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Weight-based Victimization among Sexual and Gender Minority Adolescents: Implications for Substance Use and Mental Health

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Abstract

Objective: Weight-based victimization (WBV) involves being the target of intentional physical, verbal, or psychological harm because of one's body weight. Youth experience harmful health consequences from WBV, but this literature has neglected sexual and gender minority (SGM) youth, despite their high rates of overweight and obesity, and mental health problems. The present study assessed health behaviors (substance use), self-rated health, perceived control over stressors, depressive symptoms and self-esteem as a function of WBV in a large, national sample of LGBTQ (lesbian, gay, bisexual, transgender, and queer) adolescents.

Methods: Participants ($N=9,838$, $M_{\text{age}}=15.6$ years, $SD=1.26$) completed a web-based battery of questionnaires examining victimization, health, family, and school experiences of LGBTQ adolescents in the United States.

Results: WBV was associated with increased odds of alcohol use, binge drinking, marijuana use, and cigarette use, independent of adolescents' age, race, body mass index (BMI), sexual identity, gender identity, caregiver education, and U.S. region. Frequency of WBV at school and weight teasing from family members were both consistently associated with lower self-rated health, lower perceived control over stressors, lower self-esteem, and higher depressive symptom scores.

Conclusions: These findings present the first large-scale evidence of the relationship between WBV and adverse health behaviors in SGM youth. Sexual minority youth who experience weight-based victimization, especially from family members, may be vulnerable to adverse health behaviors and low perceived health, regardless of their BMI. These findings highlight the importance of considering WBV when examining health behaviors in LGBTQ youth, and increased awareness of these issues among health care professionals.

Keywords

weight; victimization; teasing; youth; sexual minority

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Weight-based victimization is one of the most common reasons for peer-based victimization among youth, according to reports from adolescents (Puhl, Luedicke, & Heuer, 2011; Puhl, Peterson, & Luedicke, 2013), parents (Puhl, Luedicke, & DePierre, 2013), and teachers (Bradshaw, Waasdorp, O'Brennan, & Gulemetova, 2013) in the United States. Weight-based victimization (WBV) involves being the target of intentional physical, verbal, or psychological harm because of one's body weight; this includes behaviors such as physical aggression or intimidation, name calling, teasing, spreading of rumors, and social exclusion, thus reflecting both overt and covert behaviors. Risk of experiencing multiple forms of WBV increases with body weight; compared to youth at a healthy weight, those with a body mass index (BMI) in the overweight or obese range have heightened risk of WBV (Waasdorp, Mehari, & Bradshaw, 2018). High rates of WBV have been documented in ethnically diverse samples of adolescents (Bucchianeri, Eisenberg, & Neumark-Sztainer, 2013) and in some cases at higher levels than peer-based harassment due to sexual orientation or race/ethnicity (Bucchianeri et al., 2013; Puhl et al., 2011; Puhl et al., 2016). While little research has examined WBV in underweight youth, studies using measures of general peer victimization (e.g., not specific to weight) suggest that compared to healthy weight peers, underweight boys report more physical victimization and underweight girls report more relational victimization (e.g., social exclusion) (Wang, Iannotti, & Luk, 2010).

As attention to WBV has increased, considerable research has identified links between WBV and behaviors that pose physical health risks in youth such as substance use, as well as poorer emotional well-being (Bucchianeri, Eisenberg, Wall, Piran, & Neumark-Sztainer, 2014; Eisenberg, Neumark-Sztainer, Haines, & Wall, 2006; Greenleaf, Petrie, & Martin, 2014; Juvonen, Lessard, Schacter, & Suchilt, 2017; Lampard, MacLehose, Eisenberg, Neumark-Sztainer, & Davison, 2014; Puhl & Luedicke, 2012). Longitudinal evidence of WBV suggests that health consequences associated with these experiences may be long lasting. For example, studies with diverse samples of adolescents have demonstrated longitudinal associations between early experiences of weight-based teasing and adverse health behaviors and poor psychological health 5–15 years later (Eisenberg et al., 2006, Haines, Neumark-Sztainer, Eisenberg, & Hall, 2006; Hubner et al., 2016, Puhl et al., 2017). The accumulation of evidence documenting the prevalence of WBV in youth and its adverse health outcomes prompted a 2017 policy statement from the American Academy of Pediatrics, recommending that health care professionals provide support for youth with obesity who are vulnerable to weight-based teasing and bullying (Pont, Puhl, Cook, & Slusser, 2017).

While there has been growing attention to the harmful consequences of WBV in youth, the existing literature has overwhelmingly focused on heterosexual youth; scarce research has examined WBV in sexual and gender minority (SGM) youth, and studies assessing WBV rarely include measures assessing sexual orientation. Sexual and gender minority youth are at high risk for widespread victimization and psychological distress because of their sexual orientation and/or gender identity (Birkett, Newcomb, & Mustanski, 2015; Russell, Kosciw, Horn, & Saewyc, 2010); experiences of WBV could exacerbate these problems. The absence of research on WBV in this vulnerable population is concerning in light of the robust literature demonstrating poorer mental health (Fish & Pasley, 2015; Luk, Gilman, Haynie, & Simons-Morton, 2018; Marshal et al., 2011; Shearer et al., 2016), and higher levels of

substance use in SGM youth compared to heterosexual peers (Coulter, Bersamin, & Russell, 2018; Marshal, Friedman, & Stall, 2008; Watson, Goodenow, Porta, Adjei, & Saewyc, 2018), and is surprising given evidence demonstrating high rates of overweight and obesity in SGM youth (Austin, Nelson, Birkett, Calzo, & Everett, 2013; Austin et al., 2009; Katz-wise et al., 2014). For example, data from the Youth Risk Behavioral Surveillance Survey (Austin et al., 2013), the Growing Up Today Study (Austin et al., 2009), and the National Longitudinal Study of Adolescent Health (Katz-wise et al., 2014), have collectively documented higher odds of obesity and elevated body mass index (BMI) in sexual minority youth compared to heterosexual peers. Furthermore, this evidence suggests that sexual minority females may be particularly vulnerable for weight gain compared to heterosexual peers (including a higher prevalence of obesity into adulthood; Eliason et al., 2015; Jun et al., 2012), whereas for males there is a steeper BMI increase for heterosexuals than sexual minorities. Taken together, this evidence indicates a clear need to identify the nature and extent of health-related vulnerabilities experienced by adolescents with overlapping stigmatized identities pertaining to body weight and sexual orientation.

