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## Pathways from Sociocultural and Objectification Constructs to Body Satisfaction Among Women: The U.S. Body Project I

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### Author Statement

The first author completed the conceptualization and 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

There are no conflicts of interest.

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## Abstract

Objectification theory proposes that widespread sexualization causes women to engage in surveillance of their appearance. We integrated this concept into a model with constructs from the tripartite influence model, which proposes that body dissatisfaction is a result of internalizing cultural notions of thin ideal beauty that stem from family, peer, and media appearance-related pressures. We tested this model with an online sample of 6327 adult women. Specifically, we tested whether these pressures predicted increased thin-ideal and muscular-ideal internalization, leading to greater body surveillance, and in turn lower appearance evaluation and body image quality of life. Structural equation modeling supported many aspects of the model. Family, peer, and media pressures related to higher thin-ideal internalization, which related to higher body surveillance and lower appearance evaluation. Peer and media pressures related to higher muscular-ideal internalization, which related to lower appearance evaluation. However, muscular-ideal internalization was not related to body image quality of life. An indirect relationship emerged between thin-ideal internalization and body image outcomes via body surveillance. Body mass index (BMI) moderated several of these model paths. Findings highlight the value of this integrated sociocultural model, and of BMI as an important moderating factor when examining objectification and tripartite influence models.

## Keywords

tripartite influence model; objectification theory; body image quality of life; appearance evaluation; body mass index

## 1. Introduction

Body image concerns are prevalent among women (Fallon, et al., 2014; Frederick et al., 2006; Frederick et al., 2020; Frederick, Sandhu, et al., 2016; Neighbors & Sobal, 2007). Of concern, women who are dissatisfied with their bodies report negative affect, disordered eating, lower self-esteem, lower quality of life (Davison & McCabe, 2005; Griffiths et al., 2016; Grossbard et al., 2009; Frederick, Sandhu, et al., 2016; Paxton, 2000). Furthermore, body dissatisfaction is a robust risk factor for eating disorders (Stice et al., 2011).

Consequently, interest has developed around understanding the etiology and maintenance of negative body image in order to highlight potential points of intervention (Cash & Smolak, 2011). Sociocultural theories have emerged as useful frameworks for understanding the ways in which cultural influences become internalized and contribute to body image concerns among women (Calogero et al., 2007; Thompson, Heinberg, et al., 1999; Tiggemann, 2011). These theories highlight how messages from the broader sociocultural environment heighten the risk for body image concerns through an increased focus on appearance and the promotion of unattainable appearance ideals.

The current study integrates aspects of two widely applied models of body image — the tripartite influence model and objectification theory — in order to better understand female body image outcomes as they relate to sociocultural pressures and acceptance of the lean and muscular ideals. A unique feature of this study is that it relies on a national sample of adult women and examines how the factors related to women's body image vary according to body mass.

## 1.1. Sociocultural Models of Body Image

**1.1.1. The Tripartite Influence Model**—One approach to understanding sociocultural influences on the development of body image concerns that has received considerable attention is the tripartite influence model (Thompson, Covert et al., 1999; Thompson, Heinberg, et al., 1999). According to this model, women experience pressure from important social agents (family, peers, media) to attain dominant sociocultural appearance ideals for women, which emphasize thinness and muscle tone (Swami et al., 2015; Swami et al., 2010). These pressures may be internalized, leading to body image concerns due to these ideals being unattainable through healthy means for most women. Thus, thin-ideal internalization, that is the degree to which an individual “buys into” societal standards of beauty and expresses desire to attain these beauty ideals, has been proposed as a key process through which appearance pressures are related to body image (Thompson & Stice, 2001).

The tripartite influence model has received widespread empirical support among adolescent girls and young adult women (Johnson, et al, 2015; Keery, et al, 2004; Rodgers, et al, 2011; van den Berg, et al., 2002; Yamamiya, et al., 2008). However, this body of research has also led a number of suggested modifications to the original model. One of the most significant expansions to the original model is the inclusion of two unique pathways (or dual pathways): one path emphasizing thin-ideal internalization, and a second newer path emphasizing muscular-ideal internalization (de Carvalho, et al., 2017; Girard, et al., 2018; Ramme, et al., 2016; Rodgers, et al., 2012). While ideals of beauty for women have for many years been dominated by an overwhelming focus on thinness (Ahern, et al., 2011; Swami et al., 2015; Swami et al., 2010; Sypeck et al., 2004), an ‘athletic’ sociocultural ideal has emerged in recent years (Benton & Karazsia, 2015; Ramme et al., 2016; Robinson et al., 2017), which denotes a body shape that is not only very slender, but also toned and muscular. These societal influences promoting an athletic ideal are associated with greater drive for thinness and muscularity (Homan, 2010; Thompson, et al., 2012; Tiggemann & Zaccardo, 2015).

**1.1.2. Objectification Theory**—Objectification theory posits that experiencing recurrent sexual objectification leads women to view themselves as sexual objects valued only for their appearance via a process known as self-objectification (Fredrickson & Roberts, 1997). Self-objectification then manifests into routine monitoring of one's appearance from an outsider's viewpoint to evaluate one's capacity to live-up to appearance ideals, termed body surveillance. This perpetual monitoring and body surveillance is thought to promote feelings of shame about one's appearance by encouraging women to scrutinize their appearance and thus detect or imagine flaws. Objectification theory further describes how this body surveillance may lead to disordered eating and other mental health

consequences as women attempt to manage how their bodies appear to others (Calogero, et al., 2011; Fredrickson & Roberts, 1997; McKinley & Hyde, 1996; Moradi & Huang, 2008; Tiggemann, 2013). People who report greater body surveillance are more likely to report poorer body image in previous research (Frederick, Forbes, et al., 2007; Schaefer et al., 2018).

## 1.2. Integrated Sociocultural Model of Body Image

While both the tripartite influence model and those derived from objectification theory have been found to be independently useful for identifying factors associated with body image outcomes among women, more recent work has attempted to integrate important elements of these models. Given that appearance-related pressures not only promote unrealistic appearance ideals, but also the importance of pursuing them and present appearance as an important dimension of social identity, body surveillance has been integrated into sociocultural models as a theoretical consequence of appearance-ideal internalization (Fitzsimmons-Craft, 2011).

We considered it likely that sociocultural pressures can lead to greater thin-ideal internalization, which then prompts greater body surveillance to monitor how one's body is being evaluated by others. Once a woman believes it is important to attain the conventional ideals that emphasize appearance, it raises the perceived importance of understanding how other people view them and how they compare to beauty ideals. This body surveillance leads to greater detection, or perceptions, of flaws in one's appearance, producing body dissatisfaction.

Fitzsimmons-Craft and colleagues (2012, 2014) were instrumental in linking these elements of the tripartite influence model with elements of objectification theory. In one study, they found that body surveillance, but not social comparison, accounted for (mediated) the relationship between thin-ideal internalization and body dissatisfaction in college women (Fitzsimmons-Craft et al., 2012). In contrast, a follow up study found that body surveillance did not mediate this link (Fitzsimmons-Craft, 2014), indicating that further explorations of this link are necessary. Examining empirically whether these processes identified by different major theories in the body image literature are connected to each other will help bridge the gap in understanding how they lead to poorer body image, particularly because studies utilizing constructs from these theories are typically tested in isolation from each other. Furthermore, an integrated model that includes muscular-ideal internalization alongside thin-ideal internalization would be useful to further expand our understanding of the ways in which these constructs operate together in women.

