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The role of peer victimization, sexual identity, and gender on unhealthy weight control behaviors in a representative sample of Texas youth

Jessica Pistella, PhD¹, Salvatore Ioverno, PhD², Stephen T. Russell, PhD²

¹Department of Social and Developmental Psychology, Faculty of Medicine and Psychology, Sapienza University of Rome, Rome, Italy

²Population Research Center, Human Development and Family Sciences, The University of Texas at Austin, Austin, Texas

Abstract

Objective: The aim of the study is to examine the association between victimization and unhealthy weight control behaviors (UWCB), accounting for other key correlates of UWCB while considering the moderating role of sexual identity and gender.

Method: This study used data from the 2017 Texas Youth Risk Behavior Survey (YRBS), a representative sample of students in grades 9–12 in the U.S. state of Texas, including 2,067 students (1,754 heterosexuals and 313 sexual minorities). We used survey-weighted logistic regression to examine the association of sexual identity, gender, and victimization (dating violence, cyberbullying, and school bullying) with UWCB, after adjusting for demographic information and indicators of weight, physical activity, and support from adults.

Results: Unhealthy weight control behaviors were associated with older age, being obese, lack of support from adults, low physical activity, and cyberbullying. A significant three-way interaction between gender, sexual identity and bullying showed that bullying was associated with high levels of UWCB among sexual minority males.

Discussion: Our study highlights the role of victimization in health behaviors for stigmatized groups, and the importance of school efforts to implement an equitable and safe learning environment for all students.

Keywords

adults' support; obesity; physical activity; sexual minorities; unhealthy weight control behaviors; victimization

Correspondence: Jessica Pistella, Department of Social and Developmental Psychology, Faculty of Medicine and Psychology, Sapienza University of Rome, Via dei Marsi 78, 00185 Rome, Italy. jessica.pistella@uniroma1.it

DISCLOSURE OF INTEREST

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1 | INTRODUCTION

Sexual minority adolescents report higher prevalence of unhealthy weight control behaviors (UWCB; e.g., fasting, vomiting, or diet pills use) compared to heterosexuals (Watson, Adjei, Saewyc, Homma, & Goodenow, 2017), especially sexual minority males (SMM; French, Story, Remafedi, Resnick, & Blum, 1996). Calzo, Austin, and Micali (2018) argued that such disparities in UWCB may be due to exposure for sexual minority youth to different forms of victimization, such as dating violence, cyberbullying or school bullying. Further, a recent meta-analysis (Toomey & Russell, 2016) suggested that SMM experience higher levels of peer victimization compared to heterosexual youth.

To our knowledge, only one study (Thapa & Kelvin, 2017) has examined subgroup differences based on gender, sexual identity and peer victimization in association with UWCB. Using a representative sample of students in the state of New York, the association between UWCB and dating violence was stronger among SMM and heterosexual males, while its relationship with cyberbullying was higher among sexual minority females (SMF) and heterosexual males. These results suggest that different forms of peer victimization may interact in different ways with gender and sexual identity in predicting UWCB. However, the aforementioned study did not consider other individual and relational characteristics which may be associated with UWCB. Specifically, some studies show that physical activity (Hausenblas & Fallon, 2006), age (Calzo et al., 2018), body weight (Van Geel, Vedder, & Tanilon, 2014), and social support (Vander Wal, 2012) are important predictors of UWCB.

Although previous research has found gender and sexual identity differences in UWCB (French et al., 1996; Watson et al., 2017), and that individual and relational variables are associated with the higher prevalence of disordered eating in youth (Calzo et al., 2018; Hausenblas & Fallon, 2006; Van Geel et al., 2014; Vander Wal, 2012), no prior studies have accounted for these multiple factors in association with UWCB. Therefore, our research has two main objectives. The first is to examine whether some individual and relational variables such as age, race/ethnicity, body weight, physical activity, adults' support, and peer victimization are risk factors for the UWCB. The second objective is to test the moderating role of gender and sexual identity on the relationship between UWCB and peer victimization (i.e., dating violence, cyberbullying or school bullying).