A recent national study of SGM adolescents observed high levels of WBV across diverse sexual identities; as many as 57% reported weight-based teasing from peers and 70% from family members (Puhl, Himmelstein, & Watson, 2019). These rates are similar to, and in some cases higher than, WBV reported in previous samples of primarily heterosexual adolescents, including studies with similar measures of teasing (Bucchianeri et al., 2013; Lampard et al., 2014; Puhl & Luedicke, 2012). However, unlike most research to date with heterosexual youth in which WBV is primarily concentrated among youth with overweight or obesity rather than lower BMI categories, this recent study found that WBV was prevalent across diverse body weight categories of sexual minority adolescents. The high prevalence of WBV in this vulnerable population in conjunction with previous research documenting adverse psychological consequences of WBV in heterosexual youth underscore the importance of determining whether WBV incurs negative consequences for health behaviors and psychological wellbeing in SGM youth. To examine this unanswered question, the present study aimed to assess psychological health indices (substance use, perceived control over stressors, self-rated health, depressive symptoms, self-esteem,) as a function of WBV in a large, national sample of LGBTQ (lesbian, gay, bisexual, transgender, and queer) adolescents. Drawing on evidence of links between adverse health and WBV in heterosexual youth, we predicted that WBV would be positively associated with substance use behaviors (alcohol use, binge drinking, marijuana use, cigarette use) and depressive symptoms, and negatively associated with self-perceived health, perceived control over stressors, and self-esteem among SGM adolescents.

Methods

Participants

Data for this study came from a larger sample of LGBTQ adolescents ($N = 17,112$) who participated in the *LGBTQ National Teen Survey*, a web-based battery of questionnaires examining victimization, health, family relationships, and school experiences (Watson, Wheldon, & Puhl, 2019). In 2017, data were collected (April to December) in partnership

with the Human Rights Campaign (HRC). Adolescents (13–17 years old) who identified as LGBTQ, English-speaking, and living in the U.S. were invited to complete the survey (hosted by Qualtrics.com). Participants were recruited through a comprehensive social media initiative (Twitter, Facebook, Instagram, Reddit, and Snapchat), HRC’s multiple community partners, and by social media influencers in the LGBTQ community who posted the survey weblink on their social media profiles. Recruitment materials clearly targeted SGM youth but did not mention victimization or mental health. For example, social media posts and tweets included a link to the Qualtrics survey accompanied by messages like, “Take a national survey of #LGBTQ teens (ages 13–17): Tell HRC about your life” and “Your voice matters! HRC wants to hear from #LGBTQ teens like you.” Participants were only able to enter the survey after they read information on the front page of the survey website describing the study’s purpose and procedures, accepted the study conditions, and provided assent to participate (a waiver of parental consent was obtained from the Institutional Review Board). Participants were offered HRC wristbands and the option to enter a raffle for a gift card to a national online retailer. The survey was designed to prevent bots and mischievous responders from completing the survey (Robinson-Cimpian, 2014); additionally, we randomized blocks of survey measures to ensure attrition would not result in disproportionate missing data for measures at the end of the survey. The study protocol was approved by the University of Connecticut’s Institutional Review Board; additional information pertaining to screening procedures, recruitment, and sample composition are reported elsewhere (Watson et al., 2019).

Given the focus of the present study on WBV among LGBTQ adolescents, participants were excluded from analyses if they were missing information on questions about body weight needed to calculate their BMI ($n = 1,722$), or WBV or sexual identity ($n = 5,552$). The final sample was comprised of 9,838 adolescents. Participants in this subsample were slightly older than the full study sample, and more likely to be White, female, and identify as lesbian.²⁷

Measures

Demographic Information.—Participants were asked their age, race/ethnicity, and state of residence. Participants also indicated the highest education level of their primary and, if applicable, secondary parent or caregiver. Both questions on caregiver education were combined into a single variable reflecting the highest level of education of either the primary or secondary caregiver, which ranged from less than high school to a post-graduate degree.

Sexual Orientation.—In response to the survey question ‘How do you describe your sexual identity?’ participants were asked to select one of the following options: ‘gay or lesbian’, ‘bisexual’, ‘straight, that is, not gay’, or ‘something else’ which prompted additional response options of ‘queer’, ‘pansexual’, ‘asexual’, ‘questioning’, and ‘other.’ Participants who chose ‘other’ were provided with a prompt to describe their identity using an open-ended response format; their written responses were back-coded so that any identities that matched previously presented forced-choice response options were correctly classified.

Gender Identity.—Participants were asked to indicate their sex assigned at birth (male/female) and their current gender identity (male, female, trans male/trans boy, trans female/trans girl, non-binary, gender queer/gender non-conforming). Adolescents whose sex assigned at birth aligned with current gender identities were classified as cisgender; those whose gender identity was different from their sex assigned at birth (or a non-binary, genderqueer, gender non-confirming, or different gender) were classified as assigned male at birth non-binary (AMAB: male birth sex, non-conforming gender identity) or assigned female at birth non-binary (AFAB: female birth sex, non-conforming gender identity).

Body Weight and Body Mass Index.—Adolescents reported their current height (in feet/inches) and weight (in pounds) so that BMI percentiles for age and sex could be calculated using growth charts available from the Centers for Disease Control and Prevention (Kuczmarski et al., 2002). BMI categories were constructed, corresponding to <5th percentile (underweight), 5th <85th percentile (healthy weight), 85th–95th percentile (overweight), and 95th percentile (obese) for age and sex (Kuczmarski et al., 2002).

Weight-based Victimization (WBV).—Experiences of WBV were assessed using two yes/no questions from Project EAT (Neumark-Sztainer et al., 2002; Neumark-Sztainer, Wall, Perry, & Story, 2003), a longitudinal study examining weight-related experiences of adolescents: ‘have you ever been teased or made fun of by your peers because of your weight?’ and ‘have you ever been teased or made fun of by members of your family because of your weight?’ To assess frequency of WBV at school, adolescents were asked a third question about how often (using a 5-point Likert scale from 0=*never* to 4=*very often*) they are teased or treated badly by other students at school because of their weight.

SGM Victimization (SGMV).—To assess frequency of victimization related to SGM identity at school, adolescents were asked how often (using a 5-point Likert scale from 0=*never* to 4=*very often*) they are teased or treated badly by other students at school because of their gender, sexuality, or because of “how masculine or feminine I am.”

