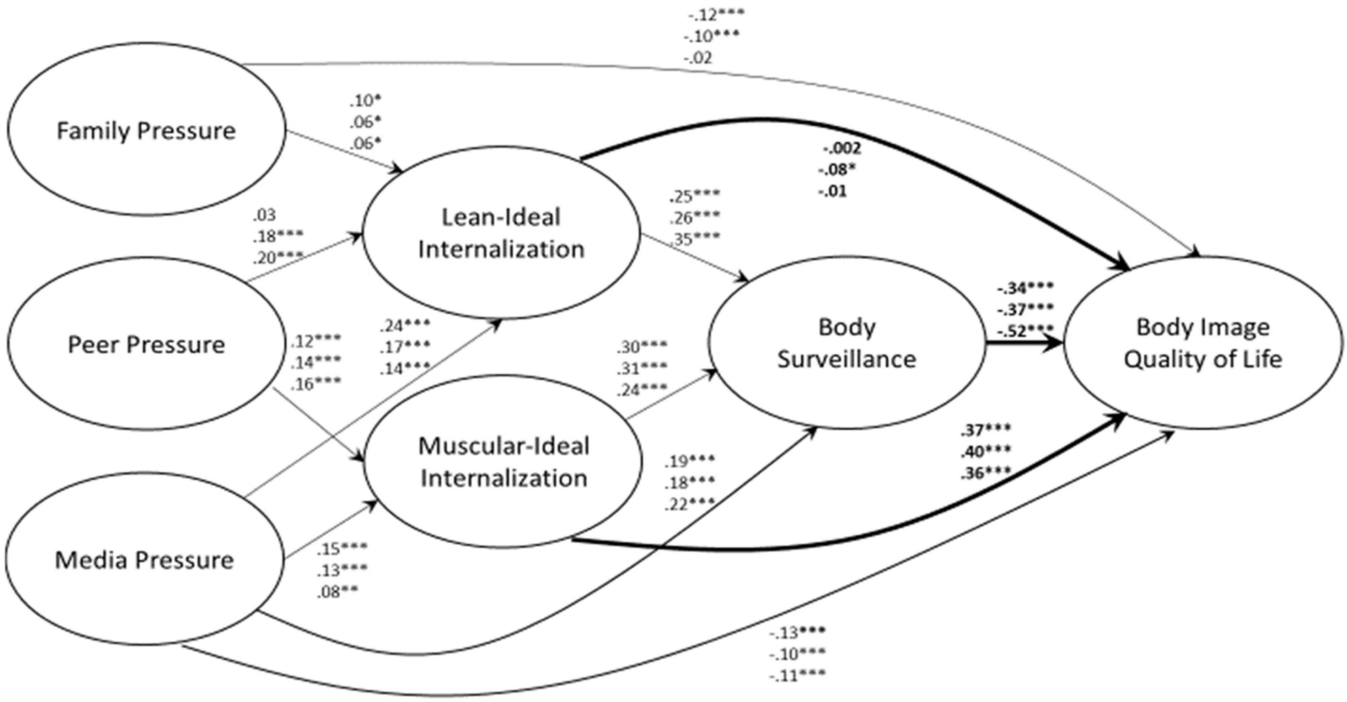

Fig. 4.

Model Examining Body Image Quality of Life Based on BMI Grouping. *Note*. Multiple groups analysis (based on BMI grouping) of the structural model with body image quality of life. Standardized betas are presented as the path coefficients, with the top coefficient representing the low BMI group, the middle coefficient representing the medium BMI group, and the bottom coefficient representing the high BMI group. The lowest BMI group was excluded from this analysis due to its small sample size ($n = 64$). Paths that differed in strength between the groups are bolded. *** $p < .001$, ** $p < .01$, * $p < .05$.

