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Weight Misperception and Unhealthy Weight Control Behaviors Among Sexual Minorities in the General Adolescent Population

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Abstract

Purpose—Gay, lesbian and bisexual youth may experience significant body dissatisfaction. We examined sexual orientation differences in self-perceived weight status and prevalence of potentially dangerous weight control behaviors in a representative sample of adolescents.

Methods—Data were obtained from 12,984 youth between 2003–2009 over four cycles of the Massachusetts Youth Risk Behavior Survey, a statewide survey of 9th–12th grade students. Self-perceived weight status and past-month unhealthy weight control behaviors (fasting >24 hours, using diet pills, and vomiting/using laxatives) were compared among gay/lesbian, bisexual, self-identified heterosexual youth with same-sex partners, unsure youth, and exclusively heterosexual youth using logistic regression, adjusting for age and race/ethnicity.

Results—Compared to exclusively heterosexual males, heterosexual males with prior same-sex partners and bisexual males were more likely to self-perceive as overweight despite being of

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healthy weight/underweight (respectively, adjusted odds ratio [AOR], 2.61; 95% confidence interval [CI], 1.68–4.05; and AOR, 2.56; 95% CI, 1.64–4.00). Compared to exclusively heterosexual females, lesbians and bisexual females were more likely to self-perceive as being of healthy weight/underweight despite being overweight/obese (respectively, AOR, 3.17; 95% CI, 1.15–8.71; and AOR, 2.00; 95% CI, 1.20–3.33). Unhealthy weight control behaviors were significantly more prevalent among sexual minority males (32.5%; AOR, 4.38; 95% CI, 3.38–5.67) and females (34.7%; AOR, 2.27; 95% CI, 1.85–2.78) when considered together relative to exclusively heterosexual males (9.7%) and females (18.8%).

Conclusions—One-third of sexual minority youth engage in hazardous weight control behaviors. Future research should investigate underlying mechanisms and determine whether clinicians should routinely screen for these behaviors.

MeSH Keywords

adolescent; eating disorders; sexuality; overweight; obesity

INTRODUCTION

Unhealthy weight control behaviors (*e.g.*, excessive calorie restriction and purging, including self-induced vomiting and laxative misuse) are associated with a wide range of adverse medical and psychological consequences, some potentially life-threatening [1, 2]. In 2009, one in ten United States high school students reported recent fasting, one in twenty reported recent use of diet pills or other weight loss products, and one in twenty-five reported recent self-induced vomiting or laxative use [3]. The prevalence and antecedents of these behaviors among sexual minority youth (*i.e.*, gay, lesbian, bisexual, and youth who self-identify as heterosexual but who have had same-sex sexual contact) remains understudied. However, emerging data suggest a higher prevalence of purging behaviors among sexual minorities than among exclusively heterosexual youth. For example, a recent large study showed that, compared to exclusively heterosexual females, bisexuals and those that self-classified as “mostly heterosexual”, but not lesbians, were more likely to report purging behaviors [4]. Among males in this same study, gay, bisexual and “mostly heterosexual” males were significantly more likely than exclusively heterosexual males to report purging.

Studies of sexual minority adolescents [5, 6] and adults [7, 8] have highlighted a link between poor body image and unhealthy weight control behaviors. Disparities in poor body image among heterosexuals and sexual minorities may stem from different notions of ideal physical appearance [9]. Evidence suggests that gay and bisexual boys experience greater pressure to look like men in the media than their heterosexual peers, particularly with regard to thinness and muscle tone and definition, whereas lesbian and bisexual girls are less likely to experience or internalize this pressure relative to their heterosexual peers [9, 10]. Such appearance norms may influence weight perceptions, which may precede unhealthy weight control behaviors [6]. Indeed, data from the general adolescent population (without regard to sexual orientation) suggest that youth who inaccurately self-perceive as overweight are more likely to diet [11]. Although data to date suggest a higher prevalence of unhealthy weight control behaviors among sexual minority youth, large-scale studies have yet to examine the

role of weight self-perceptions among youth in the general adolescent population. Data are particularly scarce on these outcomes among youth who self-identify as heterosexual but who have had prior same-sex partners, a group with poorer health outcomes compared to exclusively heterosexual youth [12, 13].

