

Body Dissatisfaction in a Diverse Sample of Young Men Who Have Sex With Men: The P18 Cohort Study

Daniel E. Siconolfi¹ · Farzana Kapadia^{2,3} · Robert W. Moeller⁴ · Jessica A. Eddy² · Sandra A. Kupprat² · Molly J. Kingdon² · Perry N. Halkitis^{2,3,5}

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Abstract Young men who have sex with men (YMSM) may be at greater risk for body dissatisfaction, compared to their heterosexual peers. However, differences within YMSM populations are understudied, precluding the identification of YMSM who are at greatest risk. This study examined body dissatisfaction in a racially/ethnically diverse sample of YMSM ages 18–19 in New York City. Using cross-sectional data from the baseline visit of a longitudinal cohort study of YMSM ($N = 591$), body dissatisfaction was assessed using the Male Body Attitudes Scale. Three outcomes were modeled using linear regression: (1) overall body dissatisfaction, (2) muscularity dissatisfaction, and (3) body fat dissatisfaction. Covariates in the models included race/ethnicity, sexual orientation, BMI, gay community affiliation, and internalized homonegativity. White YMSM experienced greater body dissatisfaction across the three models. Internalized homonegativity was a statistically significant predictor of dissatisfaction across the three models, though its association with body dissatisfaction was relatively small. The findings point to future avenues of research, par-

ticularly qualitative research to explore demographic and cultural nuances in body attitudes among YMSM.

Keywords Body image · Body dissatisfaction · Gay · Bisexual · MSM · Internalized homonegativity · Sexual orientation

Introduction

Body dissatisfaction and body image concerns have historically been seen as a problem affecting women, yet there is a growing literature base documenting body dysmorphia and body dissatisfaction among men (Blashill, 2010; Brennan et al., 2013; Daniel & Bridges, 2010; Parent, 2013; Pope, Phillips, & Olivardia, 2000). While there is significant variation across studies, there is evidence that gay men and other sexual minority men may experience greater body dissatisfaction than their heterosexual peers (Morrison, Morrison, & Sager, 2004). Similar findings have been noted among young sexual minority men and young men who have sex with men (YMSM) (Calzo, Corliss, Blood, Field, & Austin, 2013; Carper, Negy, & Tantleff-Dunn, 2010; Martins, Tiggemann, & Kirkbride, 2007; Michaels, Parent, & Moradi, 2013). Specific components of body dissatisfaction for YMSM may include overall dissatisfaction, muscularity dissatisfaction, and body fat dissatisfaction (Blashill, 2010; Brennan, Craig, & Thompson, 2012; Tylka, Bergeron, & Schwartz, 2005; Yelland & Tiggemann, 2003). Body dissatisfaction can have significant behavioral and health implications for YMSM. For example, prior research with male adolescents and young adults (sexual minorities as well as heterosexuals) indicates associations between body dissatisfaction and poor mental health (e.g., depression, low self-esteem), unhealthy weight control behaviors (e.g., fasting and disordered eating), and use of health supplements with potential health risks (Field et al., 2005; Hadland,

✉ Perry N. Halkitis
pnh1@nyu.edu

¹ Department of Health, Behavior & Society, Johns Hopkins University, Baltimore, MD, USA

² Center for Health, Identity, Behavior and Prevention Studies, New York University, New York, NY, USA

³ NYU Global Institute of Public Health, 41 East 11th Street, 7th Floor, New York, NY 10003, USA

⁴ Department of Psychology, Middlebury College, Middlebury, VT, USA

⁵ Langone School of Medicine, New York University, New York, NY, USA

Austin, Goodenow, & Calzo, 2014; Holsen, Kraft, & Roysamb, 2001; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Olivardia, Pope, Borowiecki, & Cohane, 2004; Smith, Hawkeswood, Bodell, & Joiner, 2011; Tylka, 2011). Body dissatisfaction may also be associated with more distal behavioral outcomes, such as sexual risk behavior among MSM or lower self-efficacy for condom use across genders and sexual orientations (Blashill & Safren, 2014, 2015; Parent & Moradi, 2014; Wilton, 2009).

To date, the bulk of YMSM body dissatisfaction research has been comparative (i.e., comparing YMSM to heterosexual peers) (Calzo et al., 2013; Carper et al., 2010; Hadland et al., 2014), or has applied theory such as objectification theory (Martins et al., 2007), or has examined mechanisms of social influence (Tylka, 2011). Taken together, these studies have demonstrated greater risk among YMSM, and have also examined mechanisms underlying this increased risk for YMSM as a whole. However, they do not identify the young men within YMSM populations who are experiencing the greatest burdens of body dissatisfaction. In this paper, we seek to explore sociodemographic (race/ethnicity, sexual orientation), physical (BMI), and psychosocial factors (internalized homonegativity and gay community affiliation), associated with three components (overall body composition, muscularity, and body fat) of body dissatisfaction within a sample of YMSM.

A number of factors that are potentially associated with YMSM body dissatisfaction have been explored in the literature. For men of all sexual orientations, it is plausible that such dissatisfaction is related to the intense pressures of Western cultures in which youth and beauty are valued and highly sought after (Beren, Hayden, Wilfley, & Grilo, 1996). For YMSM, this may be compounded by intense pressures within gay cultures (Drummond, 2005; Martins et al., 2007; Williamson, 1999). Other factors potentially related to body attitudes include internalized homonegativity, gay community affiliation, body mass index (BMI), and racial and ethnic identities.

Internalized Homonegativity

Sexual minorities, and sexual minority youth in particular, are at risk of internalizing the homophobia they encounter in the social environment (Meyer, 2003; Newcomb & Mustanski, 2010; Radkowski & Siegel, 1997; Stall, Friedman, & Catania, 2008). Research has examined the associations between internalized homonegativity and body dissatisfaction in sexual minority men, particularly regarding muscularity. This link has largely been interpreted by researchers as either a psychological, social, or physical defense against the perceived weakness or effeminacy of gay men, and/or harassment associated with gender non-conformity (Brennan et al., 2012; Halkitis, Green, & Wilton, 2004; Kimmel & Mahalik, 2005; Wiseman & Moradi, 2010). Prior research has identified associations between internalized homonegativity and body dissatisfaction (Kimmel & Mahalik,

2005; Reilly & Rudd, 2006) and drive for muscularity (Brennan et al., 2012).