2 | METHOD

2.1 | Procedures and participants

This study used data from the 2017 Texas Youth Risk Behavior Survey (YRBS), a representative sample of students in grades 9–12 in public and private schools in the U.S. state of Texas. The sample included 2,067 students (1,754 heterosexuals and 313 sexual minorities, see cross-tabulated numbers by sexual orientation and gender in Table 1). The YRBS provides sample weights to account for state-level demographic composition, and these weights were employed in the analyses (for details see <https://www.cdc.gov/healthyyouth/data/yrbs/pdf/2017/ss6708.pdf>). Given that the aim of the study was to evaluate the sexual identity disparities, the students who did not report their sexual identity ($n = 46$) are not included in these analyses. The overall response rate for the 2017 Texas

YRBS was 60%: The school response rate was 75% and the student response rate was 81%. Detailed information regarding the YRBS has been described by Kann and colleagues (Kann et al., 2014).

2.2 | Measures

Unhealthy weight control behaviors was measured from the following question: “during the past 30 days, did you try to lose weight or keep from gaining weight by going without eating for 24 hr or more; taking any diet pills, powders, or liquids; vomiting or taking laxatives; smoking cigarettes; or skipping meals?” (1 = yes; 0 = no).

Participants reported on the number of days they had been active at least 60 min in the last 7 days (coded as 1 = <5 days for week, 0 = >5 days for week, following the National guidelines, see Haskell et al., 2007); the presence of non-parental adult support (“besides your parents, how many adults would you feel comfortable seeking help from if you had an important question affecting your life?”, 1 = at least one, 0 = nobody); and experiences of peer-victimization (1 = yes, 0 = no). Specifically, three single questions asked participants if during the past 12 months they had been bullied on school property, electronically bullied, or someone they were dating or going out with physically hurt them on purpose. Using BMI based on self-reported height and weight, we measured whether participants were obese (those with a BMI ≥95th percentile) based on the 2000 CDC age- and gender-specific Growth Charts (Kuczmarski et al., 2002). Sociodemographic and personal variables included gender (female = 1; male = 0), sexual identity status (1 = sexual minority; 0 = heterosexual), and ethnicity (categorical variable for White, Black or African American, Hispanic, and other race/ethnicity).

2.3 | Statistical analysis

All analyses were conducted using Stata 15. First, we conducted survey-weighted logistic regression to examine group differences for all study variables based on gender and sexual identity (see Table 1). Second, the associations between UWCB and the covariates were investigated using survey-weighted logistic regression; we tested three-way interactions between sexual identity status, gender and each type of victimization (bullying, cyberbullying, and dating violence) in one model. Results are presented in Table 2.

3 | RESULTS

Analyses of group differences (Table 1) showed that sexual minority female (SMF) students were more likely to be obese, to be victims of cyberbullying, and were less likely to engage in physical activity than heterosexual females. Sexual minority males (SMM) were more likely to report UWCB, as well as experiences of dating violence and bullying at school, compared to heterosexual peers.

We then tested a series of two- and three-way interactions between each form of victimization, sexual identity, and gender. Only a three-way interaction between bullying, sexual identity, and gender was significant (Table 2). Simple slope tests revealed that SMM who experienced bullying at school were most likely to report UWCB, $b = .43$, $p = .004$, while the same association was not significant for SMF, $b = -.01$, $p = .971$, heterosexual

males, $b = .07$, $p = .225$, and heterosexual females, $b = .03$, $p = .473$. In addition to the interaction term, the risk for UWCB was higher for older youth, females, those who were obese, and those who reported low physical activity and lack of adult support.

4 | DISCUSSION

The 2017 YRBS is the first representative sample of Texas students that includes measures of sexual minority status. Using these data, our study documents the role of sexual identity and gender on the association between different forms of victimization and UWCB. To our knowledge, only one study has investigated whether the association between peer victimization and UWCB differs based on sexual identity and gender (Thapa & Kelvin, 2017). However, that study used a sample from New York City, a place with a distinct cultural milieu for sexual identity compared to the state of Texas, where sexual minority youth face a less supportive social climate and cannot rely on non-discrimination protections (Kosciw, Greytak, Giga, Villenas, & Danischewski, 2016). Moreover, the present study addressed a notable gap in the literature by accounting for potential confounders related to UWCB, such as BMI, physical activity, and support from adults.