As the obesity epidemic in the United States evolves [14] and as body image issues remain central for youth [15], data are needed on the unique weight-related concerns of sexual minority youth, who begin to establish sexual identity in early adolescence when eating behaviors may also be developing [4, 16]. Drawing on a representative sample of adolescents, we hypothesized that sexual minority youth would be more likely to demonstrate weight misperception and report greater prevalence of unhealthy weight control behaviors than exclusively heterosexual youth. Consistent with prior findings in non-representative samples [10], we anticipated that gay and bisexual males would be likely to misperceive as overweight and demonstrate elevated prevalence of unhealthy weight control behaviors; we also anticipated that lesbian and bisexual females would misperceive as healthy weight or even underweight despite elevated BMI. We hypothesized that heterosexual youth with prior same-sex contact would demonstrate weight misperceptions similar to their same-gender sexual minority peers [5], and that all non-exclusively heterosexual youth would demonstrate elevated prevalence of fasting and purging behaviors [17]. Building on this, we hypothesized that greater weight misperception would be associated with elevated odds of unhealthy weight loss behaviors. Further, we hypothesized that this relationship between weight misperception and healthy weight loss behaviors would be modified by sexual orientation.

METHODS

Sample

The Massachusetts Youth Risk Behavior Survey (MYRBS) is a population-based survey of Massachusetts public high school students in grades 9 through 12 developed by the Centers for Disease Control and Prevention (CDC) as part of the nationwide Youth Risk Behavior Surveillance System (YRBSS) [18]. The MYRBS is administered during odd-numbered years and is a series of cross-sectional surveys administered by the Massachusetts Department of Elementary and Secondary Education in collaboration with the CDC. Schools were randomly selected with a probability proportionate to the number of students enrolled. Classes within the school were selected with equal probability to complete the MYRBS. All students in grades 9 through 12 were equally likely to be in sampled classes. Surveys were paper-and-pencil, self-administered and anonymous. The present analysis was approved by the Institutional Review Board at Boston Children's Hospital.

Data from four recent consecutive cycles of the MYRBS (2003, 2005, 2007 and 2009) were combined in the present analyses to ensure an adequate sample size of sexual minority adolescents for statistical analyses. The overall data set included 12,984 adolescents of median age 15 years. Students and schools surveyed per wave included 3624 students and 50 schools in 2003 (overall response rate, 72.2%), 3522 students and 51 schools in 2005 (overall response rate, 67.1%), 3131 students and 59 schools in 2007 (overall response rate,

74.0%), and 2707 students and 52 schools in 2009 (overall response rate, 64.6%). The major cause of student non-response was being absent on the day of the survey.

Of 6,387 male participants, 5,855 (weighted frequency, 92.8%) were exclusively heterosexual, 136 (2.2%) self-identified as heterosexual but reported prior same-sex partners, 105 (1.7%) were gay, 98 (1.6%) were bisexual, and 120 (1.8%) answered, “Not Sure”. Of 6,567 female participants, 5,730 (88.6%) were exclusively heterosexual, 206 (3.3%) self-identified as heterosexual but reported prior same-sex partners, 61 (0.9%) were lesbian, 335 (5.2%) were bisexual, and 144 (2.1%) answered, “Not Sure”.

Data Source and Measures

A set of core questions for the MYRBS was developed by the CDC as part of the nationwide YRBSS and these were combined with additional questions unique to the MYRBS pertaining to sexual orientation and other risk behaviors. Data were collected on age, race/ethnicity, and self-reported weight (in pounds) and height (in feet/inches). Body mass index (BMI) was converted to age/gender percentiles published by the CDC [19], and classified according to American Academy of Pediatrics guidelines into underweight (<5th percentile for age/gender), healthy weight (5th BMI<85th percentile), overweight (85th BMI<95th percentile), and obese (≥ 95th percentile) [20]. BMI Z-scores were also calculated for participants according to age/gender norms published by the CDC [19].

To determine self-perceived weight status, the MYRBS asked, “How would you describe your weight? Very underweight / Slightly underweight / About the right weight / Slightly overweight / Very overweight.” Regarding current efforts to change weight, the survey asked, “Which of the following are you trying to do about your weight? Lose weight / Gain weight / Stay the same weight / I am not trying to do anything about my weight.” Three questions examined recent unhealthy weight control behaviors: “During the past 30 days, did you go without eating for 24 hours or more (also called fasting) to lose weight or to keep from gaining weight? Yes / No,” “During the past 30 days, did you take any diet pills, powders, or liquids without a doctor’s advice to lose weight or to keep from gaining weight? Yes / No,” and “During the past 30 days, did you vomit or take laxatives to lose weight or to keep from gaining weight? Yes / No.”