Gay Cultures and Community Affiliation

Images of idealized bodies, internalization of these ideals, and objectification may contribute to body attitudes or dissatisfaction among both men and women (Daniel & Bridges, 2010; Parent & Moradi, 2011; Wiseman & Moradi, 2010). For men who have sex with men (MSM), body dissatisfaction may also be specifically attributable to aspects of gay culture (Levesque & Vichesky, 2006; Morrison et al., 2004; Williamson, 1999; Wood, 2004). While men's bodies in general are increasingly objectified in broader non-gay cultures, images of lean, muscular, and sexualized bodies have historically pervaded gay cultures and gay media (Drummond, 2005; Martins et al., 2007; Williamson, 1999). Gay men may internalize the notion of their own bodies as objects (i.e., self-objectify) in line with the high social and sexual value accorded to these bodies (Daniel & Bridges, 2010; Drummond, 2005; Martins et al., 2007; Wiseman & Moradi, 2010).

Studies examining associations between gay community affiliation and body dissatisfaction yield conflicting results. Stronger gay community affiliation may be associated with greater general body dissatisfaction, or greater drive for muscularity, specifically (Beren et al., 1996; Hunt, Gonsalkorale, & Nosek, 2012; Levesque & Vichesky, 2006). However, contrary evidence also exists; community affiliation may be unrelated to body dissatisfaction (Tiggemann, Martins, & Kirkbride, 2007), or may in fact be protective with regard to body image and attitudes (Feldman & Meyer, 2007; Levesque & Vichesky, 2006). With regard to directionality, it is also plausible that one's body or body image impacts one's perceived or actual gay community affiliation (Wiseman & Moradi, 2010). For YMSM, the development of their sexual identity and increasing involvement in gay communities may engender body image concerns during this maturation period (Calzo et al., 2013; Morrison et al., 2004). Integrating gay community affiliation in YMSM body dissatisfaction research may also help to capture a social context that influences body attitudes during a key developmental period.

Body Mass Index

The relationship between body mass index and body dissatisfaction in males is nuanced and findings vary across existing research, likely attributable to the (1) inability of BMI to distinguish between fat mass and muscle mass, paired with (2) the use of general dissatisfaction measures. For example, studies using a global measure of body dissatisfaction (i.e., attitudes toward the body as a whole, or multifaceted items summed into a single score) have typically evidenced a curvilinear shape between BMI and dissatisfaction among males (Austin, Haines, & Veuglers, 2009; Calzo et al., 2012; Kostanski, Fisher, & Gullone,

2004; Muth & Cash, 1997; Presnell, Bearman, & Stice, 2004). This relationship has been interpreted, succinctly, as underweight men desiring more body mass, and overweight men desiring leanness and/or less body mass. However, this “global” approach obscures the distinction of leanness and muscular definition often desired by men. Among studies that have used muscularity and body fat measures more specifically, BMI has typically been associated with body fat attitudes, but inconsistently (and linearly, when so) associated with muscularity attitudes (Brennan et al., 2012; Daniel & Bridges, 2010; Hunt et al., 2012; Tylka, 2011; Tylka & Andorka, 2012).

Demographic Differences

Few studies have explored racial and ethnic differences in sexual minority men’s body image and attitudes (Brennan et al., 2013; Siconolfi, Halkitis, Allomong, & Burton, 2009). In general populations of men (without regard to sexual orientation), differences in body image across racial and ethnic groups have been largely inconsistent, although Black men in the U.S. may tend to have better body image than White men (Ricciardelli, McCabe, Williams, & Thompson, 2007). Data regarding differences related to drive for muscularity or weight gain are sparse and also inconsistent (Ricciardelli et al., 2007). Our prior research has not found racial/ethnic differences in adult gay and bisexual men’s body image, though there were differences in disordered eating scores with White and Latino men evidencing higher scores (Siconolfi et al., 2009). Data from the Youth Risk Behavior Surveillance System (YRBSS) have also indicated that Hispanic young men were more likely than their peers to engage in weight control (Chao et al., 2008). There is a paucity of analyses examining racial/ethnic differences in body image and body dissatisfaction among both young and adult sexual minority men, likely attributable to predominately White samples in the existing research (Brennan et al., 2012, 2013).

Finally, as sexual orientation is neither binary nor monolithic, there may be differences in body image or dissatisfaction *within* sexual minority subgroups. However, prior studies have also relied heavily on gay-identified samples and thus prohibit analysis of potential nuances between MSM sub-populations, such as non-gay-identified MSM (Wiseman & Moradi, 2010). It is plausible that body dissatisfaction may be associated with sexual orientation, such that men with gay or “exclusively homosexual” sexual orientations or identities would be more strongly influenced by gay body image ideals than other non-gay MSM. For example, muscular ideals portrayed in gay media may be more salient for gay-identified men than non-gay MSM because MSM are less likely to be exposed to these ideals, and if exposed, may not identify as strongly with these ideals. There is a need for research on the role of both sexual orientation and race/ethnicity as they relate to men’s body image and attitudes (Blashill, 2010; Brennan et al., 2012, 2013).

Gaps in Existing Literature

There are also a number of methodological shortcomings in prior studies of sexual minority men. Gay and bisexual men’s body image is multifaceted and may encompass constructs such as muscularity and body fat, though a number of body image measures have not explicitly included these factors (Blashill, 2010; Levesque & Vichesky, 2006; McCabe & Ricciardelli, 2004). Along these lines, early research with men utilized measures that were originally developed for women, and thus neglected the specific components of body image that likely differ between men and women (e.g., muscularity, versus thinness) (Kaminski, Chapman, Haynes, & Own, 2005; McCabe & Ricciardelli, 2004; Parent, 2013). Finally, sampling limitations in current studies (i.e., small samples, predominately White samples, predominately gay-identified samples, and adult samples) preclude knowledge regarding body image and body attitudes among racially/ethnically diverse YMSM.