Most empirical examinations of the tripartite influence model have assessed body dissatisfaction as an outcome, and operationalizations of objectification theory initially placed the focus on feeling shame with one's body (McKinley & Hyde, 1996). The current study was designed to bring focus on some of the more positive aspects of body image, such as body image quality of life and high appearance evaluation. Body image quality of life is conceptualized as the degree to which body image favorably impacts various life contexts and domains of functioning, such as interpersonal relationships, day-to-day emotions, physical exercise, confidence, and sex life (Cash & Fleming, 2002). High

appearance evaluation refers to the extent to which a person perceives themselves to be good looking, believes that they are sexually appealing, and is generally satisfied with their appearance (Brown, et al., 1990). Extending investigations of the tripartite model to these more positive aspects of body image is important to better understand the way sociocultural pressures relate to different aspects of the body image experience. Indeed, body image is a multidimensional construct, containing both negative and positive components that can be differentiated from each other (Tylka & Wood-Barcalow, 2015a). As a next step, integrating these variables within the tripartite influence model and other sociocultural models may yield novel information about how social influences, internalization of appearance ideals, and body surveillance may be associated with these more positive body image outcomes.

Furthermore, although body image concerns are known to occur across the weight spectrum (Frederick et al., 2020; Frederick, Sandhu, et al., 2016), little research has examined whether the variables and pathways within sociocultural models differ based on participants' body mass indexes (BMI). Due to sociocultural weight stigma directed at negative evaluations of higher weight individuals (Hunger, et al., 2018; Mensinger, et al., 2018; Puhl & Heuer, 2009; Tylka et al., 2014), women with high BMI are likely to receive more critical cultural and interpersonal messages about their weight and appearance compared to their non-high BMI counterparts (Puhl & Brownell, 2006). Furthermore, women with higher BMIs may internalize weight stigma and may then also experience higher levels of internalization of appearance ideals, body surveillance, poorer appearance evaluation, and body image-related quality of life, given that weight stigma is linked to poor psychological and physical health, even after controlling for BMI (Daly et al., 2019; Mensinger et al., 2018; Puhl & Lessard, 2020). Such differences may also be reflected in the strengths of the model pathways for women based on their BMI, in that women with high BMI may have stronger or weaker links between 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 among a large sample of adult community women (see Figure 1). The current study provides a meaningful contribution to the examination of sociocultural models of women's body image concerns in five main ways.

First, we examined women's body image using a large national dataset of adult women, aged between 18 and 65 years. Previously, researchers have tested the integrated tripartite model and objectification theory with samples of predominantly young women in college (typically 18–24 years) (e.g., Hardit & Hannum, 2012; Holmes & Johnson, 2017), which may limit the generalizability of these findings to wider, more heterogeneous populations (Moradi & Huang, 2008; Carrard et al., 2020; Roberts et al., 2018).

Second, we explored muscular-ideal internalization alongside thin-ideal internalization to better represent women's adoption of cultural messages for women to be thin and toned. Third, we integrated body surveillance within the tripartite influence model to assess women's habitual monitoring of their own appearance.



Fourth, we examined two body image variables—appearance evaluation and body image quality of life. While appearance evaluation is a common measure of body image (Cash, 2000), few studies have examined quality of life specific to body image concerns (Sanftner, 2011). This study is the first to directly test body image-specific quality of life as an outcome variable from these pathways in this population (Cash & Fleming, 2002).

Fifth, we explored whether the model variables, and strengths of the model pathways, were similar for women with different BMIs. BMI has never been considered as a moderator of these model pathways, but has been found to moderate relationships between other body image variables in past research. For instance, high BMI has been found to strengthen the relationship between negative weight-based attitudes and depression (Stevens et al., 2018), suggesting that BMI may moderate the relationships in our model.

**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 thin- and muscular-ideal internalization, and thin- and muscular-ideal internalization were expected to be associated with body surveillance. Body surveillance and both thin- and muscular-ideal internalization were expected to be uniquely associated with 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—**Body surveillance was expected to 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 tripartite influence model.

**1.3.3. Hypothesis 3: BMI May Moderate Strength of Pathways—**The model pathways may differ for women based on their BMI. Cultural appearance pressures may impact women differently based on how far they deviate from the thin and fit 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. We were interested to see if sociocultural pressures and body surveillance were more strongly tied to poor body image among women with higher BMIs, in light of some previous research finding stronger links between body surveillance and appearance evaluation among heavier women (Frederick, Forbes, et al., 2007)

## 2. Method

### 2.1 Participants

Data were drawn from the U.S. Body Project I, described below 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 BMIs 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 clicked on 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 U.S. Body Project I of 11,620 participants. We then further restricted the sample to include only women. Key demographics are shown in Table 1 for the women included in the present study ( $N = 6327$ ). For more detailed demographics and a discussion of how the current Mechanical Turk sample compares to nationally representative datasets, please see Frederick and Crerand et al. (2022).

## 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 et al., 2017; Paolacci et al., 2010; Robinson et al., 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 minutes 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), sociocultural attitudes towards appearance (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 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 12 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 modelling to examine the links between sociocultural appearance concerns and body satisfaction among women and across BMI groups (current paper), 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 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 fifth set of papers uses machine learning modelling to compare the effectiveness of nonlinear models versus linear regression for predicting body image outcomes (Liang et al., 2022) and to use unsupervised machine learning hierarchical cluster models to identify how aspects of body image cluster differently across participants in multidimensional space (Rosenfield 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 et al., 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  $\alpha$  was .93 in the present sample of women.

**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  $\alpha$  was .96 in the present sample of women.

## 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  $\alpha$  was .86 in the present sample of women.

#### **2.4.2. Sociocultural Attitudes Towards Appearance Questionnaire-4:**

**Internalization Scales**—The thin-ideal internalization subscale of the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4; Schaefer et al., 2015) measures participants' desires for low body fat. The thin-ideal internalization subscale consists of five items, but one item was inadvertently omitted ("I want my body to look like it has little fat"), leading us to average the remaining four items. Two items mention wanting to be 'very thin' (i.e., "I want my body to look very thin," "I think a lot about looking thin") and two that mention wanting to be 'lean' (i.e., "I want my body to look very lean," "I think a lot about having very little body fat"). Items were 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  $\alpha$  was .87 in the present sample of women.

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"). To be consistent with the thin-ideal internalization measure that assesses only cognitive aspects of this internalization, we selected only the three cognitive items from the muscular-ideal internalization measure. 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  $\alpha$  for these three items representing cognitive aspects of muscular-ideal internalization was .88 in the present sample of women.

Of note, the thin-ideal and muscular-ideal internalization subscales were only weakly correlated in the present study ( $r = .33$ ), indicating that they are two distinct variables, as conceptualized and identified via factor analysis as distinct constructs (Schaefer et al, 2018). Therefore, in the present study, we treated them as distinct variables.

#### **2.4.3. Sociocultural Attitudes Towards Appearance Questionnaire-4:**

**Pressure Scales**—The family pressure (e.g., "I feel pressure from my family to improve my appearance), peer pressure (e.g., "Family members encourage me to get in better shape"), 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. Each subscale contains four items. 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  $\alpha$  were .92 for family pressures, .94 for peer pressures, and .97 for media pressures in the present sample of women.