Two questions examined sexual orientation. The first concerned sexual identity, and asked, “Which best describes you? Heterosexual (straight) / Gay or lesbian / Bisexual / Not sure.” The second concerned the gender of sexual partners, and asked, “During your life, with whom have you had sexual contact? I have never had sexual contact / Females / Males / Females and males.” Participants were grouped into five categories of sexual orientation based on these questions: exclusively heterosexual (participants who self-identified as heterosexual and did not report any prior same-sex partners), which was the referent group; heterosexual with same-sex partners; gay/lesbian; bisexual; and not sure [12].

Analyses

Data were probability weighted by the CDC to account for nonresponse among students and schools and to reflect the demographic distribution of students statewide in Massachusetts.

Analyses employed survey functions within Stata/MP 11.2 (StataCorp LP, College Station, Texas). All p values were based on two-sided tests and considered significant at $p < 0.05$.

Following stratification by gender, mean BMI and mean BMI Z-score were computed for each sexual orientation subgroup and compared through linear regression. Subgroups were then compared with regard to multiple weight-related categorical outcomes, including BMI classification, self-perceived weight status, accuracy of weight perception, current attempts to change weight, and recent unhealthy weight control behaviors (fasting >24 hours, using diet pills, and vomiting/using laxatives) in the last 30 days.

Concordance between weight perception and weight status was defined as present if a participant had a healthy weight and self-perceived as having a healthy weight, was overweight/obese and self-perceived as slightly/very overweight, or was underweight and self-perceived as slightly/very underweight. Discordance between weight perception and weight status was defined as present in two possible ways: (1) if a participant had a healthy weight or was underweight but self-perceived as being slightly/very overweight; (2) if a participant was overweight/obese, but self-perceived as having a healthy weight or being underweight.

With the exclusively heterosexual group as the referent for both genders, adjusted odds ratios (ORs) for all weight-related outcomes were calculated for each sexual orientation subgroup using multivariate logistic regression, adjusting for age (as a continuous variable) and race/ethnicity, based on findings of prior studies [11, 21]. Additionally, ORs for having engaged in any unhealthy weight loss behavior were calculated for non-exclusively heterosexual youth as a combined group – that is, sexual minority youth, including those classified as heterosexual with same-sex partners, gay/lesbian, and bisexual – because this group as a whole may be at elevated risk for a number of adverse health outcomes [22, 23]. Those who responded “not sure” to the question on sexual orientation were not included in this combined group because previous research suggests that many unsure youth ultimately self-identify as exclusively heterosexual [16]. Additionally, in the analysis relating unhealthy weight control behaviors to concordance between weight status and weight perception, an interaction term was tested to determine whether this relationship was modified by sexual orientation.

RESULTS

Weight status and weight perceptions

Table 1 highlights sample characteristics with regard to age, race/ethnicity, self-reported sexual orientation and BMI according to gender. Frequencies of weight-related outcomes according to sexual orientation are displayed in Tables 2 and 3 for males and females, respectively. As shown in Table 4, which shows adjusted ORs for weight status, weight perceptions and unhealthy weight control behaviors for male sexual orientation subgroups, bisexual males were more likely than exclusively heterosexual males to be overweight or obese. As shown in Table 5, which shows weight-related outcomes and behaviors for female sexual orientation subgroups, heterosexual females with prior same-sex partners and

bisexual females, but not lesbians, were more likely to be overweight or obese relative to exclusively heterosexual females.

Table 4 shows that relative to exclusively heterosexual males, gay males were twice as likely to self-perceive as underweight. However, males with prior same-sex partners and bisexual males were both more than twice as likely to self-perceive as overweight. Table 5 demonstrates that none of the sexual minority female subgroups were more likely than exclusively heterosexual females to self-perceive as underweight, but both heterosexual females with prior same-sex partners and bisexual females were more likely to self-perceive as overweight.

As shown in Table 4, heterosexual males and females with prior same-sex partners, gay males, and bisexual females were all more likely to misperceive themselves as being overweight relative to their same-sex, exclusively heterosexual peers. Conversely, as shown in Table 5, lesbians and bisexual females, were more than twice as likely as exclusively heterosexual females to misperceive themselves as healthy weight or underweight despite an overweight or obese weight status.