In summary, comparative analyses have indicated that YMSM are at risk for body dissatisfaction. Yet, YMSM are significantly understudied with regard to body image and body dissatisfaction. In these analyses, we seek to build upon existing literature by examining associations among multifaceted body dissatisfaction, race/ethnicity, sexual orientation, BMI, internalized homonegativity, and community affiliation in a diverse sample of YMSM.

Based on the existing literature, we hypothesized that (1) greater internalized homophobia, and (2) White race/ethnicity would be associated with greater body dissatisfaction. We also hypothesized that greater internalized homophobia would be associated with greater muscularity dissatisfaction. We did not generate a priori hypotheses regarding the other covariates of interest, as existing data are limited and/or conflicting.

Method

Participants

This study employs data collected during the baseline assessment of a prospective cohort study of YMSM residing in New York City (NYC). Complete study details are described elsewhere (Halkitis et al., 2013). As explained to participants, the study sought to examine the longitudinal relationships between mental health, sexual behavior, and substance use in a cohort of young sexual minority men. Briefly, active (e.g., solicitation of individuals) and passive (e.g., posters) methods were used to recruit a diverse sample of YMSM from across the five boroughs of NYC. Recruitment took place over a period of 23 months in 2009–2011. Eligibility criteria included ages 18–19, biological male sex, sexual activity (i.e., contact that could have resulted in orgasm) with another man in the prior 6 months, residence in the NYC metropolitan area, and a self-reported HIV-negative or

unknown serostatus. During recruitment, 2,068 individuals screened for eligibility. A total sample of 600 men completed the baseline survey at the research center. For the analyses presented here, seven participants had missing data for a key variable (height, $n = 5$; internalized homonegativity, $n = 2$); an additional 2 participants had incomplete data. Thus, 8 YMSM were excluded from analyses, yielding an analytic sample of 591 YMSM.

Audio computer-assisted self-interview (ACASI) software was used to collect all data analyzed here. Participants provided informed consent before participation, and the study was approved by the IRB at the New York University. Participants received \$35 remuneration for completing the baseline survey.

Independent Variables

Sociodemographics

Participants indicated their race and ethnicity, which we collapsed into categories of Black (non-Hispanic), Hispanic or Latino, Asian or Pacific Islander (non-Hispanic), and White (non-Hispanic) or multiracial/other (non-Hispanic) (e.g., multiple racial identities, Native American, unsure, etc.). Participants also indicated their sexual identity on a 7-point Kinsey scale, ranging from “exclusively homosexual” to “exclusively heterosexual” (Kinsey, Pomeroy, & Martin, 1948). For the present analysis, we dichotomized this measure as “exclusively homosexual” and “not exclusively homosexual.” No participants identified as “exclusively heterosexual.”

Body Mass Index (BMI)

BMI was calculated as a continuous variable after data collection using the standard formula of kilograms over height squared (Keys, Fidanza, Karvonen, & Kimura, 1972). Participants reported their height (feet, inches) and weight (pounds) separately.

Psychosocial Factors

We assessed local gay community affiliation using an item developed by O’Donnell et al. (2002). Participants responded to the statement “I feel part of the gay community in New York City” on a 5-point Likert scale ranging from “strongly disagree” to “strongly agree.” Because responses at either “strongly” anchor were sparse, we collapsed responses into “disagree,” “neutral,” and “agree.” Finally, we measured internalized homonegativity using four items from Thiede et al. (2003). Participants indicated their agreement with statements (e.g., “Sometimes I wish I was not gay/bisexual.”) on a 5-point Likert scale, ranging from “strongly disagree” to “strongly agree.” For this analysis, a total score was created by summing the four responses ($\alpha = 0.87$); a higher score indicates greater internalized homonegativity.

Dependent Variables

Body Dissatisfaction

We assessed body dissatisfaction using the Male Body Attitudes Scale (MBAS) (Tylka et al., 2005). The MBAS consists of 24 items in total across three multi-item subscales: muscularity (e.g., “I wish my arms were stronger.”), body fat (e.g., “I think my body should be leaner.”), and height (e.g., “I wish I were taller.”). The MBAS yields a total score, muscularity score, body fat score, and height score, each of which is calculated by averaging an individual’s responses to corresponding items. Participants indicated the frequency of a given attitude on a 6-point scale ranging from “never” to “always.” A higher score indicates greater dissatisfaction. The MBAS has strong internal consistency (α ’s = 0.91 to 0.82) and strong test–retest reliability (r ’s = 0.94 to 0.81) (Tylka et al., 2005). Though all items were included in the total body dissatisfaction score, we did not examine the height subscale separately due to concerns about its two-item factor structure and its potentially limited relevance to gay men (see Blashill, 2010; Blashill & Vander Wal, 2009a).

Because this was the first known use of the MBAS with a diverse sample of YMSM, we conducted an exploratory factor analysis. Results indicated three factors, nearly identical to the original measure. Thus, for comparability across studies, we maintained the existing structure of the MBAS. Additionally, a new, three-item fourth factor emerged (items 4, 17, and 18), but was ignored because it lacked a coherent, theoretical construct and thus appeared to be spurious. The overall ($\alpha = 0.92$), muscularity ($\alpha = 0.88$) and body fat ($\alpha = 0.92$) Cronbach’s alphas were high in this sample, indicating a good reliability of assessment. The overall body attitude score consisted of all 24 scale items, including overall attitudes (e.g., “I feel dissatisfied with my overall body build.”) as well as the muscularity and body fat items. The muscularity subscale consisted of 10 items relevant to muscularity and definition (e.g., “I think my arms should be larger (i.e., more muscular).”). The body fat subscale consisted of eight items (e.g., “Have you felt excessively large and rounded (i.e., fat)?”) relevant to body fat and leanness. Total scores were computed on a range of 1–6.