## 2.5. Moderator Variable: Body Mass Index

Participants self-reported their height in feet and inches and weight in pounds. We calculated their weight classification (based on BMI) from these self-report data. Our “Lowest BMI” group included those with BMIs from 14.5–18.49 (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). We hasten to add that these widely-used 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 et al., 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” ( $d = 0.41$ ;  $\beta$  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  $\beta$  values greater than .10.

Latent variable structural equation modeling (SEM) was used to examine the hypothesized model. A latent variable was created for each source of pressure by allowing its respective four SATAQ-4 pressure items to estimate it (e.g., the four items representing family pressure estimated the family pressure latent variable). Similarly, the four SATAQ-4 items representing thin-ideal internalization estimated the thin-ideal internalization latent variable, and the three SATAQ-4 items representing the cognitive component of muscular-ideal internalization estimated the muscular-ideal internalization latent variable. For the latent variables representing body surveillance, appearance evaluation, and body image quality of life, three parcels (i.e., measured indicators) were constructed following the specifications by Russell et al. (1998). For the items representing each variable, an exploratory factor analysis was performed using the maximum likelihood (ML) method of extraction, and a single factor was extracted. Next, the factor loadings from this analysis were rank-ordered and

successively assigned to one of three parcels, which helped equalize the average loadings of each parcel on its respective latent factor. Third, items within each parcel were averaged to obtain a total parcel score. Last, the three total parcel scores were used to estimate their respective latent variable within the SEM analyses.

Mplus Version 6.1 (Muthén & Muthén, 2006–2011) with maximum likelihood estimation was used to analyze all models. 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  $\geq .95$ , SRMR values around  $\leq .08$ , and RMSEA values around  $\leq .06$  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 suggests 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 used Mplus to conduct two multiple-group analyses to determine whether the pathways in Figures 2 and 3 were similar in strength for individuals based on their BMI. From the CDC classifications, we created four groups: low BMI (14.5–18.49), medium BMI (18.5–24.9), high BMI (25–29.9), and very high BMI ( $\geq 30$ ). For these analyses, we created 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 then compared these invariant models with their variant counterparts, in which all paths were freed to vary. If these models differ, then at least one path was different in strength between the BMI groups, and 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 a model with one variant path, then the strength of that particular variant path was different between the BMI groups.

### 3. Results

Table 2 includes measure means, standard deviations, and bivariate correlations. Data were examined for normality of distribution. It has been suggested that researchers testing structural equation models should transform variables that have absolute values of skewness  $> 3$  and kurtosis  $> 10$  (Kline, 2010). Skewness and kurtosis for all items and parcel indicators used in the SEM analysis were lower than these values (skewness range =  $-0.79$  to  $1.19$ , kurtosis range =  $-1.34$  to  $0.30$ ); therefore, we proceeded with the analyses. There were no missing data because only participants who completed the full survey were included in analyses. As illustrated in Table 2, the variables were correlated in the expected directions, supporting the testing of the hypothesized model.

#### 3.1. Test of the Hypothesized Models

The number of cases in this study ( $N = 6327$ ) exceeded the  $N \geq 200$  criterion specified for complex models which have internally consistent and highly interrelated indicators (Weston

& Gore, 2006). Indicators (items and parcels) within each latent variable were indeed internally consistent ( $\alpha$  range = .87 to .97) and strongly related ( $r_s$  = .55 to .93). Given these findings, we proceeded to test our model as originally specified.

**3.1.1. Examination of the Measurement Model—**The measurement model provided a good fit to the data (CFI = .955, SRMR = .033, RMSEA = .062, 90% CI: .061-.063),  $\chi^2(322, N = 6327) = 8094.46, p < .001$ . Item/parcel factor loadings were all significant (all  $p_s < .001$ ) and ranged from .76 to .91 for the family pressure latent variable, .82 to .93 for the peer pressure latent variable, .92 to .96 for the media pressure latent variable, .70 to .89 for the thin-ideal internalization latent variable, .79 to .92 for the muscular-ideal internalization variable, .82 to .85 for the body surveillance latent variable, .87 to .93 for the appearance evaluation latent variable, and .95 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 model provided an adequate fit to the data, CFI = .948, SRMR = .073, RMSEA = .069 (90% CI: .068, .070),  $\chi^2(260) = 8064.35, p < .001$ , upholding the hypothesis that the model would generally hold for women. Not all paths, however, were significant. The four nonsignificant paths that emerged were: from family pressure to muscular-ideal internalization; from muscular-ideal internalization to body surveillance; from thin-ideal internalization to body image quality of life; and from muscular-ideal internalization to body image quality of life.

Modification indices (MIs) revealed three paths that should be estimated in the model: from family pressure to body image quality of life; from media pressure to body surveillance; and from media pressure to body image quality of life. We therefore trimmed the four nonsignificant paths and included the three paths identified by large MIs. Overall, the fit indices revealed that the revised model provided a better fit to the data than the hypothesized model, CFI = .953, SRMR = .037, RMSEA = .066 (90% CI: .065, .067),  $\chi^2(260) = 7403.13, p < .001$ , and this revised model was therefore retained. This trimmed model accounted for 36.0% of the variance in body surveillance and 20.2% of the variance in body image quality of life.

**3.1.2.2. Appearance Evaluation.:** The hypothesized model predicting appearance evaluation also provided an adequate fit to the data, CFI = .943, SRMR = .072, RMSEA = .071 (90% CI: .069, .072),  $\chi^2(260) = 8453.84, p < .001$ . Similar to the model predicting body image quality of life, the path from family pressure to muscular-ideal internalization and the path from muscular-ideal internalization on body surveillance were nonsignificant. All other hypothesized paths were significant.

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. We therefore trimmed the two nonsignificant paths and included the three paths identified by large MIs. Once again, the fit indices revealed that the revised model provided a better fit to the data than the hypothesized model, CFI = .948,



SRMR = .036, RMSEA = .067 (90% CI: .066, .068),  $\chi^2(259) = 7656.78$ ,  $p < .001$ . Thus, we retained this revised model, which accounted for 25.1% of the variance in appearance evaluation.

**3.1.3. Body Surveillance as a Mediator**—Upholding hypothesis 2, body surveillance mediated the paths between thin-ideal internalization and body image quality of life (indirect effect  $\beta = -.134$ ,  $p < .001$ ,  $B = -.165$ ,  $SE = .010$ , 95% CI:  $-.185, -.145$ ) as well as thin-ideal internalization and appearance evaluation (indirect effect  $\beta = -.078$ ,  $p < .001$ ,  $B = -.075$ ,  $SE = .008$ , 95% CI:  $-.091, -.059$ ). Given that the path from muscular-ideal internalization to body surveillance was nonsignificant and trimmed in both models, we did not examine the mediational models containing this path.

### 3.2. Model Differences Based on BMI: Multiple Group Analyses

Several links were significantly stronger for women with higher BMI, providing evidence for hypothesis 3.

**3.2.1. Body Image Quality of Life**—While the invariant model provided a good fit to the data, CFI = .950, SRMR = .049, RMSEA = .064 (90% CI: .063, .066),  $\chi^2(1124) = 8493.26$ ,  $p < .001$ , the variant model, CFI = .951, SRMR = .040, RMSEA = .065 (90% CI: .063, .066),  $\chi^2(1094) = 8350.52$ ,  $p < .001$ , provided a significantly better fit,  $\Delta\chi^2(30) = 142.74$ ,  $p < .001$ , suggesting group differences in variable paths.