Weight change efforts and unhealthy weight control behaviors

Table 4 demonstrates that heterosexual males with prior same-sex partners were more likely than exclusively heterosexual males to be trying to lose weight, as were bisexual females relative to exclusively heterosexual females. None of the male sexual minority subgroups were currently trying to gain weight. Table 5 shows that heterosexual females with prior same-sex partners, as well as bisexual females, were more than twice as likely as exclusively heterosexual females to be currently trying to gain weight. None of the sexual minority subgroups, male or female, were more likely to currently be trying to stay the same weight.

When considered together as a group, all sexual minority males (*i.e.*, those classified as heterosexual with same-sex partners, gay, and bisexual, but not those who were unsure of their sexual orientation) had significantly greater odds of recently having engaged in any unhealthy weight control behaviors (*i.e.*, fasting >24 hours, using diet pills, or vomiting/using laxatives) relative to exclusively heterosexual males (AOR, 4.38; 95% CI, 3.38–5.67), as did all sexual minority females relative to exclusively heterosexual females (AOR, 2.27; 95% CI, 1.85–2.78).

Among all males (regardless of sexual orientation), those who misperceived themselves as being overweight demonstrated elevated odds of engaging in unhealthy weight loss behaviors (AOR, 1.44; 95% CI, 1.04–1.98), a finding that also held for all females who misperceived themselves as being overweight (AOR, 1.68; 95% CI, 1.08–2.63). Sexual orientation did not modify the association between weight misperceptions and unhealthy weight control behaviors.

DISCUSSION

Our findings, obtained from a large, representative survey of Massachusetts high school students, demonstrate that sexual minority youth are substantially more likely than their

heterosexual peers to misperceive their weight status and engage in potentially dangerous weight control behaviors such as fasting, using diet products, and purging. Indeed, nearly one-third of sexual minority males and females reported having recently engaged in any of these unhealthy weight control behaviors in the previous month, and the prevalence of such behaviors was more than four times greater among sexual minority males and two times greater among sexual minority females relative to their exclusively heterosexual matched-gender peers.

Our results suggest that sexual minority males may be more likely than exclusively heterosexual males to self-perceive as overweight despite being healthy or underweight, whereas sexual minority females may be more likely than exclusively heterosexual females to be overweight or obese, but not self-perceive as such. Importantly, we have demonstrated that this discordance between weight perceptions and reported weight status is associated with elevated odds of unhealthy weight control behaviors, although this relationship was observed across all youth, and did not demonstrate modification according to sexual minority subgroup. This association was also detected among youth who self-identified as heterosexual but who have had same-sex sexual experience, a group demonstrated elsewhere to have an elevated risk profile [12, 24–27]. Interestingly, heterosexual males with prior same-sex partners were similar to gay males in that they had increased odds of misperceiving themselves as overweight. Conversely, heterosexual females with prior same-sex partners were similar to bisexual females in that they had higher odds than heterosexual females of misperceiving themselves as being healthy or underweight. It is possible that the sexual minority subgroups that had similar weight-related outcomes represent overlapping areas of sexual identity and that the cross-sectional nature of our data have examined youth at various stages of sexual identity development [28]. Alternatively, these subgroups may indeed represent distinct subpopulations that have similar weight-related outcomes. Finally, because an elevated BMI may be seen among youth with increased muscularity [19], youth who self-perceived as underweight despite a normal or elevated BMI may have actually been attempting to gain muscle. Understanding these weight perceptions and underlying processes leading to unhealthy weight control behaviors should be a focus for future research.

The high prevalence of unhealthy weight control behaviors demonstrated in the MYRBS sample is consistent with the findings of two earlier studies, though neither study explicitly examined self-perceptions of weight. Among Norwegian high school students, Wichstrøm *et al.* demonstrated a higher prevalence of bulimic symptoms among youth with history of prior same-sex contacts than among those without [27]. Similarly, among US adolescents, Austin *et al.* found that purging behaviors were more prevalent among all sexual minority subgroups of both genders, with the exception of lesbians [4]. Our study strengthens these previous findings by examining homogeneity and heterogeneity among different sexual orientation subgroups (including those self-identifying as heterosexual but with prior same-sex partners), and by drawing on a large, representative sample of high school students. Future studies should examine potential mediators in the pathway between sexual orientation and weight misperceptions, including putative individual-level factors such as

depressive symptoms, anxiety, and poor body image, among other important social and environmental factors [29].