Analytic Plan

We used exploratory analyses to characterize the participants and variables of interest. We tested bivariate associations between each dependent variable and each independent variable using either Pearson correlations (continuous) or ANOVAs (categorical, with Bonferroni corrections for multiple comparisons). One multiple regression model was constructed for each of the body dissatisfaction scales (overall body dissatisfaction, muscularity dissatisfaction, and body fat dissatisfaction). Because race/ethnicity emerged as a significant predictor of body dissatisfaction in the overall sample, we also conducted a secondary set of strati-

fied analyses to model within racial/ethnic groups with sufficient sample size (Hispanic/Latino, Black, multiracial/other, and White) using the same predictors from the main regressions. For the purposes of conceptually guided modeling, as well as to allow comparisons of findings across the three models, each multivariable model shared the same set of independent variables which were entered simultaneously. For categorical variables, we set reference groups (White for race/ethnicity, and “neutral” for community affiliation). Theory, along with exploratory incremental F tests and curve estimation, indicated quadratic relationships between BMI and overall body dissatisfaction, and between BMI and body fat dissatisfaction. Thus, a quadratic BMI polynomial term was included in the overall body dissatisfaction and body fat dissatisfaction models. To reduce multicollinearity associated with linear and quadratic BMI, and to facilitate interpretation, BMI was centered at the mean. Variables were checked for multicollinearity using the variance inflation factor (VIF). Regression diagnostics indicated that normality assumptions for ordinary least squares (OLS) regression had been violated (residuals were heteroskedastic), attributable to a few extreme outliers with high leverage and/or influence. In order to correct for heteroskedasticity of residuals, we used robust regression with iteratively re-weighted least squares (IRLS). All analyses were conducted using Stata, Version 12 (StataCorp, 2011).

Results

Sample

The sample was diverse regarding race/ethnicity, sexual orientation, and gay community affiliation (Table 1). Participants had a mean BMI of 23.05 ($SD = 4.35$). Mean scores for both overall body dissatisfaction and muscularity dissatisfaction were similar ($M = 2.99$ each, $SDs = 0.96$ and 1.09 , respectively). The mean body fat dissatisfaction score ($M = 3.06$, $SD = 1.39$) was slightly higher than the overall body and muscularity dissatisfaction mean scores, albeit with more variance. Sample characteristics are detailed in Table 1.

Bivariate Associations

There were differences by race/ethnicity in overall body dissatisfaction ($F(4, 586) = 2.56$, $p = .04$), with White men ($M = 3.12$, $SE = 0.07$; 95 % CI 2.99–3.26) reporting higher scores than Black men ($M = 2.75$, $SE = 0.10$; 95 % CI 2.55–2.94, $p = .02$). Community affiliation was also associated with overall body dissatisfaction scores ($F(2, 588) = 5.04$, $p = .01$), as men who felt neutral about their affiliation ($M = 3.09$, $SE = 0.06$; 95 % CI 2.97–3.22) had higher scores than those who felt affiliated ($M = 2.85$, $SE = 0.06$; 95 % CI 2.73, 2.97; $p = .02$). Additionally, men who did not feel affiliated had higher scores ($M = 3.11$, $SE = 0.08$; 95 % CI 2.96–3.27) than those who were

Table 1 Sample characteristics ($N = 591$)

	%	<i>n</i>
Race/ethnicity		
Hispanic/Latino	38.07	225
Black	14.72	87
Asian/Pacific Islander	4.91	29
Multiracial/other	13.03	77
White	29.27	173
Sexual orientation ^a		
Exclusively homosexual/gay	41.46	245
Not exclusively homosexual/gay	58.54	346
Community affiliation		
Neutral	35.19	208
Agree	42.47	251
Disagree	22.34	132
	<i>M</i>	<i>SD</i>
Body mass index (BMI)	23.05	4.35
(range = 16.03–48.81)		
Internalized homonegativity	8.51	4.22
(range = 4–20)		
MBAS score	2.99	0.96
(range = 1.0–5.92)		
MBAS muscularity subscale	2.99	1.09
(range = 1–6.0)		
MBAS body fat subscale	3.06	1.39
(range = 1–6.0)		

^a Assessed using the Kinsey Scale (Kinsey, Pomeroy, & Martin, 1948). No participants identified as “0,” or “Exclusively heterosexual”

affiliated ($p = .03$). Higher BMI was moderately correlated with higher total body scores ($r = 0.27$, $p < .001$), as was greater internalized homonegativity ($r = 0.28$, $p < .001$). Sexual orientation was not associated with overall body dissatisfaction scores.

There were also differences by race/ethnicity in muscularity dissatisfaction ($F(4, 586) = 4.34$, $p = .001$), as White men ($M = 3.24$, $SE = 0.08$; 95 % CI 3.08–3.40) had higher scores than both Hispanic/Latino men ($M = 2.90$, $SE = 0.07$; 95 % CI 2.76–3.04; $p = .02$) and Black men ($M = 2.76$, $SE = 0.12$; 95 % CI 2.54–2.99; $p = .01$). Sexual orientation was marginally associated with muscularity scores ($F(1, 589) = 3.89$, $p = .049$), and men who were not exclusively homosexual/gay had higher scores ($M = 3.07$, $SE = 0.06$; 95 % CI 2.95–3.18) than men who were exclusively homosexual/gay ($M = 2.89$, $SE = 0.07$; 95 % CI 2.75, 3.02; $p = .049$). Higher BMI weakly negatively correlated with muscularity dissatisfaction ($r = -0.08$, $p = .04$), but internalized homonegativity was moderately positively correlated ($r = 0.25$, $p < .001$). Community affiliation was not associated with muscularity dissatisfaction.

Table 2 Overall body dissatisfaction, multivariable model ($N = 591$)

	<i>B</i>	Adjusted MLR ($R^2 = 19.1\%$)			95 % CI
		<i>SE</i>	<i>t</i>	<i>p</i>	
Race/ethnicity ^a				<.001	
Hispanic/Latino	−0.31*	0.09	−3.25	.001	−0.49, −0.12
Black	−0.62*	0.12	−5.15	<.001	−0.86, −0.38
Asian/Pacific Islander	−0.13	0.18	−0.70	ns	−0.48, −0.23
Multiracial/other	−0.35*	0.12	−2.82	.005	−0.60, −0.11
Sexual orientation					
Exclusively homosexual/gay	0.05	0.08	0.57	ns	−0.11, 0.20
Community affiliation ^b				ns	
Agree	−0.10	0.08	−1.15	ns	−0.27, 0.07
Disagree	−0.11	0.10	−1.11	ns	−0.31, 0.09
Body mass index (BMI) ^c	0.10*	0.12	8.06	<.001	0.07, 0.12
BMI ²	−0.004*	0.001	−3.55	<.001	−0.006, −0.002
Internalized homonegativity	0.06*	0.01	6.86	<.001	0.05, 0.08
Constant	−1.40	0.76	−1.84	.07	−2.90, 0.10

* $p < .05$ ^a Reference group is White race/ethnicity^b Reference group is Neutral^c Centered at mean (23.064)

Finally, BMI was strongly correlated ($r = 0.46$, $p < .001$) with body fat dissatisfaction, and internalized homonegativity was weakly correlated ($r = 0.16$, $p = .001$) with this subscale.