Five paths were significantly different between the BMI groups. First, the link between media pressure and thin-ideal internalization was significantly stronger for individuals with lowest BMI compared to low, medium, and high BMI,  $\Delta\chi^2(3) = 17.29$ ,  $p < .001$ . For women with higher BMIs, the relationship between media pressure and thin-ideal internalization decreased in strength.

Second, the link between thin-ideal internalization and body surveillance was stronger for those with medium and high BMI compared to those with lowest BMI,  $\Delta\chi^2(3) = 15.74$ ,  $p < .001$ . For women with higher BMIs, the relationship between thin-ideal internalization and body surveillance increased in strength.

Third, the link between media pressure and body surveillance was significantly weaker (nonsignificant) for those with lowest BMI compared to those with low, medium, and high BMI (significant and similar in strength for these three groups),  $\Delta\chi^2(3) = 12.21$ ,  $p = .007$ .

Fourth, the link from body surveillance to body image quality of life was significantly weaker for those with low BMI compared to the other BMI groups,  $\Delta\chi^2(3) = 52.57$ ,  $p < .001$ , which were similar in strength to each other.

Fifth, the link from family pressure to body image quality of life was different for those with lowest BMI compared to the other BMI groups,  $\Delta\chi^2(3) = 17.95$ ,  $p < .001$ . More specifically, this link was positive and significant for those with lowest BMI, whereas it was negative and significant for the other BMI groups, and these higher BMI groups did not differ from one another.



**3.2.2. Appearance Evaluation—**The invariant model, CFI = .945, SRMR = .048, RMSEA = .066 (90% CI: .064, .067),  $\chi^2(1126) = 8776.28$ ,  $p < .001$ , provided a worse fit to the data than the variant model, CFI = .946, SRMR = .041, RMSEA = .066 (90% CI: .065, .067),  $\chi^2(1090) = 8613.69$ ,  $p < .001$ ;  $\Delta\chi^2(36) = 162.59$ ,  $p < .001$ .

Five paths were also significantly different between the BMI groups for this model with appearance evaluation, four of which were the same as the model with body image quality of life. First, the link between media pressure and thin-ideal internalization was significantly stronger for individuals with low BMI compared to low, medium, and high BMI,  $\Delta\chi^2(3) = 16.60$ ,  $p < .001$ . For women with higher BMIs, the relationship between media pressure and thin-ideal internalization decreased in strength.

Second, the link between thin-ideal internalization and body surveillance was stronger for those with medium and high BMI compared to those with lowest BMI,  $\Delta\chi^2(3) = 14.75$ ,  $p < .001$ . For women with higher BMIs, the relationship between thin-ideal internalization and body surveillance also increased in strength.

Third, the link between media pressure and body surveillance was significantly weaker (nonsignificant) for those with lowest BMI compared to those with low, medium, and high BMI (significant and similar in strength for these three groups),  $\Delta\chi^2(3) = 12.86$ ,  $p = .005$ .

Fourth, the link from body surveillance to appearance evaluation was significantly stronger for those with lowest BMI compared to those with low BMI,  $\Delta\chi^2(3) = 38.23$ ,  $p < .001$ , which were similar in strength to each other.

Fifth, the link from thin-ideal internalization to appearance evaluation was significantly weaker for those with low BMI compared to the other BMI groups,  $\Delta\chi^2(3) = 63.92$ ,  $p < .001$ .

## 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 using constructs from objectification theory and from the tripartite influence model. These pathways were tested in a national sample of adult women, and we explored the differences in the strength of the variable pathways according to women's BMIs.

Overall, the findings support the usefulness of this model as an explanatory framework for body image, thus extending previous findings among young women (Girard et al., 2018; Ramme et al., 2016; Rodgers et al., 2011). In addition, this study makes a novel contribution by providing support for the integration of elements of sociocultural and objectification theory, the usefulness of using exploring body image-related quality of life using these frameworks, the importance of muscularity-related appearance ideals for body image among community women, and the relevance of BMI to the examined model.

After modifications, the models showed good fit to the data, explaining 21% of the variance in body image quality of life and 25% of the variance in appearance evaluation. These models also explained 36% of the variance in body surveillance. Consistent with previous work among adult women (Lovering, et al., 2018; Rodgers et al., 2011), media appearance pressure was significantly associated with thin-ideal internalization at a level consistent with practical significance (Ferguson, 2009), and to a lesser extent with muscular-ideal internalization (this latter pathway was somewhat weak, suggesting statistical but not practical significance). Similarly, and also consistent with previous work (Lovering et al., 2018; Rodgers et al., 2011), family appearance pressure was associated with thin-ideal internalization (at a level consistent with statistical but not practical significance), although not muscular-ideal internalization. Finally, significant (yet not practically significant) pathways emerged between peer appearance pressure and thin-ideal internalization and muscular-ideal internalization (Ramme et al., 2016).

Taken together, these findings support the role of pressure from various sociocultural agents in transmitting appearance ideals that are then internalized by women. In addition, they are in line with the etiological framework of sociocultural theories (Thompson, Covert, et al., 1999; Thompson, Heinberg, et al., 1999), and with prospective and correlational data among younger groups, that propose a causal relationship between exposure to these pressures and internalization of appearance ideals (Karazsia, et al., 2013; Tiggemann, 2006).

It is an interesting finding that only peer appearance pressure revealed relationships of equal magnitude with both thin-ideal and muscular-ideal internalization, while both family and media appearance pressure were most strongly related to thin-ideal internalization. These findings bear on interpersonal sources of sociocultural pressure that have sometimes been described as amplifying broader cultural and media discourse (Rodgers, et al., 2019; Tylka & Calogero, 2019). Given that all three sources of sociocultural pressures were intercorrelated in our model, this explanation may partly account for the pattern emerging in these data. These findings also suggest that interventions aiming to buffer individuals from sociocultural pressures should continue to target peer influences, manifested through body talk or other interactions, when trying to buffer adult women from sociocultural pressures (Becker, et al., 2013; Mills & Fuller-Tyszkiewicz, 2018).

In addition, family appearance pressure and media appearance pressure revealed direct relationships with both body image quality of life and appearance evaluation; the former link reached practical significance, whereas the latter link was statistically but not practically significant (Ferguson, 2009). Previous work has described similar direct pathways from family influences and media influences to body dissatisfaction among women (Johnson et al., 2015). While pressure from family and media to pursue appearance ideals reinforces internalization of these ideals, to some extent pressure to change appearance is associated with lower appearance evaluation independently of internalizing appearance ideals. Dealing with these pressures to change appearance can lead to lower appearance evaluation and lower body image quality of life, even if one does not personally adopt socially promoted appearance ideals as a personal standard.

In both final models, body surveillance emerged as a mediator of the relationships between thin-ideal internalization and body image outcomes. This is an important finding that adds to the empirical support for the integration of sociocultural and objectification theory (Fitzsimmons-Craft, 2011; Fitzsimmons-Craft et al., 2012; Myers & Crowther, 2007). Our findings provide additional evidence that the internalization of appearance ideals is related to poorer appearance evaluation and body image quality of life via engaging in greater body surveillance.

Interestingly, however, no direct pathway emerged between muscular-ideal internalization and body surveillance. It may be that muscularity, while desirable, is not associated with the same moral connotations as weight (Rodgers, 2016), and is not subject to the same level of societal emphasis, and therefore does not lead to as much surveillance as is the case for thinness. The final model predicting appearance evaluation, however, included two additional pathways from both muscular- and thin-ideal internalization to appearance evaluation. While the thin-ideal to body satisfaction pathway is consistent with previous work (van den Berg, et al., 2002; Rodgers et al., 2011; Yamamiya et al., 2008), the muscular-ideal internalization to body image pathway has been much less widely explored. Although important to some aspects of body image, muscular-ideal internalization may be less tightly associated with the body surveillance facet of self-objectification for many women.