The mechanisms underlying the links between sexual orientation, self-perceptions of weight, and unhealthy weight control behaviors merit further study. Minority Stress Theory, a model that attempts to explain disparities in health status according to sexual orientation, postulates that stigmatization, victimization, social isolation, and rejection by family, peers and other community members all may contribute to poor health outcomes among sexual minority individuals [30, 31]. Minority Stress Theory may explain the finding in our study that sexual minority females were more likely to engage in unhealthy weight control behaviors despite being more likely to be overweight or obese but not self-perceive as so. It may be that minority stress independently places sexual minority females at risk of engaging in unhealthy weight control behaviors independent of their self-perceived weight status. In addition, body image ideals, such as those perpetuated in the media, are likely to have differential effects on sexual minority youth compared to exclusively heterosexual youth. Relative to their heterosexual peers, gay and bisexual males may be more concerned with body images presented in the media, and lesbian and bisexual females less concerned [9, 10]. Future studies should examine the extent to which harmful sequelae of sexual minority stigma and body image ideals contribute to unhealthy weight control behaviors. Furthermore, identifying protective factors, such as family support and school and community connectedness, may prove important in understanding how best to eliminate these stressors, develop healthy body image, and promote healthy weight-related behavior [4, 32].

Data for the current study were drawn from students in Massachusetts, a state which has been relatively more progressive than other states in fostering policies to advance the well-being of sexual minority youth, such as through the implementation of school policies to prevent harassment of sexual minority youth [33]. It is interesting to note that despite these possible environmental protections, large sexual orientation disparities in unhealthy weight control behaviors were still detected in the current study. Nevertheless, these policies represent a framework within which interventions related to weight control behaviors might be implemented. Building on preexisting lesbian/gay/bisexual/transgender-friendly support systems in schools may help program developers engage youth and ensure that interventions are sensitive to the needs of sexual minority youth.

There are some important limitations to this study. First, our data relied on BMI calculated from self-reported weight and height. However, elsewhere it has been demonstrated that even though youth may self-report weights and heights that result in calculated BMI less than objectively measured BMI, this inaccuracy is not likely greater among sexual minority youth than among exclusively heterosexual youth [34]. Second, because many questions probed highly sensitive information, our results may have been affected by social desirability bias despite assurances of anonymity and confidentiality. However, such bias would have been likely to underestimate the true proportion of sexual minority youth and the prevalence of unhealthy weight control behaviors. Third, it is not possible to verify whether heterosexual youth with same-sex partners in this study were reporting prior consensual or nonconsensual (i.e., abusive) same-sex sexual experiences [35]. Fourth,

because youth had to be present on the day of survey administration to participate in the MYRBS, some degree of selection bias may have been present. Indeed, sexual minority youth may be more likely than their heterosexual peers to be absent from school [12]. Fifth, although the MYRBS data set is representative of the general adolescent population of Massachusetts, it may not be generalizable to other states. Finally, because we combined data across four waves, our results are unable to highlight any changes in effect sizes that might have occurred over the eight years that youth were surveyed in this study.

Sexual minority male and female adolescents are more likely than their heterosexual peers to misperceive their weight status and to engage in potentially hazardous unhealthy weight control behaviors. However, although odds of unhealthy weight control behaviors were uniformly elevated among all sexual minority youth relative to exclusively heterosexual youth, there was notable heterogeneity among the sexual minority subgroups, especially regarding weight misperceptions. In addition to having implications for broader public health prevention efforts, these findings are also immediately applicable to practicing clinicians who work with adolescents [36, 37]. Health professionals should be aware that sexual minority youth – including youth who have had same-sex sexual contact, but who identify as heterosexual, – are likely to have inaccurate self-perceptions of weight. During clinical encounters it is important to ask sexual minority youth how they feel about their weight. In addition, the findings emphasize the importance of screening sexual minority youth for fasting, purging, and use of diet pills or other similar products. For many adolescents, initiating treatment for disordered weight-related behaviors during high school or earlier may prevent downstream health risks, such as adverse effects on growth, bone density, and reproductive function [38, 39]. Future research should carefully examine how prevention strategies may be best employed among sexual minority youth to improve outcomes in this diverse group.

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Abbreviations

AOR	Adjusted odds ratio
BMI	body mass index
CDC	Centers for Disease Control and Prevention
CI	confidence interval

MYRBS	Massachusetts Youth Risk Behavior Survey
OR	odds ratio
YRBSS	Youth Risk Behavior Surveillance System

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IMPLICATIONS AND CONTRIBUTION

Sexual minority youth have self-perceptions of weight that contrast dramatically with their reported body mass index. Unhealthy weight loss behaviors are highly prevalent among sexual minority youth and vastly exceed the prevalence of these behaviors among heterosexual youth.