Main Multivariable Models

For the model assessing overall body dissatisfaction, ($F(10, 580) = 14.59$, $p < .001$, $R^2 = 19.1\%$), race/ethnicity overall was associated with dissatisfaction ($p < .001$), and Hispanic/Latino ($B = -0.31$; 95 % CI -0.49 to -0.12 ; $p = .001$), Black ($B = -0.62$; 95 % CI -0.86 to -0.38 ; $p < .001$), and multiracial/other men ($B = -0.35$; 95 % CI -0.60 to -0.11 ; $p = .005$) had lower dissatisfaction scores as compared to White men. BMI was associated with dissatisfaction ($B = 0.10$; 95 % CI 0.07 – 0.12 ; $p < .001$) as was the BMI quadratic term ($B = -0.004$, 95 % CI -0.006 to -0.002) indicating a concave curvilinear effect. Greater internalized homonegativity was also associated with greater dissatisfaction ($B = 0.06$; 95 % CI, 0.05 – 0.08 ; $p < .001$). The model is detailed in Table 2.

For the model assessing muscularity dissatisfaction, ($F(9, 581) = 7.54$, $p < .001$, $R^2 = 9.7\%$), race/ethnicity overall was associated with muscularity dissatisfaction ($p = .002$), and Hispanic/Latino ($B = -0.33$; 95 % CI -0.55 to -0.11 ; $p = .004$), Black ($B = -0.52$; 95 % CI -0.81 to -0.23 ; $p < .001$), and multiracial/other ($B = -0.45$; 95 % CI -0.74 to -0.15 ; $p = .003$) men had less dissatisfaction as compared to White men. Conversely, greater internalized homonegativity ($B =$

0.07 ; 95 % CI 0.05 to 0.09 ; $p < .001$) was associated with increased dissatisfaction. The model is detailed in Table 3.

For the model assessing body fat dissatisfaction, ($F(10, 580) = 27.52$, $p < .001$, $R^2 = 31.5\%$), race/ethnicity overall was associated with dissatisfaction ($p < .001$), and Hispanic/Latino ($B = -0.34$; 95 % CI -0.60 to -0.09 ; $p = .007$) and Black ($B = -0.82$; 95 % CI -1.14 to -0.50 ; $p < .001$) men had less body fat dissatisfaction as compared to White men. BMI ($B = 0.24$; 95 % CI 0.20 – 0.27 ; $p < .001$) was associated with dissatisfaction as was the BMI quadratic term ($B = -0.01$, 95 % CI -0.01 to -0.007 , $p < .001$) indicating a concave curvilinear effect. Greater internalized homonegativity ($B = 0.05$; 95 % CI 0.03 – 0.08 ; $p < .001$) was associated with greater dissatisfaction. The model is detailed in Table 4.

Within-Group Multivariable Models

Because race/ethnicity was associated with body dissatisfaction, we also conducted exploratory analyses stratified by race/ethnicity to determine if covariates of body dissatisfaction varied, qualitatively, across racial/ethnic groups. Among Hispanic/Latino YMSM, for the model assessing overall body dissatisfaction ($F(6, 218) = 7.10$, $p < .001$, $R^2 = 15.0\%$), higher internalized homonegativity ($B = 0.06$, 95 % CI 0.03 – 0.10 , $p < .001$) was associated with greater body dissatisfaction, as was BMI ($B = 0.09$, 95 % CI 0.05 – 0.13 , $p < .001$) and the BMI quadratic term ($B = -0.005$, 95 % CI -0.008 to -0.002 , $p = .003$) indicating a concave curvilinear effect. For the model

Table 3 Muscularity dissatisfaction, multivariable model ($N = 591$)

	<i>B</i>	Adjusted MLR ($R^2 = 9.7\%$)			
		<i>SE</i>	<i>t</i>	<i>p</i>	95 % CI
Race/ethnicity ^a				.002	
Hispanic/Latino	−0.33*	0.11	−2.89	.004	−0.56, −0.11
Black	−0.52*	0.15	−3.54	<.001	−0.81, −0.23
Asian/Pacific Islander	−0.06	0.22	−0.28	ns	−0.49, 0.37
Multiracial/other	−0.45*	0.15	−2.96	.003	−0.74, −0.15
Sexual orientation					
Exclusively homosexual/gay	−0.05	0.10	−0.48	ns	−0.23, 0.14
Community affiliation ^b				ns	
Agree	−0.13	0.10	−1.21	ns	−0.33, 0.08
Disagree	−0.19	0.12	−1.53	ns	−0.43, 0.05
Body mass index (BMI) ^c	−0.01	0.01	−1.31	ns	−0.03, 0.01
Internalized homonegativity	0.07*	0.01	6.11	<.001	0.05, 0.09
Constant	3.06	0.27	10.97	<.001	2.51, 3.61

* $p < .05$ ^a Reference group is White race/ethnicity^b Reference group is Neutral^c Centered at mean (23.064)**Table 4** Body fat dissatisfaction, multivariable model ($N = 591$)