**4.1.2. Support for BMI as a Moderator of Model Pathways—**Another central contribution of the present study is its exploration of the model variables and paths among women with different BMIs. We divided the sample into lowest, low, medium, and high BMI categories. While BMI is often considered as a covariate within body image research (e.g., Mehak, et al., 2018; Strubel & Petrie, 2017), it is important to direct attention to how BMI can impact the model variables and relationships due to BMI's close ties to cultural weight stigma.

The strength of many model pathways differed based on women's BMIs. Compared to the other BMI groups, media appearance pressures were more strongly associated with thin-ideal internalization and more weakly associated with body surveillance for the lowest BMI group. Thin-ideal internalization was also more weakly associated with body surveillance for the lowest BMI group. These findings connect to previous research, which found generally stronger associations between body surveillance and appearance evaluation among heavier women, with the potential explanation that body surveillance has more negative effects on people whose bodies differ most from conventional thin ideals (Frederick, Forbes, et al., 2007). The results of the current study do not match those findings precisely, but the same logic may apply. Perhaps media ideals reinforce the importance of the thin-ideal for individuals with lowest BMI, but because their body types are more likely to align with the thin ideal, media pressures and thin-ideal internalization do not motivate women with lowest BMI to engage in body surveillance. In contrast, the body size of women with even fairly low BMIs still deviate from the media appearance ideal; thus, media appearance pressures may be more likely to prompt body surveillance in these women, and the extent to which they internalize the thin ideal is more closely linked to their body surveillance.

Compared to the other BMI groups, body surveillance was more weakly associated with body image quality of life for those with low BMI and more strongly associated with appearance evaluation for those with lowest BMI. Those with low BMI align more closely with cultural constructions of what is ‘healthy,’ which is more valued and less stigmatized than high weight, making their body image quality of life less likely to waver when they examine their appearance. Furthermore, the measure of appearance evaluation does not assess weight-specific concerns, and perhaps surveilling of appearance causes women with lowest BMI to focus on concerns with their appearance that are not weight related, which impacts their appearance evaluation.

Family appearance pressures were linked to lower body image quality of life for women with low, medium, and high BMI. In whereas family appearance pressures were linked to higher body image quality of life for individuals with lowest BMI. For lowest BMI women, family appearance messages may reinforce the value of their body type and thus reinforce their body image quality of life. For other BMI groups, family appearance pressures may highlight their inconsistency with cultural appearance ideals, negatively impacting their quality of life. Last, compared to the other BMI groups, thin-ideal internalization was more weakly associated with appearance evaluation for those with medium BMI. It is plausible that those with low BMI are less concerned when their appearance is different from the thin ideal because their body size is less likely to be stigmatized compared to higher weight groups.

Taken together, the findings regarding the differences in the model across BMI groups suggest that the variations in the strength of the associations is likely non-linear, such that relationships are strongest for those with people at the lowest and highest ranges of the BMI continuum. This pattern is likely a reflection of the way in which those who are closest to embodying appearance ideals accumulate experiences that strengthen their investment in their appearance, their endorsement of socially prescribed standards, and overall positive body image outcomes. In contrast, those whose bodies are judged to be furthest from these standards, may experience repeated stigmatization that similarly emphasizes how their appearance is an important and salient aspect of their person, but unlike the previous group, experience negative body image outcomes.

## 4.2. Limitations and Strengths

The present study is not without its limitations. First, this study investigates BMI’s role in determining the strength of the model pathways, yet BMI reinforces oppressive medical values, as it has been adopted by the medical community as a (albeit inaccurate and arbitrary) measure of individual health (Byrne, 2000). It is designed to categorize individuals who fall outside the “normal” BMI range (typically those in the “overweight” and “obese” categories) as less healthy and therefore positions them to become targets of stigma in healthcare and other life domains (Tylka et al., 2014). For instance, BMI is often used to determine who receives care (as well as the level of care) for eating disorder treatment and pay scales for medical insurance, with higher weight individuals receiving less care for eating disorder treatment (e.g., if they fall above the weight criteria to be diagnosed with anorexia nervosa) and having higher insurance premiums. It has also been criticized

for perpetuating racism, as thin bodies have been used to uphold white supremacy, and the larger bodies of Africans and eastern and southern Europeans were considered signs of their inferiority (Strings, 2019).

Second, while appearance-related pressures are a source of weight stigma, we did not explore women's internalized weight stigma. It would be interesting to determine how internalized weight stigma differs from other types of internalization (i.e., thin-ideal internalization, muscular-ideal internalization) in future tests of this model. In addition, the small number of participants in our low BMI group (in comparison with the sample size of other BMI groups) limits the inferences that can be made about this group of women.

Third, we did not have measures that could isolate appearance-related pressures from romantic partners within the model. Partners can be a significant source of pressures that are uniquely linked to adult community women's body dissatisfaction and disordered eating behaviors (Lovering et al., 2018; Tylka & Calogero, 2019), and therefore separately assessing pressures from romantic partners, parents, siblings, friends, and media within the model framework is an important direction for future work.

Fourth, it is important to note that the order of presentation of the measures was not counterbalanced, meaning that some bias might be present to the order in which participants completed the set of measures. Furthermore, as Mechanical Turk has become more widely used, so have concerns about quality of data and the impact of different strategies and impacts of using more versus less restrictive attention checks and inclusion criteria. Although the associations identified among variables in the current study were consistent with expectations of established theories in the body image literature, the constraints of online studies highlight the importance of further replications to test the validity and reliability of these findings.

Fifth, the original tripartite influence model includes appearance comparison as a mechanism of the effects of sociocultural pressures on body image (Thompson, Heinberg, et al., 1999). Given Fitzsimmons-Craft et al.'s (2014) finding of the importance of eating disorder-related social comparison, it would be interesting to include this specific type of comparison as an additional component to the model in future work. Furthermore, the body surveillance subscale contains one item assessing social comparison ("I rarely compare how I look with how other people look"), making it important for future research to determine whether there are different elements of body surveillance and how the measure and weight these different components (e.g., monitoring how others view their appearance, worry about how others view their appearance, positive feelings about how others view their appearance, social comparison).

Sixth, our measure of media appearance pressure does not consider social media specifically. Given research that indicates that interacting with appearance-focused social media is detrimental to body image (Holland & Tiggemann, 2016), it would be interesting to determine the unique contribution of social media pressures within this model. Finally, the use of cross-sectional data precludes from examining the directionality of relationships, and replication of these findings using prospective designs will be important.

Seventh, high appearance evaluation may not always be adaptive, as it focuses heavily on one's attitudes toward their appearance rather than their acceptance of and love for their body regardless of their appearance (i.e., body appreciation; Tylka & Wood-Barcalow, 2015b) or their appreciation of the various ways their body functions for them (i.e., functionality appreciation; Alleva et al., 2017). Therefore, it would be useful to integrate these positive body image constructs into future integrative models of body image.