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TABLE 1

Demographics, Self-Reported Sexual Identity and Weight Status Among Public High School Students: Massachusetts, 2003–2009 ($n = 12,984$)

Characteristic	Gender		<i>p</i> Value
	Male, <i>n</i> (%) ^a	Female, <i>n</i> (%) ^a	
Age, in years			0.018
14	677 (10.5)	797 (11.8)	
15	1,559 (24.4)	1,745 (25.8)	
16	1,755 (26.8)	1,730 (25.9)	
17	1,534 (23.7)	1,546 (24.2)	
18	853 (14.7)	745 (12.3)	
Race/ethnicity			0.065
White	4,150 (73.5)	4,393 (74.9)	
Black	486 (9.3)	463 (8.1)	
Hispanic	805 (11.4)	898 (12.2)	
Asian	342 (2.6)	322 (2.4)	
Other/mixed race/ethnicity	446 (3.3)	333 (2.5)	
Sexual orientation			<0.001
Exclusively heterosexual	5,855 (92.8)	5,730 (88.6)	
Heterosexual with same-sex partners	136 (2.2)	206 (3.3)	
Gay/lesbian	105 (1.7)	61 (0.9)	
Bisexual	98 (1.6)	335 (5.2)	
Not sure	120 (1.8)	144 (2.1)	
Body mass index (BMI)^b			<0.001
5 th percentile, underweight	149 (2.4)	93 (1.5)	
5 th <BMI<85 th percentile, healthy weight	4,121 (68.5)	4,589 (77.2)	
85 th BMI<95 th percentile, overweight	904 (14.9)	846 (14.3)	
95 th percentile, obese	854 (14.3)	399 (7.1)	

^aCounts are absolute; proportions are weighted.

^bAccording to age/gender percentiles published by the Centers for Disease Control and Prevention [26], and classified according to American Academy of Pediatrics guidelines [27]

TABLE 2

Weight Status, Perceptions and Unhealthy Weight Control Behaviors Among Males Enrolled in Public High School: Massachusetts, 2003–2009 (n = 6,387)

Characteristic	Self-Reported Sexual Orientation ^a					p Value
	Exclusively Heterosexual, %	Heterosexual With Same-Sex Partners, %	Gay, %	Bisexual, %	Unsure of Sexual Orientation, %	
Body mass index (BMI)						
Mean BMI Z-score ^b (SE)	0.59 (0.02)	0.65 (0.09)	0.40 (0.10)	0.74 (0.13)	0.69 (0.11)	0.204
BMI category^b						0.305
5 th percentile, underweight	2.3	2.6	5.0	2.5	3.3	
5 th <BMI<85 th percentile, healthy weight	68.7	68.7	71.7	54.3	66.0	
85 th BMI<95 th percentile, overweight	14.9	14.1	12.0	21.8	11.6	
95 th percentile, obese	14.1	14.5	11.2	21.4	19.1	
Self-perceived weight status						<0.001
Very underweight	3.1	6.5	16.2	2.5	6.6	
Slightly underweight	16.8	12.0	16.3	18.1	14.0	
About the right weight	56.2	38.8	40.8	37.7	48.9	
Slightly overweight	20.8	32.3	23.5	34.3	18.4	
Very overweight	3.1	10.6	3.3	7.3	12.0	
Perception relative to weight status						<0.001
Perception concordant with status	74.7	55.2	57.6	65.6	63.5	
Feels overweight, but is not	9.1	34.3	24.4	14.4	17.9	
Feels healthy weight/underweight, but is not	16.2	10.4	18.0	20.0	18.6	
Current attempts to change weight						0.032
Trying to lose weight	29.9	44.5	41.2	40.9	29.2	
Trying to gain weight	26.7	19.0	22.0	21.5	33.8	
Trying to stay the same weight	19.4	19.1	19.8	14.7	15.9	
Not trying to control weight	24.1	17.5	17.1	22.8	21.1	
Weight behaviors in last 30 days						<0.001
Fasted > 24 hours	5.8	18.8	18.4	15.9	20.4	
Used weight loss pills/products	4.2	16.4	18.8	8.2	9.6	<0.001

Characteristic	Self-Reported Sexual Orientation ^a					p Value
	Exclusively Heterosexual, %	Heterosexual With Same-Sex Partners, %	Gay, %	Bisexual, %	Unsure of Sexual Orientation, %	
Vomited or used laxatives	2.6	20.3	14.4	13.2	11.8	<0.001

^a All frequencies are weighted.