	<i>B</i>	Adjusted MLR ($R^2 = 31.5\%$)			
		<i>SE</i>	<i>t</i>	<i>p</i>	95 % CI
Race/ethnicity ^a				<.001	
Hispanic/Latino	−0.34*	0.13	−2.68	.007	−0.56, −0.09
Black	−0.82*	0.16	−5.00	<.001	−1.14, −0.50
Asian/Pacific Islander	−0.10	0.24	−0.41	ns	−0.58, 0.38
Multiracial/other	−0.28	0.17	−1.67	ns	−0.61, 0.05
Sexual orientation					
Exclusively homosexual/gay	0.15	0.11	1.44	ns	−0.56, 0.36
Community affiliation ^b				ns	
Agree	−0.10	0.12	−0.86	ns	−0.33, −0.13
Disagree	−0.11	0.14	−0.80	ns	−0.38, 0.16
Body mass index (BMI) ^c	0.24*	0.02	14.90	<.001	0.21, 0.27
BMI ²	−0.01*	0.001	−7.07	<.001	−0.01, −0.007
Internalized homonegativity	0.05*	0.01	4.23	<.001	0.03, 0.08
Constant	−7.92	1.04	−7.65	<.001	−9.95, −5.89

* $p < .05$ ^a Reference group is White race/ethnicity^b Reference group is neutral^c Centered at mean (23.064)

assessing muscularity dissatisfaction ($F(5, 219) = 2.96, p = .01, R^2 = 5.67\%$), only greater internalized homonegativity ($B = 0.06, 95\% \text{ CI } 0.02 \text{ to } 0.10, p < .01$) was associated with increased muscularity dissatisfaction. For the model assessing body fat dissatisfaction ($F(6, 218) = 17.48, p < .001, R^2 =$

31.4%), internalized homonegativity ($B = 0.06, 95\% \text{ CI } 0.01\text{--}0.11, p = .02$) as well as BMI ($B = 0.24, 95\% \text{ CI } 0.19\text{--}0.29, p < .001$) and the BMI quadratic term ($B = -0.01, 95\% \text{ CI } -0.02 \text{ to } -0.008$), which indicated a concave curvilinear effect, were associated with dissatisfaction.

Among Black YMSM, for the model assessing overall body dissatisfaction ($F(6, 80) = 4.32, p < .001, R^2 = 23.3\%$), internalized homonegativity ($B = 0.05, 95\% \text{ CI } 0.002\text{--}0.09, p = .04$) was associated with greater body dissatisfaction. The model for muscularity dissatisfaction had marginal fit ($F(5, 81) = 2.01, p = .09, R^2 = 10.47\%$), and only greater internalized homonegativity ($B = 0.06, 95\% \text{ CI } 0.001\text{--}0.11, p = .05$) indicated a statistically marginally significant association with increased muscularity dissatisfaction. With regard to body fat dissatisfaction ($F(6, 80) = 8.25, p < .001, R^2 = 36.1\%$), only the linear BMI term ($B = 0.21, 95\% \text{ CI } 0.12\text{--}0.31, p < .001$) was associated with increased dissatisfaction.

Among YMSM of multiracial/other ethnic identity, for the model assessing overall body dissatisfaction ($F(6, 70) = 4.43, p < .001, R^2 = 28.2\%$), internalized homonegativity ($B = 0.07, 95\% \text{ CI } 0.02\text{--}0.11, p = .01$), the linear BMI term ($B = 0.09, 95\% \text{ CI } 0.02\text{--}0.15, p = .01$), and “exclusively homosexual” sexual orientation ($B = 0.48, 95\% \text{ CI } 0.01\text{--}0.95, p = .04$) were associated with body dissatisfaction. For the model assessing muscularity dissatisfaction ($F(5, 71) = 2.37, p = .04, R^2 = 14.5\%$), only greater internalized homonegativity ($B = 0.09, 95\% \text{ CI } 0.03\text{--}0.15, p = .006$) was associated with increased muscularity dissatisfaction. For the model assessing body fat dissatisfaction ($F(6, 70) = 5.77, p < .001, R^2 = 33.5\%$), the linear BMI term ($B = 0.16, 95\% \text{ CI } 0.07\text{--}0.25, p = .001$) and “exclusively homosexual” orientation ($B = 0.75, 95\% \text{ CI } 0.13\text{--}1.4, p = .02$) were associated with increased body fat dissatisfaction.

Among White YMSM, for the model assessing overall body dissatisfaction ($F(6, 166) = 7.72, p < .001, R^2 = 21.2\%$), the linear BMI term ($B = 0.13, 95\% \text{ CI } 0.09\text{--}0.18, p < .001$) and internalized homonegativity ($B = 0.06, 95\% \text{ CI } 0.03\text{--}0.09, p = .001$) were associated with body dissatisfaction. The model assessing muscularity dissatisfaction did not fit adequately ($F(5, 167) = 1.70, p = 0.13, R^2 = 4.78\%$). For the model assessing body fat dissatisfaction, ($F(6, 166) = 14.81, p < .001, R^2 = 34.8\%$), internalized homonegativity ($B = 0.05, 95\% \text{ CI } 0.003\text{--}0.10, p = .04$), the linear BMI term ($B = 0.28, 95\% \text{ CI } 0.22\text{--}0.35, p < .001$), and the BMI quadratic term ($B = -0.01, 95\% \text{ CI } -0.02\text{--}0.001$), indicating a concave curvilinear effect, were associated with dissatisfaction.

Discussion

In the overall sample of YMSM ages 18–19, men reported more body fat dissatisfaction as compared to muscularity dissatisfaction and general body dissatisfaction. The typical participant body weight was within the Centers for Disease Control and Prevention’s (CDC’s) “healthy” BMI range; however, there was great variation, ranging from moderately underweight to obese BMIs (Centers for Disease Control and Prevention, 2015). Notably, there was diversity in race/ethnicity, sexual

orientation, and level of gay community affiliation. This diversity enables analyses *within* a sample of YMSM, as compared to the majority of existing research that has either compared monolithic categories (i.e., sexual minorities versus heterosexuals) or research that has tested theory and pathways of body dissatisfaction. Instead, we sought to identify YMSM at greatest risk for body dissatisfaction.