Substance Use.—Participants were asked about their substance use with questions from the 2015 National Youth Risk Behavior Survey (YRBS) (Centers for Disease Control and Prevention, 2015). Adolescents were asked how frequently they consumed alcohol and/or used marijuana during their life (0 to 100 days) and whether they had ever tried smoking cigarettes (at least two puffs: yes/ no). For adolescents who responded that they had previously used any of these substances, they were prompted with additional questions asking on how many days in the past 30 days they had at least one alcoholic drink, five or more alcoholic drinks, used marijuana, and/or smoked cigarettes, using a 7-point scale (ranging from 0 *days* to ‘all 30 days’). Following scoring for the YRBS, we created binary variables indicating any lifetime use (0=*none*, 1=*any*) of alcohol and marijuana, as well as use of each substance in the last 30 days (0=*no use in the last 30 days*, 1=*any use in the last 30 days*), and any binge drinking (episode in which five or more drinks were consumed on a single occasion) in the last 30 days (0=*none*, 1=*any instance of binge drinking*). Focal results obtained are the same if these variables are examined using continuous scoring.

Depressive Symptoms.—Kutcher’s Adolescent Depression Scale (LeBlanc, Almudevar, Brooks, & Kutcher, 2002) was used to assess depressive symptoms, with the omission of one question pertaining to symptoms related to suicidality. This 10-item measure asks respondents to indicate how often, on average, they have experienced various depressive symptoms during the previous week, on a 4-point Likert scale ranging from 0=*hardly ever* to 3=*all of the time*. Cronbach’s alpha was 0.90.

Self-Esteem.—The 10-item Rosenberg Self-esteem Scale was used to assess adolescent self-esteem (Rosenberg, 1989). Respondents indicated their extent of agreement with a series of positive and negative self-statements using a 4-point Likert scale (1=*strongly disagree*, 2=*disagree*, 3=*agree*, 4=*strongly agree*), with higher scores reflecting higher self-esteem. Cronbach’s alpha was 0.91.

Perceived Control over Stressors.—Five items from the Mastery Scale (Folkman, Lazarus, Gruen, & DeLongis, 1986; Pearlin & Schooler, 1978) were used to assess the extent that one regards his/her life chances as being under personal control versus being fatalistically determined (e.g., “*There is little I can do to change many of the important things in my life*”). Participants indicated their extent of agreement on a 4-point Likert scale (ranging from 0–3) to each of the five statements. Higher scores reflect greater perceived control over life stressors. Cronbach’s alpha was 0.77.

Self-Rated Health.—Participants were asked ‘how would you describe your health?’ with response options (ranging from 0–3) of ‘poor’, ‘fair’, ‘good’, and ‘excellent’, with higher scores indicating better self-perceived health. This question came from the Project EAT-II Survey for High School Students, a longitudinal cohort study of the socio-environmental, personal, and behavioral determinants of dietary intake and weight status among a large (N=4746) socioeconomically and ethnically diverse adolescent population. The survey underwent extensive pilot testing and test-retest reliability testing by adolescents (for details on survey development, see Neumark-Sztainer et al., 2007).

Statistical Analyses

All data were analyzed using SPSS version 22.0. Variables were examined for normality (skewness, kurtosis, outliers). All values for skewness were between 1 and –1, and all values for kurtosis were between –2 and 2. No variable contained outliers as defined by values plus or minus 3 standard deviations for the mean. Hierarchical regressions were used to examine associations between WBV (frequency of WBV, weight teasing from family, weight teasing from peers) and the following health-related variables: self-rated health, perceived control over stressors, depressive symptoms, and self-esteem. Model 1 included the following demographics: caregiver education, region of residence (south reference group), participant age, participant BMI percentile, and participant race/ethnicity (White reference group). Model 2 added sexual identity (heterosexual reference group) and gender identity (cisgender boy reference group); participants identifying as heterosexual had a minority gender identity and participants identifying as cisgender had a minority sexual orientation identity. Model 3 added school-based victimization related to SGM identity (i.e., gender, sexuality, masculinity/ femininity). Model 4 added WBV variables (WBV from parents, peers, and

mistreatment about weight at school). Logistic regressions using the same model specifications examined odds of binary substance use variables as a function of WBV. Binary substance use variables included binge drinking in the last 30 days, lifetime use and use in the last 30 days of alcohol, marijuana, and cigarettes.

Results

Sample Characteristics

Demographic and Weight Characteristics.—Participants were on average 15.6 years old ($SD = 1.26$; range = 13–17 years) with an average BMI of 24.26 ($SD = 6.30$, $M_{BMI\ percentile} = 64.86$, $SD = 30.52$). Of the total sample ($N = 9,838$), 58.5% had a BMI percentile consistent with healthy weight; 4.3% had an underweight BMI percentile, 17.5% had an overweight BMI percentile, and 19.7% had an obese BMI percentile. Participants identified as White (66.1%), Multiracial (13.7%), Hispanic/Latino (10%), Black (4.2%), Asian (4.0%), Native-American (0.4%), and other (1.6%). The largest proportion of participants identified as cisgender girl (44.0%), followed by AFAB non-binary (23.0%), cisgender boy (21%), trans boy (8.7%), AMAB non-binary (2.1%) and trans girl (1.2%). Participants identified as bisexual (33.7%), lesbian (20.6%), gay (16.3%), pansexual (13.8%), asexual (5.0%), queer (4.5%), questioning (2.3%), other (2.2%) or heterosexual (1.6%). All participants identifying as heterosexual had a gender minority identity, and all participants identifying as cisgender had a minority sexual orientation identity. A total of 96.9% of adolescents indicated their primary caregiver was a biological or an adopted mother or father; 0.6% reported their primary caregiver as a step-parent or foster parent, and 2.2% reported another family members (e.g., sibling, grandparent, aunt or uncle). Only 0.3% of the sample reported a non-family member as their primary caregiver. A total of 9.9% of the sample reported no second caregiver, and 74.5% reported a biological or adoptive parent as their second caregiver. An additional 9.8% reported a stepparent or foster parent as their second caregiver, and 4.8% reported another family member as their second caregiver. Only 1.0% of the sample reported a non-family member as their second caregiver.