Results showed a higher prevalence of UWCB among SMM. This finding is consistent with previous studies that show that SMM adolescents are especially at risk for disordered eating behaviors and weight-related concerns (see Miller & Luk, 2018 for a review). Descriptive statistics also showed significant disparities on indicators that are typically associated with patterns of UWCB. Consistent with previous research (Miller & Luk, 2018), we found no differences between SMM and heterosexual males on BMI and physical activity, while SMF are more likely to be obese and less likely to be physically active compared to heterosexual females.

Some scholars suggest that this disparity may be related to body image ideals among SMF: SMF are more likely to be satisfied with higher body weight compared to heterosexual women and to be attracted to women with greater BMI, and thus they may be less motivated to engage in dieting and physical activity behaviors (Austin et al., 2004; Morrison, Morrison, & Sager, 2004; Swami & Tovée, 2006). In addition, there were notable differences in victimization experiences based on sexual identity and gender. Specifically, consistent with prior studies, SMF were more likely to experience cyberbullying compared to heterosexual females (Abreu & Kenny, 2018), while SMM were more likely to report dating violence and bullying at school compared to heterosexual males (Martin-Storey, 2015; Toomey & Russell, 2016).

In multivariate analyses we found that UWCB was significantly associated with being obese and lack of support from adults. Future studies of UWCB should account for these important covariates. Interestingly, low levels of physical activity were significant predictor of UWCB. This result is consistent with previous studies suggesting that physical activity is positively correlated with body satisfaction (Neumark-Sztainer, Goeden, Story, & Wall, 2004) which in turn may reduce the risk of UWCB. Indeed, youth with body dissatisfaction often express embarrassment and concerns about the critical gaze of others during physical education activities (Slater & Tiggemann, 2011).

The final model revealed a significant three-way interaction between bullying at school, sexual identity, and gender, indicating that the effect of bullying on UWCB was strongest for SMM. The high prevalence of body fat dissatisfaction documented among SMM (Morrison et al., 2004), along with prior evidence showing a more detrimental impact of bullying on sexual minority compared to heterosexual youth (Toomey & Russell, 2016), may explain this association. Specifically, our findings suggest that bullying experiences may heighten the vulnerability of SMM, with consequences for basic health behaviors. This finding for SMM was not present in the New York City sample (Thapa & Kelvin, 2017); other studies have shown that sexual minority youth (Kosciw et al., 2016), especially males (Lingiardi et al., 2016), may be more vulnerable in socially conservative settings.

This study has several limitations. First, the study is cross-sectional; future research should apply longitudinal methods to better understand correlates of UWCB over time. Second, the use of self-report instruments may have decreased the reliability of responses due to misinterpretation of questions and social desirability. Third, we relied on single-item measures that undoubtedly obscure multidimensionality of constructs. For example, we have no information about the severity and frequency of UWCB. Further examination is required on these aspects. Fourth, the key variables were measured over differing time frames (e.g., past week, month, and year). Future studies should use measures referring to comparable periods. Fifth, although our study makes a contribution by including multiple potential correlates of UWCB, still other factors may be important but are not present in the YRBS, such as body dissatisfaction, internalized homophobia, socioeconomic status, and quality of family relationships. Finally, we were limited to a dichotomous measure of gender (male/female). Further research should use inclusive measures that distinguish sex from gender identity, and include different categories, such as genderqueer, transgender, gender-nonconforming, and other contemporary gender identities.

Unhealthy weight control behaviors are a serious public health concern. Only recently have studies begun to consider sexual orientation disparities and associated correlates of UWCB. Our study is one of few to provide evidence that victimization may negatively impact health behaviors, particularly among sexual minority youth. Given the existence of this disparity, our study highlights a need for further study of the unique contributors to sexual minority health, as well as the importance of efforts to create safe and equitable schools and communities for all students.