^b According to age/gender percentiles published by the Centers for Disease Control and Prevention [26], and classified according to American Academy of Pediatrics guidelines [27]

TABLE 3
 Weight Status, Perceptions and Unhealthy Weight Control Behaviors Among Females Enrolled in Public High School: Massachusetts, 2003–2009 (*n* = 6,567)

Characteristic	Self-Reported Sexual Orientation ^a					<i>p</i> Value
	Exclusively Heterosexual, %	Heterosexual With Same-Sex Partners, %	Lesbian, %	Bisexual, %	Unsure of Sexual Orientation, %	
Body mass index (BMI)						
Mean BMI Z-score ^b (SE)	0.37 (0.02)	0.58 (0.07)	0.69 (0.16)	0.77 (0.06)	0.51 (0.12)	<0.001
BMI category^b						
5 th percentile, underweight	1.4	1.3	1.9	1.6	2.1	<0.001
5 th -<85 th percentile, healthy weight	78.7	71.9	64.4	60.6	68.5	
85 th BMI-<95 th percentile, overweight	13.6	17.4	21.1	21.9	15.1	
95 th percentile, obese	6.3	9.5	12.6	16.0	14.3	
Self-perceived weight status						
Very underweight	1.9	2.0	6.8	2.9	5.7	<0.001
Slightly underweight	8.7	8.8	4.1	7.3	7.2	
About the right weight	55.0	47.3	61.1	39.5	47.9	
Slightly overweight	30.2	32.5	15.6	40.5	24.6	
Very overweight	4.1	9.5	12.4	9.8	14.6	
Perception relative to weight status						
Perception concordant with status	70.9	63.0	66.6	53.6	75.7	<0.001
Feels overweight, but is not	23.9	29.9	11.9	34.8	20.0	
Feels healthy weight/underweight, but is not	5.2	7.1	21.5	11.6	4.2	
Current attempts to change weight						
Trying to lose weight	61.1	58.3	44.7	69.8	61.6	<0.001
Trying to gain weight	5.3	13.2	11.9	7.9	5.3	
Trying to stay the same weight	18.9	11.9	14.0	12.1	19.5	
Not trying to control weight	14.7	16.6	29.4	10.1	13.7	
Weight behaviors in last 30 days						
Fasted > 24 hours	13.4	23.8	27.8	26.2	14.8	<0.001
Used weight loss pills/products	5.8	8.4	14.9	15.8	6.7	<0.001

Characteristic	Self-Reported Sexual Orientation ^a				p Value
	Exclusively Heterosexual, %	Heterosexual With Same-Sex Partners, %	Lesbian, %	Bisexual, %	
Vomited or used laxatives	6.4	7.9	14.7	17.8	11.1

^a All frequencies are weighted.

^b According to age/gender percentiles published by the Centers for Disease Control and Prevention [26], and classified according to American Academy of Pediatrics guidelines [27]

TABLE 4

Adjusted^a Odds Ratios (AOR) for Weight Status, Weight Perceptions, and Unhealthy Weight Control Behaviors by Sexual Orientation Among Male Public High School Students: Massachusetts, 2003–2009 (*n* = 6,387)

Characteristic	Adjusted ^a Odds Ratios (AOR)			
	Heterosexual With Same-Sex Partners	Gay	Bisexual	Unsure of Sexual Orientation
Body mass index (BMI)^c				
85 th percentile, overweight or obese	0.94 (0.62–1.43)	0.74 (0.50–1.09)	1.89 (1.09–3.28)	0.96 (0.59–1.57)
Self-perceived weight status				
Slightly or very underweight	1.22 (0.77–1.94)	2.01 (1.06–3.82)	1.53 (0.90–2.61)	1.16 (0.63–2.15)
Slightly or very overweight	2.61 (1.68–4.05)	1.54 (0.84–2.83)	2.56 (1.64–4.00)	1.41 (0.92–2.17)
Accuracy of weight perception				
Feels overweight, but is not	5.41 (3.17–9.23)	3.13 (1.29–7.58)	1.72 (0.60–4.93)	2.64 (0.60–4.93)
Feels healthy weight/underweight, but is not	0.63 (0.25–1.56)	1.29 (0.53–3.13)	0.97 (0.44–2.13)	1.19 (0.55–2.56)
Current attempts to change weight				
Trying to lose weight	2.10 (1.16–3.77)	1.94 (0.92–4.12)	1.39 (0.85–2.28)	1.09 (0.61–1.96)
Trying to gain weight	0.93 (0.44–1.96)	1.00 (0.45–2.23)	0.88 (0.51–1.51)	1.56 (0.76–3.17)
Trying to stay the same weight	1.36 (0.62–2.99)	1.18 (0.56–2.48)	0.79 (0.40–1.56)	0.97 (0.49–1.95)
Weight behaviors in last 30 days				
Fasted > 24 hours	3.69 (2.24–6.08)	3.11 (1.86–5.20)	3.14 (1.85–5.33)	3.66 (1.74–7.72)
Used weight loss pills/products	4.34 (2.67–7.05)	5.08 (2.95–8.75)	2.09 (1.16–3.75)	2.00 (0.93–4.33)
Vomited or used laxatives	9.49 (5.57–16.16)	6.52 (3.10–13.70)	5.71 (3.10–10.53)	4.24 (2.06–8.71)
Engaged in any of above unhealthy weight control behaviors	5.08 (3.47–7.44)	4.63 (2.80–7.66)	3.35 (2.11–5.31)	3.57 (1.85–6.87)