Descriptive Characteristics of Primary Measures.—Approximately half of adolescents reported weight-teasing from peers (50.4%) and family (55.4%), with a mean frequency of WBV of 1.14 ($SD = 1.20$) on the 0–4 scale. The mean frequency of SGM victimization was 1.01 ($SD = 1.20$) for gender, 1.51 ($SD = 1.28$) for sexual orientation, and 1.44 ($SD = 1.32$) for masculinity/femininity. Participants had a mean self-rated health score of 1.45 ($SD = 0.77$) and a mean depression score of 1.34 ($SD = 0.75$). The mean score on the Rosenberg Self-esteem Scale was 1.45 ($SD = 0.65$), and the mean score for perceived control over stressors was 1.33 ($SD = 0.61$). Over half (55.6%) of participants reported previous consumption of alcohol, 27.1% reported alcohol use in the last 30 days, and 9.6% reported binge drinking in the last 30 days. Approximately a quarter (26.8%) of adolescents reported prior use of marijuana and 21.6% reported prior cigarette smoking. Only 13.9% reported smoking marijuana and 6.8% reported smoking cigarettes in the last 30 days respectively. Correlations between study variables are presented in Table 1. Weight-based victimization and victimization at school for gender, sexuality, as well as masculinity/ femininity were, in general, negatively associated with self-rated health, self-esteem, and perceived control over

stressors. Similarity, all of these forms of victimization were positively associated with depressive symptoms and all indices of substance use.

Substance Use and Weight-based Victimization

Changes in model fit at each step of the logistic regressions are presented in Table 2. Logistic regressions on lifetime alcohol use (Cox & Snell $R^2=.07$, $\chi^2(30)=644.00$, $p<.001$), alcohol use in the last 30 days (Cox & Snell $R^2=.06$, $\chi^2(30)=527.48$, $p<.001$), and binge drinking in the last 30 days (Cox & Snell $R^2=.04$, $\chi^2(30)=390.33$, $p<.001$) fit well to the data. Weight teasing from family members was associated with 1.20 increased odds of lifetime alcohol use ($B=0.19$, $p<.001$), 1.24 increased odds of drinking in the last 30 days ($B=0.22$, $p<.001$), and 1.27 increased odds ($B=0.24$, $p=.004$) of binge drinking in the last 30 days. Frequency of WBV was not associated with lifetime alcohol use or odds of alcohol use in the last 30 days, but was associated with 1.09 increase in odds of binge drinking in the last 30 days ($B=0.09$, $p=.046$). Weight teasing from peers was associated with a 1.21 increase in odds of lifetime alcohol use ($B=0.19$, $p=.001$), but not alcohol use or binge drinking in the last 30 days (see Table 3).

Logistic regressions on lifetime marijuana use (Cox & Snell $R^2=.10$, $\chi^2(30)=958.40$, $p<.001$), marijuana use in the last 30 days (Cox & Snell $R^2=.05$, $\chi^2(30)=503.97$, $p<.001$), lifetime cigarette use (Cox & Snell $R^2=.04$, $\chi^2(30)=396.20$, $p<.001$), cigarette use in the last 30 days (Cox & Snell $R^2=.09$, $\chi^2(30)=873.23$, $p<.001$) fit well to the data. Weight teasing from family was associated with a 1.29 increase in the odds of lifetime marijuana use ($B=0.25$, $p<.001$), and a 1.23 increase in the odds of cigarette use in the last 30 days ($B=0.21$, $p<.001$). Family teasing was not associated with increased odds of marijuana use in the last 30 days or lifetime cigarette use. Frequency of WBV was also associated with a 1.17 increase in the odds of lifetime cigarette use ($B=0.16$, $p=.001$), and a 1.07 increase in the odds of cigarette use in the last 30 days ($B=0.07$, $p=.026$), but not associated with lifetime marijuana use or marijuana use in the last 30 days. Weight teasing from peers was only associated with 1.29 increased odds of lifetime marijuana use ($B=0.14$, $p=0.37$), but was not associated with lifetime cigarette use or marijuana use (lifetime or in the last 30 days) (see Table 4).

Self-Rated Health, Mental Health, and Weight-based Victimization

On all health-related variables (self-rated health, perceived control over stressors, depressive symptoms, and self-esteem) adding SGM identity (model 2), SGMV (model 3), and WBV (model 4) to the demographic model (model 1) significantly increased the amount of variance accounted for in the model (see Table 2). Hierarchical regressions on depressive symptoms ($R^2=0.25$, $F(30, 8993)=101.58$, $p<.001$), self-esteem ($R^2=0.20$, $F(30, 8761)=73.73$, $p<.001$), self-perceived health ($R^2=0.13$, $F(30, 9004)=46.02$, $p<.001$), and perceived control over stressors ($R^2=0.17$, $F(30, 8731)=59.66$, $p<.001$) accounted for 13–25% of the variance in self-rated health, depressive symptoms, self-esteem and perceived control over stressors. As shown in Table 5, both frequency of WBV and weight-based teasing experienced from family members were consistently associated with lower self-rated health (frequency of WBV $B=-0.08$, $p<.001$; family teasing $B=-0.15$, $p<.001$), lower self-esteem (frequency of WBV $B=-0.08$, $p<.001$; family teasing $B=-0.18$, $p<.001$), lower

perceived control over stressors (frequency of WBV $B = -0.05$, $p < .001$; family teasing $B = -0.17$, $p < .001$), and higher depression scores (frequency of WBV $B = 0.10$, $p < .001$; family teasing $B = .19$, $p < .001$). Weight teasing from peers was associated with decreased self-rated health ($B = -0.06$, $p = .002$); it was not associated with depressive symptoms, self-esteem, or perceived control over stressors.

Discussion

The current study presents the first large-scale evidence of the relationship between WBV and adverse health behaviors in SGM youth. WBV was significantly and uniquely associated increased odds of alcohol use, binge drinking, marijuana use, and cigarette use, as well as poorer self-rated health, lower perceived control over stressors, higher depressive symptoms, and lower self-esteem among sexual and gender minority youth. These associations remained significant independent of adolescents' demographic characteristics, body weight, sexual identity, gender identity, and SGM victimization. Overall, these findings highlight the unique role that WBV may play in health behaviors of SGM youth, suggesting the importance of considering WBV in the examination of substance use and mental health in SGM adolescents, and increased awareness of these issues among health care professionals working with this adolescent population.

Importantly, study findings showed that the pattern of associations with health behaviors and poor perceived health varies depending on the source of weight-based teasing (family or peers) in SGM adolescents. Specifically, a history of weight-based teasing from family members was significantly associated with adolescents' increased substance use across five of the seven substance use variables (exceptions were marijuana use in the past 30 days, and lifetime cigarette use), as well as poorer self-rated health and mental health (lower perceived control over stressors, higher depressive symptoms, lower self-esteem). In contrast, history of weight-based teasing from peers was only associated with three health-related variables: self-rated health, lifetime alcohol use, and lifetime marijuana use. Nevertheless, adolescents who reported a higher frequency of WBV at school had increased odds of binge drinking in the last 30 days, cigarette use, and poorer mental health. Thus, being a frequent target of WBV at school (rather than one's history of weight-based teasing from peers) may increase vulnerability of SGM youth to multiple adverse health outcomes. This finding warrants additional research to clarify how the nature and frequency of WBV from peers influences health behaviors in this population, and to identify potential reasons that can help explain why WBV may be related to some substance use behaviors but not others.