The mean dissatisfaction scores were in line with existing research that has used the MBAS with general samples or primarily heterosexual samples (Griffiths, Angus, Murray, & Touyz, 2014; Griffiths, Murray, & Touyz, 2015; Kelly, Cotter, Tanofsky-Kraff, & Mazzeo, 2014; Tylka et al., 2005), as well as samples of adult gay men (Blashill, 2010; Blashill & Vander Wal, 2009b; Tylka & Andorka, 2012). The overall dissatisfaction score in the present study was slightly lower than prior findings ($M = 2.99$ here, versus 3.05–3.46 elsewhere) as was the muscularity dissatisfaction score ($M = 2.99$ versus 3.14–3.5 elsewhere).

Though many factors were associated with each facet of body dissatisfaction at the bivariate level, most variables were not associated with the outcome after adjustment in the final model. Additionally, the influence of covariates was generally small, and the proportion of variance explained the variables in the muscularity models was generally low for the overall sample model ($\sim 10\%$) as well as the within-group models. Across all three models, race/ethnicity was associated with dissatisfaction, with Hispanic/Latino, Black, and multiracial/other YMSM evidencing less negative attitudes than White YMSM (though the multiracial/other difference did not hold in the body fat model).

Significant covariates were somewhat consistent across the racial/ethnic sub-models when analyses were constrained within the given racial/ethnic group. For overall body dissatisfaction, BMI was a significant predictor of greater dissatisfaction across all racial/ethnic groups, except for Black YMSM. Internalized homonegativity was a significant predictor across all groups. For muscularity dissatisfaction, internalized homonegativity was a significant predictor for Hispanic/Latino, Black, and multiracial/other YMSM. Regarding body fat dissatisfaction, linear BMI was a salient predictor across all groups. For White and Hispanic/Latino YMSM, the quadratic BMI term was also significant, as was internalized homonegativity. Finally, “exclusively homosexual” orientation was a significant predictor of both body fat dissatisfaction and overall body dissatisfaction for men of multiracial/other identity, only.

White YMSM evidenced higher levels of body dissatisfaction. In prior research, race/ethnicity was not associated with overall body dissatisfaction (Siconolfi et al., 2009) or drive for muscularity (Brennan et al., 2012) in adult populations of gay and bisexual men. The present findings may be attributable to predominance of White men’s sexualized bodies in gay media (Brennan et al., 2013), which might lead White YMSM to adhere to more stringent body ideals. In considering differences in muscularity ideal among very young boys, Harrison & Bond (2007) posit that Bandura’s social cognitive theory (Bandura,

2001) may explain the differences they found in drive for muscularity among White and Black male youth. That is, because characters in these magazines are disproportionately White, the bodies and characters depicted may be more salient for boys of White race/ethnicity (Harrison & Bond, 2007). Returning to the present study, it is also possible that this finding reflects differences in racialized bodies. For example, gay and bisexual men of color experience racialized and exoticized aspects of body ideals, and also may enact resistance against these ideals (Brennan et al., 2013). It is also possible that if men of color have internalized relevant racialized body ideals, they are not reflected in the body parts or attitudes captured by the MBAS. The MBAS is a relatively new, multifaceted measure heretofore not utilized in a sample of YMSM that is diverse with regard to race/ethnicity as well as sexual orientation.

Higher BMI was associated with both overall dissatisfaction as well as body fat dissatisfaction, with quadratic terms indicating a concave curvilinear influence on the shape of the association between BMI and dissatisfaction. Evidence of a curvilinear shape has been found in prior research with young men (Austin et al., 2009; Calzo et al., 2012; Kostanski et al., 2004; Presnell et al., 2004). However, the curvilinear shape (concave) found here was the inverse of prior findings (i.e., convex). In the present study, the U-shape opened downward with peak dissatisfaction in the middle; i.e., men with very low and very high BMI tended to have lower dissatisfaction, while “average” men with middle BMIs had higher dissatisfaction. In prior research, the U-shape has opened upward, with higher dissatisfaction in the low and high ends of the BMI spectrum. Two factors may explain this inverse finding. First, the MBAS assesses dissatisfaction with specific body parts, rather than only global measures of dissatisfaction used in existing research. Thus, the specificity of the MBAS may be more apt to disentangle the nuances that underlie the curvilinear shape of global body dissatisfaction (i.e., thin men who desire bulk and muscularity, and obese men who desire leanness or muscular definition). Second, it is plausible that this relationship simply reflects the body attitudes of a young, urban population who have many more progressive “body positive” attitudes. We do caution, however, that the influence of the quadratic terms in the present studies was relatively weak, and implies a relatively flat and wide parabolic shape. The lack of an association between BMI and muscularity dissatisfaction is likely attributable to its inability to differentiate weight associated with muscle versus body fat (Daniel & Bridges, 2010). Thus, a muscular man with low muscularity dissatisfaction and an obese man with high muscularity dissatisfaction may share the same BMI. The use of three body dissatisfaction facets (body fat, muscularity, and overall body dissatisfaction) allowed us to examine the role of BMI in dissatisfaction with more nuance than some prior research.

Internalized homonegativity emerged as a consistent factor across the three main models. However, its effect was rather small in the multivariate models, despite a moderate association

found in bivariate analyses. Prior research indicated links between internalized homonegativity with body dissatisfaction (Kimmel & Mahalik, 2005) as well as drive for muscularity (Brennan et al., 2012). Internalized homonegativity indicates a potential challenge to intervention efforts. YMSM may perceive body image as a “gay” or feminine problem (Hargreaves & Tiggemann, 2006) and thus those who experience body dissatisfaction and its associated distress may be less likely to seek or accept support for body image distress. Importantly, internalized homonegativity is a component of Meyer’s minority stress model (Meyer, 2003). Body dissatisfaction and associated distress may contribute to sexual minority stressors. Additionally, body dissatisfaction may be positioned as an outcome (rather than a component) of the model; the minority stress model incorporates both internal (e.g., internalized homonegativity) and external (e.g., discrimination) stress processes, and thus may be a useful framework for understanding how one experiences their body within the social environment.