It is important to also note a number of important strengths of the study that counterbalance these limitations. Although the study was not nationally representative, it enabled the examination of body image concerns in a large national adult sample. In addition to testing a model that integrates objectification and tripartite model constructs, we also relied on two indicators of body image that go beyond the frequently used assessments of body dissatisfaction. Furthermore, we include established measures of muscularity-related internalization in addition to the more commonly used thinness-related internalization scale. In doing so, we focused specifically on the cognitive aspects of muscularity internalization rather than relying on the original version of the measure that confounds cognitive and behavioral elements.

#### 4.3. Concluding Comments

In sum, the current study constitutes an important extension of existing work testing the tripartite influence model of the development of body image concerns among women. The findings highlight the importance of further investigating how constructs central to widely used models body image, such as objectification theory and the tripartite model, are connected to each other in ways that impact body image. As the field has continued to expand the number of theories used to identify the social, situational, and individual factors that shape body image, and important next step is to integrate key constructs of these theories into comprehensive testable models of body image. The current study provides one step towards this goal, examining how body surveillance can be integrated into pathways from appearance-related pressures and internalization of conventional appearance ideal in order to enhance our explanatory frameworks for body image among women.

These findings from this study highlight the importance of investigating how BMI influences the strength of the model paths (as a moderator), which provides different information than simply controlling for its associations among variables (as a covariate). Although these findings may be sample-specific and thus it is important to determine whether they can be replicated, they point to the important of considering how factors that lead to positive and negative body image can vary across people who face different types of stigma due to their body type.

Empirical evidence of the importance of appearance pressures as a determinant of body image continues to accumulate, underscoring the importance of both continuing to develop interventions capable of buffering individuals from the effects of appearance pressures on body image (Becker & Stice, 2017; Tamplin, et al., 2018), and of focusing efforts on trying to modify the media environment to be more supportive of positive body image for individuals of all body sizes (Frederick, Saguy, & Gruys, 2016; Frederick, Saguy, Sandhu et al., 2016; Frederick, Tomiyama, et al., 2019; Saguy et al., 2014).



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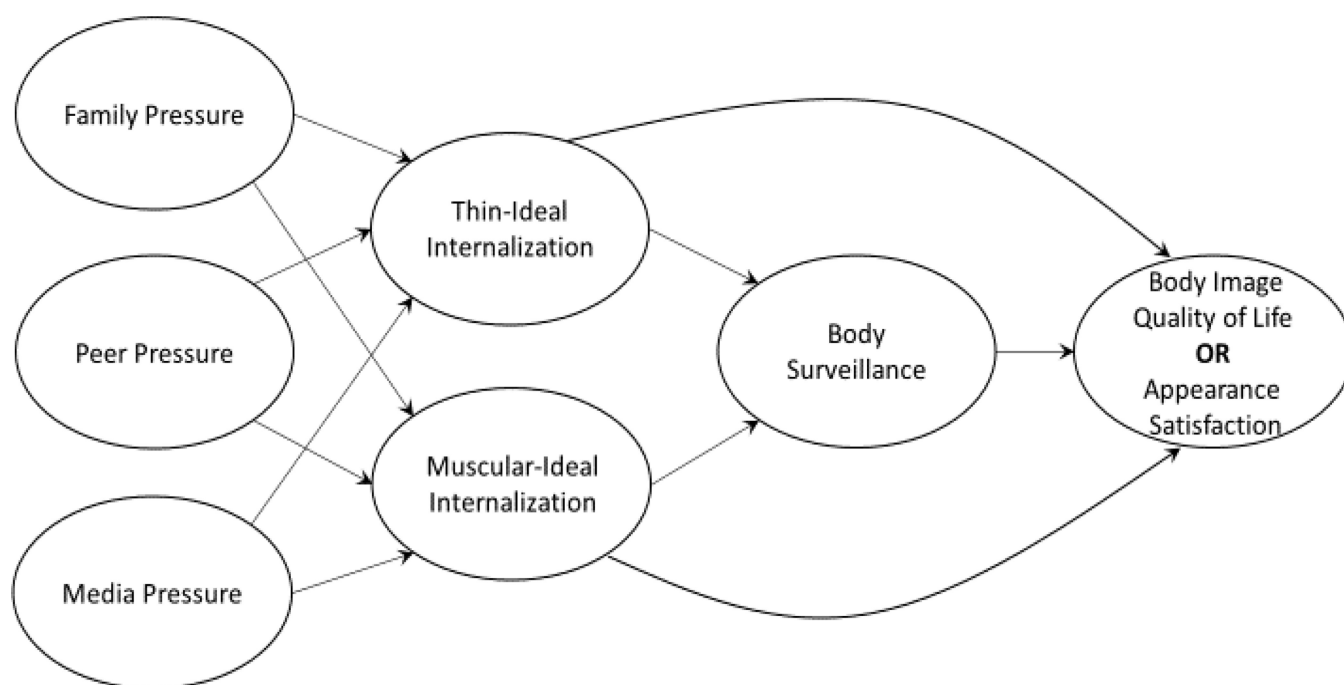
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### Highlights

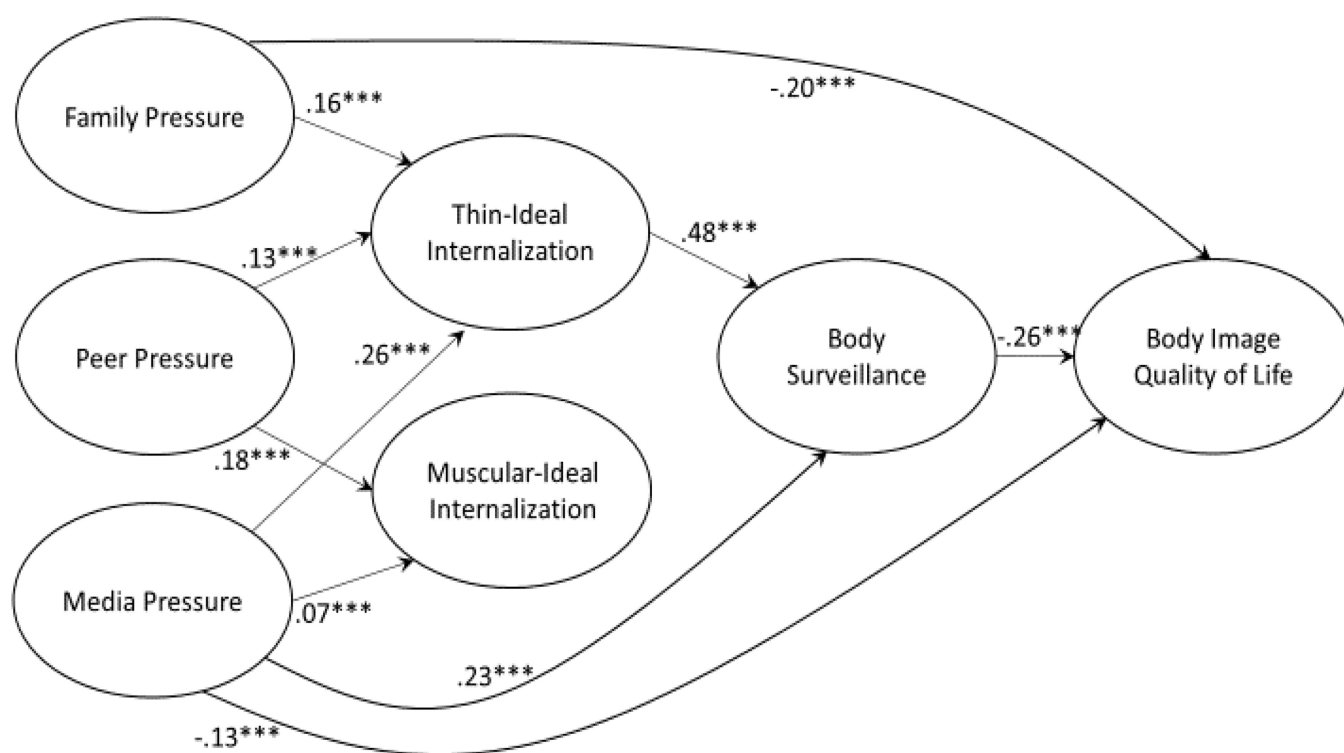
- Constructs from objectification theory and tripartite influence model were tested.
- Outcomes included body image quality of life and appearance evaluation
- The integrated sociocultural model was supported among women
- Pathways from these constructs to body satisfaction differed by body mass.
- Findings highlight the usefulness of the model to explain women's body image.