Of note, compared to previous research with population-based samples of sexual minority youth, we found lower rates of substance use in our sample. For example, national findings from the 2015 Youth Risk Behavior Survey showed that among lesbian, gay, and bisexual youth, 75% reported lifetime alcohol use, 50% reported lifetime cigarette use, and 22% reported binge drinking in the past month (Kann et al., 2016). Comparatively, our sample had lower rates of these substance use behaviors: 55.6% reported lifetime alcohol use (55.6%), 21.6% reported cigarette use, and 9.6% reported binge drinking in the past month. While the reasons for these discrepancies are unclear, it may be that the online format of our survey and recruitment efforts with HRC reached adolescents who are more strongly

connected in social networks and at lower risk than youth who do not have access to the Internet and could have been missed in our study recruitment approaches.

Given that SGM adolescents who experienced weight-based teasing from family members had significantly increased odds of adverse health behaviors across multiple measures, more research attention is warranted to delineate the nature and consequences of family-based WBV. Research with heterosexual youth has documented consistent links with adverse health and family weight-based teasing (Balantekin, Birch, & Savage, 2018; Keery, Boutelle, Van Den Berg, & Thompson, 2005). For example, a recent longitudinal study found that weight-based teasing from family members in adolescence predicted greater risk of obesity and maladaptive eating behaviors (especially for females) fifteen years later in adulthood (Puhl et al., 2017). Furthermore, SGM youth may already be victimized and/or rejected by family members about their sexual orientation (Ryan, Huebner, Diaz, & Sanchez, 2009), compounding stressors related to sexual identity and weight. This collective evidence, in conjunction with the present findings, suggests the importance of assessing longitudinal associations of family weight-based teasing and health behaviors in SGM youth over time. Given that no longitudinal research has examined these issues in SGM populations, this is a clear priority for future work.

Similarly, studies examining parental communication about body weight with youth have highlighted links between poor mental health in adolescents and weight-related comments from parents (Bauer, Bucchianeri, & Neumark-Sztainer, 2013; Hunger & Tomiyama, 2018; Lo, Mak, Lai, & Lam, 2009; Neumark-Sztainer et al., 2010). However, these issues have not been studied in SGM populations. Given the present findings that family weight teasing may play a particularly salient role in substance use and mental health in SGM youth, it will be important for future studies to examine the nature and impact of parent communication about body weight with youth of diverse sexual and gender identities.

Finally, the observed associations between WBV and health indices in this study indicate the need for increased attention to potential mechanisms linking WBV to poor health outcomes. To date, scholars have primarily conceptualized these mechanisms within the context of weight outcomes. For example, Tomiyama (2014) proposes that weight stigma acts as a stressor that elicits psychological responses (e.g., shame and stress), behavioral responses (e.g., increased eating), and physiological responses which induce weight gain. Hunger and colleagues suggest that weight stigma threatens social identity, increasing stress and motivation to avoid stigma while reducing self-regulation in ways that have adverse effects on health and weight gain (Hunger, Major, Blodorn, & Miller, 2015). Both of these frameworks could be informative in guiding future research to identify mechanisms linking WBV to substance use and other health behaviors. More broadly, emerging research has examined coping strategies that people use in response to weight stigma as a potential mechanism linking weight stigma to health outcomes; while this literature has primarily focused on adult populations (Himmelstein, Puhl, & Quinn, 2018), some evidence suggests that adolescents may respond to WBV in ways that compromise health, such as eating, avoiding physical activity, and with emotional distress (Himmelstein & Puhl, 2019). It will be important to examine broader coping strategies that youth may use in response to WBV

that may impact health, including substance use behaviors, and whether coping strategies differ across sexual and gender identity groups of youth.

Our study has several limitations. The cross-sectional nature of our data prevent speculation about causality or relationships between WBV and health indices across time. All data, including body weight and height, were self-reported. Additional health-related variables such as socioeconomic status should be examined in future research. Our data are not nationally representative, and data collection was limited to English-speaking adolescents who had access to the Internet for survey completion. Finally, results of this study should be interpreted with consideration of effect size estimates; in light of the large sample size in this study, the clinical significance of small effects remains unclear, and it will be important for future research to determine whether the observed associations between WBV and health have meaningful implications for health outcomes of SGM youth. Nevertheless, this study offers unique strengths in addressing the neglected topic of WBV in a large, diverse sample of SGM adolescents, and provides novel insights on WBV and its implications for health that can inform future research and clinical care of SGM youth.

Conclusion

Given elevated risks of substance use and poor mental health among SGM youth, findings from this study indicate the importance of considering WBV in initiatives to support health behaviors and provide optimal clinical care of this vulnerable population. Furthermore, the present findings lend support for the 2017 American Academy of Pediatrics policy statement calling upon pediatric health providers to address weight stigma and its harmful impact on youth (Pont et al., 2017). While this policy statement primarily emphasized addressing weight stigma in the context of youth with overweight and obesity, the present findings suggest that health care providers should be aware that WBV may have negative health implications for SGM youth regardless of their BMI, and that weight-based teasing, especially from family members, should be considered when examining health behaviors in this vulnerable population. In particular, it may be important for clinicians to screen SGM youth for victimization experiences not only in the context of their sexual or gender identity, but also their body weight. If a patient reports WBV, clinicians can identify whether there is a support system in place, share concerns with parents, and/or screen for related psychological comorbidities (e.g., substance use, depression/anxiety) to determine whether a mental health referral may be appropriate. With little previous attention to overlapping stigmatized identities in SGM youth, the present study highlights the need to further examine the intersectionality between weight status and sexual identity, and how WBV may exacerbate health disparities in this population.