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TABLE 1

Descriptive statistics for study variables by gender and sexual identity

	Heterosexuals <i>n</i> (1,754)		Sexual minorities <i>n</i> (313)	
	Male <i>n</i> (856) <i>M</i> (<i>SD</i>) <i>n</i> (%)	Female <i>n</i> (891) <i>M</i> (<i>SD</i>) <i>n</i> (%)	Male <i>n</i> (93) <i>M</i> (<i>SD</i>) <i>n</i> (%)	Female <i>n</i> (215) <i>M</i> (<i>SD</i>) <i>n</i> (%)
Unhealthy weight control behaviors (yes)	81 (10.2) ^a	198 (25.8) ^b	32 (41.0) ^c	55 (28.5) ^{bc}
White	184 (16.1)	210 (15.7)	16 (8.6)	38 (17.8)
Black or African American	59 (6.7)	59 (5.5)	10 (7.3)	15 (9.5)
Hispanic	523 (26.3)	560 (23.6)	57 (16.3)	139 (33.6)
Other race/ethnicity	68 (4.1) ^a	43 (2.1) ^b	6 (2.2) ^{ab}	16 (4.7) ^{ab}
Age	16.08 (1.25)	15.9 (1.23)	15.87 (1.21)	15.89 (1.54)
Obese (yes)	175 (11.0) ^{ac}	123 (6.8) ^b	20 (9.4) ^{ac}	42 (14.9) ^{ac}
Physical activity (<5 days for week)	418 (48.1) ^a	568 (63.3) ^b	58 (48.4) ^{abc}	149 (72.5) ^c
Adults' support (no)	193 (21.9) ^a	175 (18.6) ^{ab}	26 (30.5) ^{ac}	52 (22.3) ^{abc}
Dating violence (yes)	24 (3.00) ^a	40 (5.00) ^{ab}	7 (9.56) ^b	13 (4.41) ^{ab}
Cyberbullying (yes)	68 (8.57) ^a	155 (18.33) ^b	17 (16.14) ^{abc}	61 (28.47) ^c
Bullying at school (yes)	108 (14.0) ^a	175 (20.3) ^b	29 (34.8) ^c	59 (26.8) ^{bc}

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. 95% CI = confidence interval; OR = odds ratio. The values followed by the same letter, in the same row, did not show significant difference from each other using 95% CI for odds ratio estimates. Frequencies refer to the number of participants who reported negative perceptions, episodes or behaviors.

TABLE 2

Survey-weighted logistic regression predicting unhealthy weight control behaviors (UWCB); estimated odds ratios and 95% confidence intervals among Texas school students

	Survey-weighted logistic regression		
	OR for UWCB	(95% CI)	P
<i>Ethnicity (compared to White)</i>			
Black or African American	1.15	(.54; 2.41)	.70
Hispanic	.82	(.56; 1.22)	.32
Other race/ethnicity	.92	(.47; 1.77)	.78
Age	1.18	(1.03, 1.35)	.02
Obese (yes)	1.59	(1.16, 2.19)	<.01
Physical activity (<5 days for week)	1.43	(1.14, 1.79)	<.01
Adults' support (no)	1.57	(1.08, 2.26)	.02
Dating violence (yes)	2.19	(.35, 13.72)	.37
Cyberbullying (yes)	1.19	(.42, 3.35)	.72
Bullying at school (yes)	1.89	(.75, 4.69)	.16
Gender (female)	3.43	(2.07, 0.5.72)	<.001
Sexual identity status (sexual minorities)	4.23	(1.82, 9.83)	<.01
Gender × sexual minorities	.26	(.11, 0.63)	<.01
<i>Interaction effects-dating violence</i>			
Gender × dating violence	.70	(.13, 3.96)	.67
Sexual minorities × dating violence	.99	(.04, 23.66)	.99
Gender × sexual minorities × dating violence	.68	(.01, 31.70)	.83
<i>Interaction effects-cyberbullying</i>			
Gender × cyberbullying	1.22	(.38, 3.93)	.71
Sexual minorities × cyberbullying	.51	(.02, 10.96)	.65
Gender × sexual minorities × cyberbullying	3.69	(.17, 77.29)	.38
<i>Interaction effects-bullying at school</i>			
Gender × bullying	.64	(.21, 1.88)	.39
Sexual minorities × bullying	3.93	(.78, 19.75)	.09
Gender × sexual minorities × bullying	.17	(.03, 0.75)	.02

Note. 95% CI = confidence interval; OR = odds ratio; UWCB = unhealthy weight control behaviors.