Bolded text indicates statistical significance at $p < 0.05$.

^aAll AORs relative to heterosexual adolescents as the referent; analyses adjusted for age and race/ethnicity.

^bIncludes preceding three columns, *i.e.*, youth who self-identified as heterosexual with prior same-sex partners, gay/lesbian or bisexual (those self-identifying as 'unsure' not included).

^cUnderweight participants excluded from analysis.

TABLE 5

Adjusted^a Odds Ratios (AOR) for Weight Status, Weight Perceptions, and Unhealthy Weight Control Behaviors by Sexual Orientation Among Female Public High School Students: Massachusetts, 2003–2009 (*n* = 6,567)

Characteristic	Adjusted ^a Odds Ratios (AOR)			
	Heterosexual With Same-Sex Partners	Gay/Lesbian	Bisexual	Unsure of Sexual Orientation
Body mass index (BMI)^c				
85 th percentile, overweight or obese	1.59 (1.06–2.39)	1.82 (0.97–3.40)	2.54 (1.88–3.44)	1.64 (0.90–2.96)
Self-perceived weight status				
Slightly or very underweight	1.22 (0.77–1.93)	0.36 (0.11–1.14)	1.41 (0.87–2.28)	1.35 (0.80–2.28)
Slightly or very overweight	1.48 (1.03–2.12)	0.76 (0.41–1.41)	2.12 (1.49–3.00)	1.31 (0.78–2.21)
Accuracy of weight perception				
Feels overweight, but is not	1.44 (1.06–1.95)	0.59 (0.19–1.90)	1.99 (1.22–3.23)	0.79 (1.22–3.23)
Feels healthy weight/underweight, but is not	1.44 (0.62–3.33)	3.17 (1.15–8.71)	2.00 (1.20–3.33)	0.64 (0.19–2.17)
Current attempts to change weight				
Trying to lose weight	0.87 (0.54–1.41)	0.46 (0.23–0.91)	1.66 (1.13–2.44)	1.18 (0.47–2.92)
Trying to gain weight	2.78 (1.42–5.43)	1.25 (0.34–4.65)	2.21 (1.20–4.07)	1.41 (0.48–4.12)
Trying to stay the same weight	0.59 (0.32–1.09)	0.49 (0.19–1.26)	0.91 (0.60–1.37)	1.10 (0.46–2.62)
Weight behaviors in last 30 days				
Fasted > 24 hours	2.02 (1.45–2.82)	2.03 (0.94–4.38)	2.33 (1.74–3.12)	1.08 (0.64–1.82)
Used weight loss pills/products	1.53 (0.91–2.55)	2.50 (1.02–6.08)	3.09 (2.23–4.30)	1.27 (0.63–2.56)
Vomited or used laxatives	1.31 (0.70–2.47)	2.56 (1.16–5.66)	3.24 (2.47–4.26)	1.98 (1.09–3.61)
Engaged in any of above unhealthy weight control behaviors	2.06 (1.54–2.77)	2.11 (1.10–4.04)	2.43 (1.86–3.17)	1.25 (0.83–1.90)

Bolded text indicates statistical significance at $p < 0.05$.

^aAll AORs relative to heterosexual adolescents as the referent; analyses adjusted for age and race/ethnicity.

^bIncludes preceding three columns, *i.e.*, youth who self-identified as heterosexual with prior same-sex partners, gay/lesbian or bisexual (those self-identifying as 'unsure' not included).

^cUnderweight participants excluded from analysis.