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Table 1

Correlations between study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. BMI Percentile																	
2. Self-rated Health	-0.17***																
3. Depressive Symptoms	0.10***	-0.40***															
4. Self Esteem	-0.10***	0.41***	-0.67***														
5. Control Over Stressors	-0.04***	0.34***	-0.61***	0.70***													
6. Lifetime Alcohol Use /	0.05***	-0.04***	0.07***	-0.06***	-0.04***												
7. Alcohol Use in last 30 days /	0.01	-0.01	0.06***	-0.02	-0.02	0.55***											
8. Binge Drinking in last 30 days /	0.01	-0.03*	0.07***	-0.03**	-0.04***	0.29***	0.52***										
9. Lifetime Marijuana Use /	0.05***	-0.07***	0.10***	-0.04***	-0.04***	0.41***	0.38***	0.35***									
10. Marijuana Use in last 30 days /	0.02	-0.07***	0.09***	-0.04***	-0.05***	0.29***	0.36***	0.38***	0.67***								
11. Lifetime Cigarette Smoking /	0.03**	-0.07***	0.13***	-0.08***	-0.08***	0.20***	0.27***	0.33***	0.35***	0.36***							
12. Cigarette Smoking	0.07***	-0.10***	0.16***	-0.09***	-0.09***	0.32***	0.29***	0.28***	0.47***	0.36***	0.51***						

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
in Last 30 days /																	
13. Peer Weight Teasing /	0.14***	-0.20***	0.23***	-0.19***	-0.17***	0.09***	0.08***	0.06***	0.09***	0.07***	0.08***	0.13***					
14. Family Weight Teasing /	0.15***	-0.22***	0.27***	-0.25***	-0.22***	0.09***	0.08***	0.06***	0.11***	0.06***	0.05***	0.11***	0.32***				
15. Body weight	0.24***	-0.25***	0.33***	-0.27***	-0.24***	0.09***	0.08***	0.08***	0.10***	0.09***	0.12***	0.16***	0.67***	0.36***			
16. Gender	0.05***	-0.17***	0.32***	-0.27***	-0.26***	0.07***	0.04***	0.03***	0.08***	0.06***	0.10***	0.11***	0.19***	0.19***	0.29***		
17. Sexuality	0.03***	-0.12***	0.30***	-0.19***	-0.21***	0.12***	0.11***	0.10***	0.15***	0.12***	0.12***	0.19***	0.26***	0.17***	0.39***	0.44***	
18. Masculine/Feminine	0.00	-0.12***	0.26***	-0.19***	-0.22***	0.09***	0.08***	0.07***	0.11***	0.07***	0.11***	0.14***	0.23***	0.16***	0.34***	0.45***	0.55***

Note.

/ Outcome variable is binary. Correlations are point-biserial.

* p<.05

** p<.01

*** p<.001

Table 2

Hierarchical model change statistics.

	Self-rated Health					Depressive Symptoms				
	<i>R</i> ²	<i>R</i> ²	F	<i>df</i>	<i>p</i>	<i>R</i> ²	<i>R</i> ²	F	<i>df</i>	<i>P</i>
Model 1 (Demographics)	0.05					0.03				
Model 2 (SGM Identity)	0.08	0.03	25.64	13, 9010	<.001	0.12	0.09	69.69	13, 8999	<.001
Model 3 (SGMV)	0.10	0.02	51.10	3, 9007	<.001	0.21	0.09	341.25	3, 8996	<.001
Model 4 (WBV)	0.13	0.04	122.37	3, 9004	<.001	0.25	0.04	162.88	3, 8993	<.001
	Self Esteem					Control Over Stressors				
Model 1 (Demographics)	0.03					0.02				
Model 2 (SGM Identity)	0.12	0.10	73.39	13, 8767	<.001	0.09	0.07	50.72	13, 8737	<.001
Model 3 (SGMV)	0.16	0.04	138.86	3, 8764	<.001	0.14	0.05	184.01	3, 8734	<.001
Model 4 (WBV)	0.20	0.04	146.54	3, 8761	<.001	0.17	0.03	100.41	3, 8731	<.001
	Lifetime Alcohol Use					Alcohol Use in last 30 days				
	χ^2	<i>df</i>	χ^2	<i>df</i>	<i>p</i>	χ^2	<i>df</i>	χ^2	<i>df</i>	<i>p</i>
Model 1 (Demographics)	377.49	11.00				265.42	11			
Model 2 (SGM Identity)	461.61	24.00	84.13	13	<.001	356.33	24	90.91	13	<.001
Model 3 (SGMV)	611.24	27.00	149.63	3	<.001	496.74	27	140.42	3	<.001
Model 4 (WBV)	644.00	30.00	32.76	3	<.001	527.48	30	30.74	3	<.001
	Binge Drinking in last 30 days					Lifetime Marijuana Use				
Model 1 (Demographics)	202.06	11.00				615.53	11			
Model 2 (SGM Identity)	254.52	24.00	52.46	13	<.001	727.59	24	112.06	13	<.001
Model 3 (SGMV)	367.42	27.00	112.90	3	<.001	925.06	27	197.47	3	<.001
Model 4 (WBV)	390.33	30.00	22.91	3	<.001	958.40	30	33.34	3	<.001
	Marijuana Use in last 30 days					Lifetime Cigarette Smoking				
Model 1 (Demographics)	265.19	11.00				185.52	11			
Model 2 (SGM Identity)	346.60	24.00	81.40	13	<.001	252.69	24	67.17	13	<.001
Model 3 (SGMV)	490.29	27.00	143.70	3	<.001	374.79	27	122.10	3	<.001
Model 4 (WBV)	503.97	30.00	13.68	3	.003	396.20	30	21.41	3	<.001
	Cigarette Smoking in Last 30 days									
Model 1 (Demographics)	443.79	11.00								
Model 2 (SGM Identity)	551.57	24.00	107.78	13	<.001					
Model 3 (SGMV)	826.75	27.00	275.18	3	<.001					
Model 4 (WBV)	873.23	30.00	46.48	3	<.001					