**Figure 1.**  
Hypothesized Model.

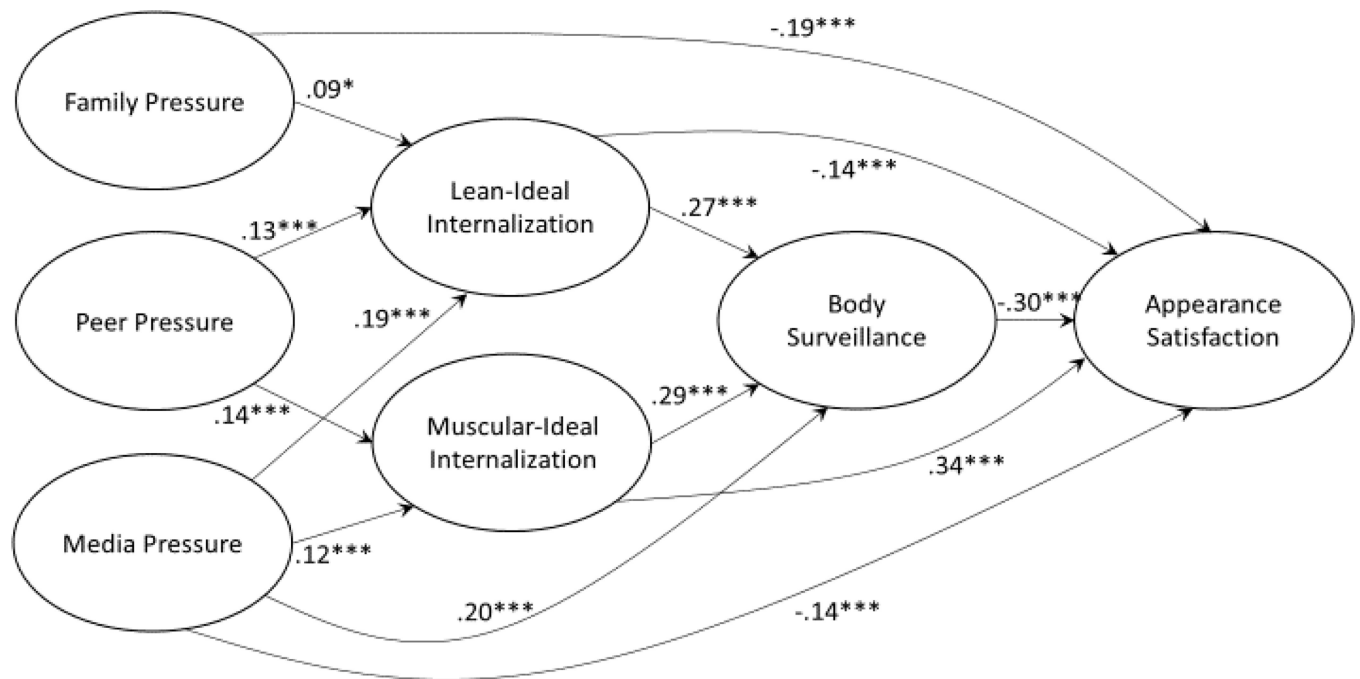
*Note.* Appearance evaluation is labeled here as “appearance satisfaction” to denote that higher scores indicate more positive body image.



**Figure 2.**

Model Examining Body Image Quality of Life

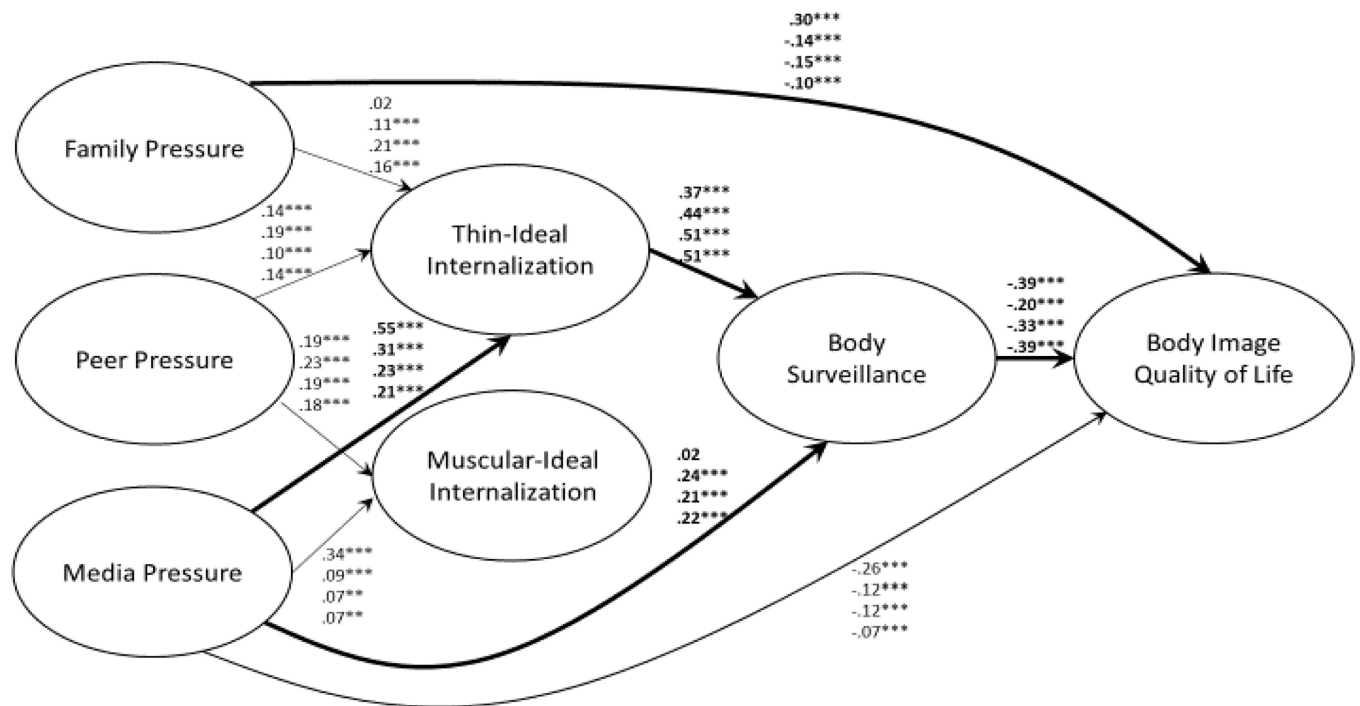
*Note.* Evaluation of the structural model with body image quality of life using latent variable structural equation modeling on the full sample. Standardized betas are presented as the path coefficients.  $***p < .001$ ,  $**p < .01$ ,  $*p < .05$ .