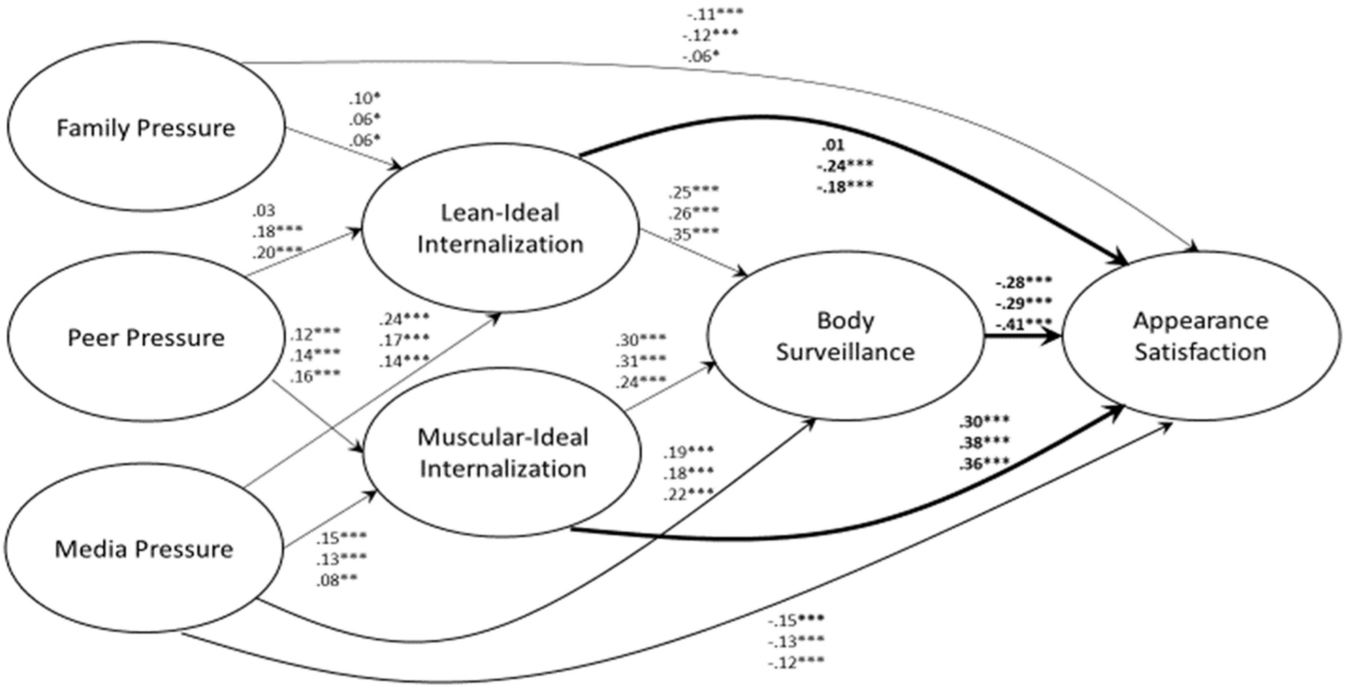

Fig. 5.

Model Examining Appearance Evaluation Based on BMI Grouping. *Note*. Multiple groups analysis (based on BMI grouping) of the structural model with appearance evaluation. Standardized betas are presented as the path coefficients, with the top coefficient representing the low BMI group, the middle coefficient representing the medium BMI group, and the bottom coefficient representing the high BMI group. The lowest BMI group was excluded from this analysis due to its small sample size ($n = 64$). Appearance evaluation is labeled here as "appearance satisfaction" to denote that higher scores indicate more positive body image. Paths that differed in strength between the groups are bolded. *** $p < .001$, ** $p < .01$, * $p < .05$.

Table 1

Demographics of the sample.

Demographics	*M*	*SD*	Demographics	*M*	*SD*
Age	33.0	(10.0)	Hours worked	36.1	(14.4)
Years in U.S.	32.0	(10.5)	BMI	27.5	(5.6)
	%	*n*		%	*N*
Ethnicity			Education		
White	74.5	(3945)	Some High School or Less	0.5	(28)
Hispanic	5.0	(265)	High School Degree	9.8	(518)
Black	5.6	(297)	Some College	32.5	(1718)
Asian	5.4	(344)	College Degree	43.7	(2311)
Indian	7.0	(370)	Advanced Degree	13.6	(718)
Native American	0.5	(26)			
Pacific Islander	0.1	(6)	Sexual Orientation		
White-Hispanic	2.0	(108)	Heterosexual	92.0	(4869)
White-Black	0.5	(29)	Gay or Lesbian	3.7	(194)
White-Asian	1.0	(54)	Bisexual	3.7	(194)
White-Middle Eastern	0.9	(45)	Asexual	0.2	(9)
Other	2.3	(132)	Other	0.5	(27)
Relationship status			BMI (CDC classifications)		
Married	32.3	(1712)	Underweight (Lowest)	1.2	(64)
Cohabiting	15.0	(793)	Normal Weight (Low)	36.2	(1918)
Dating one person exclusively	20.0	(1060)	Overweight (Medium)	36.8	(1947)
Dating multiple people	3.2	(168)	Obese I (High)	15.4	(815)
Widowed	0.3	(18)	Obese II (High)	6.5	(343)
Not currently involved	29.1	(1542)	Obese III (High)	3.9	(206)
Currently in College	18.7	(988)	Born in U.S.	94.1	(4981)

Table 2

Means, standard deviations, and zero-order correlations among study variables.

	M	*SD*	Range	1	2	3	4	5	6	7	8
1. Appearance evaluation	3.28	0.92	1 – 5	–							
2. Body image quality of life	4.66	1.15	1 – 7	.71*	–						
3. Body surveillance	3.77	1.22	1 – 7	−.25*	−.27*	–					
4. Lean-ideal internalization	3.21	1.01	1 – 5	−.12*	−.05**	.40*	–				
5. Muscular-ideal internalization	3.37	1.01	1 – 5	.09*	.15*	.41*	.47*	–			
6. Peer appearance pressure	1.94	1.02	1 – 5	−.23*	−.19*	.19*	.22*	.16*	–		
7. Media appearance pressure	2.72	1.31	1 – 5	−.26*	−.22*	.29*	.24*	.15*	.39*	–	
8. Family appearance pressure	2.08	1.03	1 – 5	−.24*	−.18*	.11*	.16*	.07*	.60*	.31*	–
9. Body mass index	27.46	5.63	N/A	−.45*	−.29*	.06*	.10*	−.04***	.16*	.18*	.26*

* $p < .001$

** $p < .01$

*** $p < .05$.