Table 3

Logistic Regressions: Weight-based Victimization and Alcohol Use

Variable	Lifetime Alcohol Use			Alcohol Use in last 30 days			Binge Drinking in last 30 days			
	B	SE	P	B	SE	P	B	SE	P	
Caregiver Education	-0.04	0.02	0.03	-0.04	0.03	0.96	0.96	0.03	0.96	.147
U.S. Region (ref: South)										
Northeast	-0.08	0.06	0.21	0.10	0.10	1.24	0.41	0.10	1.24	.041
Midwest	-0.07	0.06	0.13	0.10	0.10	1.14	0.182	0.10	1.14	.182
West	-0.01	0.06	0.22	0.10	0.10	1.25	0.024	0.10	1.25	.024
Age	0.33	0.02	0.42	0.04	0.04	1.52	<.001	0.04	1.52	<.001
BMI Percentile	0.00	0.00	0.00	0.00	0.00	1.00	.893	0.00	1.00	.893
Race (ref: White)										
Asian	-0.24	0.12	-0.42	0.22	0.22	0.66	.057	0.22	0.66	.057
Black	-0.14	0.11	-1.01	0.26	0.36	<.001	0.74	0.26	0.36	<.001
Hispanic	-0.02	0.08	-0.22	0.13	0.80	.082	0.97	0.13	0.80	.082
Multiracial	0.08	0.07	-0.18	0.11	0.83	.101	0.93	0.11	0.83	.101
Other	0.17	0.18	0.04	0.29	1.04	.889	1.10	0.29	1.04	.889
Gender Identity (ref: Cisgender boy)										
Cisgender girl	0.01	0.10	-0.15	0.15	0.86	.317	0.97	0.15	0.86	.317
Trans boy	0.05	0.13	-0.48	0.20	0.62	.018	0.89	0.20	0.62	.018
Trans girl	-0.04	0.23	-0.09	0.34	0.91	.783	0.93	0.34	0.91	.783
AFAB non-binary	-0.02	0.11	-0.48	0.17	0.62	.005	0.85	0.17	0.62	.005
AMAB non-binary	-0.14	0.16	-0.54	0.27	0.58	.044	0.62	0.27	0.58	.044
Sexuality Identity (ref: Heterosexual)										
Gay	-0.30	0.21	-0.96	0.29	0.38	.001	0.85	0.29	0.38	.001
Lesbian	-0.26	0.20	-0.80	0.26	0.45	.002	0.87	0.26	0.45	.002
Bisexual	-0.18	0.19	-0.69	0.26	0.50	.007	1.03	0.26	0.50	.007
Queer	-0.29	0.22	-0.79	0.30	0.46	.008	0.83	0.30	0.46	.008
Pansexual	-0.34	0.20	-0.87	0.27	0.42	.001	0.95	0.27	0.42	.001
Asexual	-0.98	0.21	-1.67	0.35	0.19	<.001	0.39	0.35	0.19	<.001

Table 4

Logistic Regressions: Weight-based Victimization and Marijuana and Cigarette Use

Variable	Lifetime Marijuana Use			Marijuana Use in last 30 days			Lifetime Cigarette Smoking			Cigarette Smoking in Last 30 days		
	B	SE	P	B	SE	P	B	SE	P	B	SE	P
Caregiver Education	-0.13	0.02	0.88	<.001	-0.09	0.02	0.92	0.03	0.82	-0.22	0.02	<.001
U.S. Region (ref: South)												
Northeast	-0.04	0.07	0.96	.579	0.14	0.09	1.15	0.14	0.77	-0.36	0.08	<.001
Midwest	0.06	0.07	1.06	.397	0.13	0.09	1.14	0.11	1.16	0.02	0.07	.774
West	0.14	0.07	1.15	.041	0.30	0.08	1.35	0.12	0.91	-0.11	0.07	.123
Age	0.47	0.02	1.61	<.001	0.41	0.03	1.51	0.04	1.39	0.30	0.02	<.001
BMI Percentile	0.00	0.00	1.00	.008	0.00	0.00	1.00	0.00	1.00	0.00	0.00	.001
Race (ref: White)												
Asian	-0.63	0.16	0.53	<.001	-0.44	0.20	0.65	0.32	0.53	-0.37	0.17	.031
Black	0.21	0.12	1.23	.090	0.17	0.16	1.18	0.32	0.37	-0.09	0.14	.512
Hispanic	0.04	0.09	1.04	.635	-0.07	0.11	0.93	0.17	0.53	-0.22	0.09	.023
Multiracial	0.30	0.07	1.35	<.001	0.20	0.09	1.22	0.13	0.86	0.11	0.08	.155
Other	0.16	0.20	1.17	.447	0.11	0.25	1.12	0.33	1.13	0.03	0.22	.898
Gender Identity (ref: Cisgender boy)												
Cisgender girl	-0.24	0.11	0.79	.024	-0.28	0.13	0.76	0.19	0.81	-0.16	0.12	.162
Trans boy	0.02	0.14	1.02	.870	-0.09	0.17	0.92	0.22	1.44	0.28	0.15	.054
Trans girl	0.19	0.24	1.21	.435	0.23	0.28	1.26	0.41	0.85	-0.36	0.29	.207
AFAB non-binary	-0.33	0.12	0.72	.006	-0.40	0.15	0.67	0.21	0.91	-0.05	0.13	.716
AMAB non-binary	-0.14	0.17	0.87	.435	-0.56	0.24	0.57	0.38	0.38	-0.01	0.18	.958
Sexuality Identity (ref: Heterosexual)												
Gay	-0.91	0.22	0.40	<.001	-0.74	0.26	0.48	0.35	0.82	-0.60	0.23	.009
Lesbian	-0.42	0.20	0.66	.037	-0.30	0.24	0.74	0.31	0.64	-0.52	0.21	.013
Bisexual	-0.49	0.20	0.62	.013	-0.15	0.24	0.86	0.30	1.01	-0.30	0.20	.140
Queer	-0.56	0.22	0.57	.012	-0.29	0.27	0.75	0.36	0.71	-0.61	0.24	.009
Pansexual	-0.53	0.20	0.59	.007	-0.21	0.24	0.81	0.31	0.83	-0.34	0.21	.099
Asexual	-1.35	0.24	0.26	<.001	-1.23	0.31	0.29	0.38	0.48	-1.14	0.25	<.001

Variable	Lifetime Marijuana Use				Marijuana Use in last 30 days				Lifetime Cigarette Smoking				Cigarette Smoking in Last 30 days			
	B	SE	OR	p	B	SE	OR	p	B	SE	OR	p	B	SE	OR	p
Questioning	-0.86	0.27	0.42	.001	-0.93	0.37	0.40	.012	-0.23	0.43	0.80	.593	-0.47	0.28	0.63	.090
Other	-0.43	0.25	0.65	.085	-0.61	0.32	0.54	.058	-0.31	0.41	0.74	.455	-0.68	0.27	0.51	.012
Motive for School Victimization																
Gender	0.02	0.03	1.02	.559	0.03	0.04	1.03	.435	0.08	0.05	1.08	.102	0.02	0.03	1.02	.570
Sexuality	0.24	0.03	1.27	<.001	0.28	0.03	1.32	<.001	0.23	0.04	1.26	<.001	0.29	0.03	1.33	<.001
Masculine/Feminine	0.02	0.03	1.02	.515	-0.04	0.03	0.97	.250	0.05	0.04	1.05	.225	0.01	0.03	1.01	.610
Body weight	-0.01	0.03	0.99	.714	0.04	0.04	1.04	.270	0.16	0.05	1.17	.001	0.07	0.03	1.07	.026
Weight-based Victimization																
Peer Weight Teasing	0.14	0.07	1.15	.037	0.10	0.09	1.10	.247	0.04	0.12	1.04	.735	0.14	0.07	1.15	.051
Family Weight Teasing	0.25	0.06	1.29	<.001	0.13	0.07	1.14	.065	0.06	0.10	1.06	.560	0.21	0.06	1.23	.001