**Figure 3.**

**Model Examining Appearance Evaluation**

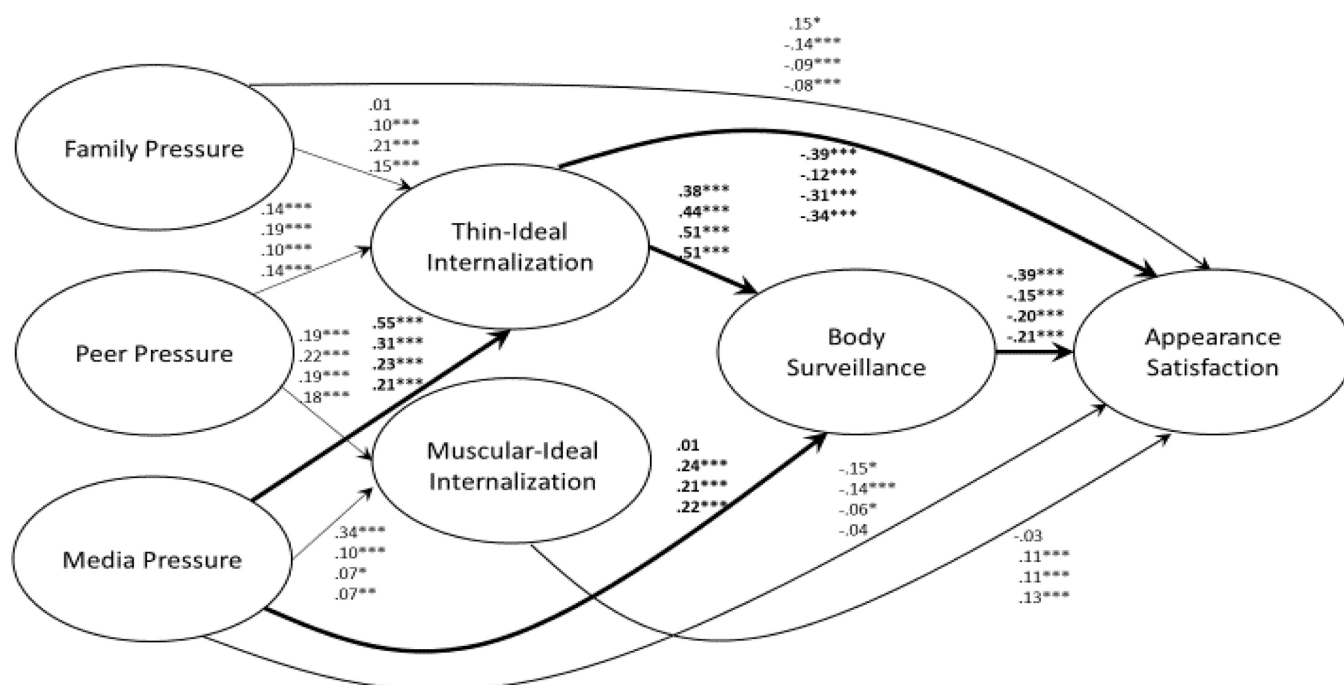
*Note.* Evaluation of the structural model with appearance evaluation using latent variable structural equation modeling on the full sample. Standardized betas are presented as the path coefficients. Appearance evaluation is labeled here as “appearance satisfaction” to denote that higher scores indicate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



**Figure 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 lowest BMI group, the second to top coefficient representing the low BMI group, the second to bottom coefficient representing the medium BMI group, and the bottom coefficient representing the high BMI group. Paths that differed in strength between the groups are bolded. \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ .

**Figure 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 lowest BMI group, the second to top coefficient representing the low BMI group, the second to bottom coefficient representing the medium BMI group, and the bottom coefficient representing the high BMI group. Appearance evaluation is labeled here as “appearance satisfaction” to denote that higher scores indicate more positive appearance evaluation. \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ .

**Table 1.**

## Demographics of the Sample

Demographics	<i>M</i>	<i>SD</i>			Demographics	<i>M</i>	<i>SD</i>
Age	34.1	(10.7)			Hours Worked	33.1	(15.6)
Years in U.S.	33.1	(11.3)			BMI	27.6	(6.3)
	%	<i>n</i>				%	<i>n</i>
Race					Education		
White	75.8	(4797)			Some High School or Less	0.7	(46)
Hispanic	3.2	(205)			High School Degree	8.4	(534)
Black	7.5	(477)			Some College	32.1	(2031)
Asian	5.4	(344)			College Degree	44.6	(2820)
Indian	0.3	(18)			Advanced Degree	14.2	(896)
Native American	0.5	(29)					
Pacific Islander	0.2	(10)			Sexual Orientation		
White-Hispanic	1.8	(117)			Heterosexual	85.3	(5395)
White-Black	1.0	(61)			Gay or Lesbian	3.4	(213)
White-Asian	1.0	(65)			Bisexual	9.5	(598)
White-Middle Eastern	1.0	(65)			Asexual	0.7	(47)
Other	2.2	(139)			Other	1.2	(74)
Relationship Status					BMI (CDC classifications)		
Married	43.3	(2738)			Underweight (Lowest)	2.0	(126)
Cohabiting	19.0	(1204)			Normal Weight (Low)	41.4	(2617)
Dating one person exclusively	16.0	(1013)			Overweight (Medium)	26.6	(1685)
Dating multiple people	1.8	(113)			Obese I (High)	14.9	(940)
Widowed	0.8	(51)			Obese II (High)	7.9	(497)
Not currently involved	19.1	(1208)			Obese III (High)	7.3	(462)
Currently in College	16.3	(1033)			Born in U.S.	93.9	(5942)

*Note.* For this study, we refer to the “underweight,” “normal weight,” “overweight,” and “obese” CDC categories as the lowest, low, medium, and high BMI categories

**Table 2.**

Means, Standard Deviations, and Zero-Order Correlations Among Study Variables

	<i>M</i>	<i>SD</i>	Range	1	2	3	4	5	6	7	8
1. Appearance evaluation	3.14	0.99	1 – 5	-							
2. Body image quality of life	4.43	1.24	1 – 7	.70 ***	-						
3. Body surveillance	4.24	1.31	1 – 7	-.33 ***	-.36 ***	-					
4. Thin-ideal internalization	3.09	1.04	1 – 5	-.31 ***	-.24 ***	.48 ***	-				
5. Muscular-ideal internalization	2.49	1.01	1 – 5	.01	.03 *	.16 ***	.36 ***	-			
6. Peer appearance pressure	1.93	1.02	1 – 5	-.28 ***	-.26 ***	.23 ***	.29 ***	.18 ***	-		
7. Media appearance pressure	3.38	1.34	1 – 5	-.31 ***	-.30 ***	.37 ***	.32 ***	.12 ***	.36 ***	-	
8. Family appearance pressure	2.23	1.17	1 – 5	-.34 ***	-.30 ***	.23 ***	.27 ***	.11 ***	.59 ***	.34 ***	-
9. Body mass index	27.69	6.86	N/A	-.51 ***	-.34 ***	.09 ***	.05 **	-.12 **	.27 ***	.22 ***	.34 ***

*Note.*\*\*\*  
 $p < .001$ \*\*  
 $p < .01$ \*  
 $p < .05$ .