Notably, sexual orientation was associated only with muscularity dissatisfaction at the bivariate level, and was not significant in the main multivariable models. Two hypotheses may be proposed. First, there may not be significant differences in body dissatisfaction by sexual orientation in this population when other factors (e.g., internalized homonegativity) are controlled for. Second, it is also plausible that many of these young men are still forging sexual identities, and thus, internalized homonegativity may be more salient at this point in their lives than when they are older (Reilly & Rudd, 2006). Along these lines, gay community affiliation was not a significant predictor once entered in the multivariable models. The influence of gay community affiliation on body image may become more salient with age as some men increasingly engage with gay cultures and communities (Calzo et al., 2013; Morrison et al., 2004). Prior research has identified associations between community affiliation and body dissatisfaction (Beren et al., 1996) and drive for muscularity (Hunt et al., 2012; Levesque & Vichesky, 2006). The present contrast in findings may also be attributable to differences in measurement, as the present study assessed gay community affiliation using a single, subjective measure of local community attachment. Other studies have used multi-item measures of specific activity in gay communities, such as frequenting gay venues (Hunt et al., 2012; Tiggemann et al., 2007). As such, the present measure may be capturing a different concept of community affiliation. We also note the potential for geographical and cultural differences and norms across gay communities.

Again, we note that a significant proportion of the variance in body dissatisfaction was not explained by these models, indicating that other factors may be more salient in explaining body dissatisfaction in YMSM. Future research may be better able to explain YMSM dissatisfaction with the inclusion of these variables. At the individual level, relevant factors include psychological factors including depression (Brennan et al., 2012), self-

esteem (Olivardia et al., 2004) social sensitivity (Blashill & Vander Wal, 2009b), perfectionism (Dakanalis et al., 2014), and emotional functioning (Dakanalis et al., 2014; Griffiths et al., 2014). At the nexus of individual and social influences, potential factors include media influence and salience (Carper et al., 2010; Drummond, 2005), objectification and self-objectification (Daniel & Bridges, 2010; Martins et al., 2007; Michaels et al., 2013; Parent & Moradi, 2011; Wiseman & Moradi, 2010), masculinity or gender attitudes (Blashill, 2011; Griffiths et al., 2015), and peer and partner influences (Adams, Turner, & Bucks, 2005; McArdle & Hill, 2011; Tylka, 2011; Tylka & Andorka, 2012; Wood, 2004).

These findings have health implications, but first we must acknowledge the spectrum of body attitudes and associated behaviors and psychological health. That is, young men's concerns about their body may range from "normative intensities," (i.e., those associated with normative and potentially healthy fitness behaviors) to truly deleterious levels of body dissatisfaction or dysmorphia (psychological distress and/or potentially harmful behaviors) (Parent, 2013). For YMSM with higher levels of dissatisfaction, psychological stress related to body dissatisfaction may present an additional burden in addition to the disproportionate stress they may experience as sexual minorities (Meyer, 2003). Indeed, prior analyses of this sample have indicated existing mental health needs (Storholm et al., 2013). Second, YMSM with body dissatisfaction may engage in unhealthy weight control behaviors, use of health supplements with potentially deleterious health effects (Field et al., 2005; Hadland et al., 2014; Holsen et al., 2001; Neumark-Sztainer et al., 2006; Olivardia et al., 2004; Parent, 2013; Smith et al., 2011; Tylka, 2011), and use of steroids (Blashill & Safren, 2014; Parent, 2013). Finally, it is possible that body image is a component of health syndemics (Halkitis, Wolitski, & Millett, 2013; Stall et al., 2008) affecting YMSM. Thus, in assessment and intervention, it is important to consider body image as a component of holistic of YMSM health.

Limitations

Several limitations must be considered. First, participants self-reported all data, and thus, it is subject to recall bias as well as social desirability bias. However, the use of ACASI may help to reduce these biases (Gribble, Miller, Rogers, & Turner, 1999; Kurth et al., 2004; Tourangeau & Smith, 1996). We note the difficulty in interpreting findings regarding the "multiracial/other" category of YMSM, as this was a collapsed classification. Regarding self-report, BMI may be conservatively biased, as individuals tend to over-report height and under-report weight, yielding a lower BMI (Brener, McManus, Galuska, Lowry, & Wechsler, 2003; Gorber, Tremblay, Moher, & Gorber, 2007). As an overall measure, BMI is also unable to distinguish between weight attributable to fat or muscle, and thus, higher BMIs do not

necessarily indicate an overweight (or, conversely, muscular) participant. With regard to the MBAS, not all aspects of men's body image (e.g., penis size; Grov, Parsons, & Bimbi, 2010) are assessed. Other measures have limitations as well. First, the gay community affiliation measure is a single item that only captures local, NYC community affiliation; men may have affiliations with other geographic or social gay communities. There is room for subjective interpretation of "gay community" in responding to the questionnaire item, as "gay community" was not defined and is not monolithic (Frost & Meyer, 2012). Second, the measure of internalized homonegativity is not a validated measure, though it did demonstrate high reliability in this sample ($\alpha = 0.87$). Finally, we did not assess more proximal and specific sources of influence on body satisfaction, such as peers or sexual partners (Tylka & Andorka, 2012). All data are cross-sectional, though this analysis is not intended to establish causality. External validity may be limited by the non-probability sampling of participants, and findings may not be generalizable to YMSM outside of NYC.

Conclusions

White race/ethnicity and internalized homonegativity are associated with multifaceted body dissatisfaction in this sample of YMSM. Within racial/ethnic subgroups, internalized homonegativity remains a common predictor of body dissatisfaction. BMI was also associated with overall body dissatisfaction, as well as body fat scores. The former two factors point to novel areas for future qualitative work in order to explore and delineate mechanisms. For example, how do YMSM of diverse racial/ethnic backgrounds experience and view their bodies (Brennan et al., 2013)? If YMSM of minority race/ethnicity are at lower risk for body dissatisfaction, what are the relevant protective factors at play? Additionally, what is the role and directionality of internalized homonegativity as it relates to body dissatisfaction, specifically in younger men? Future research might also explore traits and strategies of resistance and resilience that are protective against body dissatisfaction (Brennan et al., 2013; Williamson, 1999). Finally, it is critical to frame body dissatisfaction as a socially influenced health issue faced by YMSM, rather than a trait inherent to this population. For men who do experience body dissatisfaction and distress, we must look beyond the individual-level factors to account for the surrounding social and cultural context that influences body image (Williamson, 1999; Wood, 2004).

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