Table 5
 Linear Regressions: Self-rated health, depressive symptoms, self-esteem, and perceived control over stressors as a function of WBV

Variable	Self-Rated Health			Depressive Symptoms			Self Esteem			Control Over Stressors						
	B	SE	β	p	B	SE	β	p	B	SE	β	p				
Caregiver Education	0.05	0.01	0.10	<.001	-0.04	0.01	-0.08	<.001	0.02	0.01	0.04	<.001	0.02	0.00	0.04	<.001
U.S. Region (ref: South)																
Northeast	0.04	0.02	0.02	.054	-0.05	0.02	-0.03	.016	0.02	0.02	0.01	.299	0.05	0.02	0.03	.009
Midwest	0.03	0.02	0.02	.122	-0.02	0.02	-0.01	.373	0.00	0.02	0.00	.968	0.03	0.02	0.02	.067
West	-0.03	0.02	-0.01	.231	-0.01	0.02	-0.01	.518	-0.01	0.02	0.00	.745	0.03	0.02	0.02	.117
Age	-0.01	0.01	-0.02	.074	-0.01	0.01	-0.02	.057	0.02	0.01	0.04	<.001	0.03	0.01	0.06	<.001
BMI Percentile	0.00	0.00	-0.09	<.001	0.00	0.00	0.00	.693	0.00	0.00	-0.01	.558	0.00	0.00	0.03	.001
Race (ref: White)																
Asian	-0.06	0.04	-0.02	.134	0.08	0.04	0.02	.038	-0.07	0.03	-0.02	.035	-0.06	0.03	-0.02	.043
Black	-0.05	0.04	-0.01	.225	0.07	0.04	0.02	.045	0.08	0.03	0.02	.013	0.01	0.03	0.00	.836
Hispanic	-0.02	0.03	-0.01	.465	0.01	0.03	0.00	.676	0.05	0.02	0.03	.016	0.06	0.02	0.03	.003
Multiracial	-0.02	0.02	-0.01	.312	0.06	0.02	0.03	.006	-0.02	0.02	-0.01	.323	0.02	0.02	0.01	.357
Other	-0.01	0.06	0.00	.836	0.10	0.06	0.02	.074	0.03	0.05	0.01	.514	-0.01	0.05	0.00	.793
Gender Identity (ref: Cisgender boy)																
Cisgender girl	-0.13	0.03	-0.08	<.001	0.31	0.03	0.20	<.001	-0.21	0.03	-0.16	<.001	-0.14	0.03	-0.11	<.001
Trans boy	-0.34	0.04	-0.12	<.001	0.56	0.04	0.21	<.001	-0.48	0.04	-0.20	<.001	-0.34	0.04	-0.15	<.001
Trans girl	-0.15	0.08	-0.02	.054	0.37	0.07	0.05	<.001	-0.29	0.06	-0.05	<.001	-0.25	0.06	-0.04	<.001
AFAB non-binary	-0.28	0.04	-0.15	<.001	0.50	0.03	0.28	<.001	-0.42	0.03	-0.27	<.001	-0.30	0.03	-0.21	<.001
AMAB non-binary	-0.11	0.05	-0.02	.047	0.25	0.05	0.05	<.001	-0.22	0.05	-0.05	<.001	-0.20	0.04	-0.05	<.001
Sexuality Identity (ref: Heterosexual)																
Gay	-0.30	0.07	-0.15	<.001	0.18	0.07	0.09	.005	-0.17	0.06	-0.09	.005	-0.11	0.06	-0.07	.058
Lesbian	-0.23	0.07	-0.12	<.001	0.15	0.06	0.08	.010	-0.19	0.05	-0.12	<.001	-0.14	0.05	-0.09	.007
Bisexual	-0.29	0.07	-0.18	<.001	0.24	0.06	0.15	<.001	-0.24	0.05	-0.18	<.001	-0.20	0.05	-0.16	<.001
Queer	-0.33	0.07	-0.09	<.001	0.16	0.07	0.04	.016	-0.19	0.06	-0.06	.001	-0.18	0.06	-0.06	.002
Pansexual	-0.33	0.07	-0.15	<.001	0.24	0.06	0.11	<.001	-0.29	0.05	-0.15	<.001	-0.20	0.05	-0.11	<.001
Asexual	-0.38	0.07	-0.11	<.001	0.28	0.07	0.08	<.001	-0.30	0.06	-0.10	<.001	-0.25	0.06	-0.09	<.001
Questioning	-0.37	0.08	-0.07	<.001	0.26	0.07	0.05	<.001	-0.31	0.07	-0.07	<.001	-0.25	0.07	-0.06	<.001

Variable	Self-Rated Health			Depressive Symptoms			Self Esteem			Control Over Stressors		
	B	SE	β	p	B	SE	β	p	B	SE	β	p
Motive for School Victimization												
Other	-0.36	0.08	-0.07	<.001	0.28	0.07	0.06	<.001	-0.33	0.07	-0.08	<.001
Gender												
Gender	-0.02	0.01	-0.03	.053	0.02	0.01	0.03	.012	-0.01	0.01	-0.01	.483
Sexuality												
Sexuality	-0.01	0.01	-0.02	.148	0.09	0.01	0.15	<.001	-0.04	0.01	-0.07	<.001
Masculine/Feminine												
Masculine/Feminine	-0.01	0.01	-0.01	.501	0.05	0.01	0.09	<.001	-0.03	0.01	-0.06	<.001
Body weight												
Body weight	-0.08	0.01	-0.13	<.001	0.10	0.01	0.15	<.001	-0.08	0.01	-0.15	<.001
Weight-based Victimization												
Peer Weight Teasing												
Peer Weight Teasing	-0.06	0.02	-0.04	.002	0.00	0.02	0.00	.965	0.01	0.02	0.01	.589
Family Weight Teasing												
Family Weight Teasing	-0.15	0.02	-0.10	<.001	0.19	0.02	0.13	<.001	-0.18	0.01	-0.14	<.001