Published in final edited form as:

J Adolesc Health. 2010 July ; 47(1): 99–101. doi:10.1016/j.jadohealth.2009.12.007.

Bullying Victimization among Underweight and Overweight U.S. Youth: Differential Associations for Boys and Girls

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Abstract

To examine the associations between body weight and physical, verbal, relational and cyber victimization among U.S. boys and girls in grade 6 through 10. Underweight boys and girls were more likely to be physical and relational victims respectively. Overweight boys and obese girls were more likely to be verbal victims.

Keywords

victimization; body weight; gender difference; youth

Bullying is an aggressive behavior involving an imbalance of power between the bully and victim [1]. It may take various forms, such as physical (e.g., hitting), verbal (e.g., calling mean names), social or relational (e.g., social exclusion and spreading rumors), or a relatively new form - cyber bullying (e.g., bullying through computers or cell phones) [2,3].

When asked why teens are bullied in a recent study, the most common response of the adolescents was a different appearance of a victim [4]. For instance, overweight and obese adolescents are at higher risk to be bullied at school [5]. However, few studies have examined the association between underweight status and victimization, and mixed results were found. For example, one study suggested that underweight boys are more likely to be victims of physical bullying as they are physically weak [6]. Yet other studies showed no difference between underweight and normal youth [7] or less likelihood for underweight boys to be bullied [8]. In addition, potential gender difference in this relationship is unclear.

This study examined the associations between body weight and four types of victimization (physical, verbal, relational and cyber) and evaluated potential gender differences.

Methods

Sample and Procedure

Data were obtained from the Health Behavior in School-aged Children (HBSC) 2005/2006 U.S. study [9]. In-school surveys were completed by a nationally representative sample of students in grades 6 to 10 identified through a multistage survey design. Youth assent and

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parental consent were obtained and the study protocol was approved by the Institutional Review Board of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development.

Measures

Socio-Demographic variables—Demographic variables included gender, age, and race/ethnicity (Caucasian, African-American, Hispanic, and others).

Victimization—The revised Olweus' bully/victim instrument [1] was used to measure experience with physical (1 item, i.e., "hitting, pushing, ..."), verbal (3 items, e.g., "calling mean names in a hurtful way"), and relational (2 items, i.e., being left out of things and being spread rumors by others) victimization. Two additional items were used to measure cyber victimization (i.e., using computers or using cell phones). The description of these eight items and their prevalence rates were described elsewhere [3]. For each type of victimization, a dichotomous variable was created with two categories: noninvolved and involved.

BMI Groups—Adolescents were asked to report their heights and weights. Body mass index was calculated by weight (kg)/height (m)². BMI groups were generated by using the Centers for Disease Control and Prevention growth charts [10]. A continuous variable of BMI percentile was derived, and a five-category weight group variable was created: underweight (≤ 5 percentile), at risk for underweight (>5 –15 percentile), normal weight (>15 –85 percentile), overweight (>85 –95 percentile), and obese (>95 percentile).

Analysis

For each type of victimization, a logistic regression was conducted with victimization as the outcome, the BMI group as the predictor, and relevant demographic characteristics as covariates. SAS version 9.1 was used for all analyses with survey design controlled for. Analyses were also run separately by gender.

Results

Sample Characteristics

Among 7508 adolescents who completed the HBSC survey containing the victimization questions (response rate = 85%), 569 (7.6%) were excluded due to missing data. The remaining of 6939 adolescents included 48.8% males, 43.5% Caucasians, 18.2% African-American adolescents, and 25.5% Hispanic adolescents. The mean age was 14.4 years old, with a standard deviation of 1.41.

Descriptive Statistics

Among all adolescents, 3.5% were underweight, 5.0% were at risk for underweight, 61.0% were normal weight, 17.1% were overweight and 13.4% were obese. Percentages of involvement in victimization are shown in Table 1, by gender and five weight groups.

Logistic regressions

The results of odds ratio and their confidence intervals are reported in Table 2. Age was negatively related to involvement in victimization and was included as a covariate.

Compared to normal weight boys, underweight boys were more likely to be physical victims (OR = 1.87). Overweight boys (OR = 1.27) and obese girls (OR = 1.36) were more likely to be victimized verbally. Underweight girls were at higher risk for being victimized relationally (OR = 1.71). There was no association between weight and cyber victimization.

Discussion

The current study examined the associations between body weight and four types of victimization among U.S. youth in grade 6 through 10. Our results showed that overweight boys and obese girls were more likely to be targets of verbal bullying. Underweight boys were more likely to be physical victims, whereas underweight girls were more likely to be relational victims.

The higher risk of being verbally bullied among overweight and obese youth is consistent with previous research, indicating that the overweight youth were more likely to be victimized [5]. The lack of relationships between overweight and other types of victimization suggest that the main type of bullying towards overweight youth is through being called mean names and teased in a hurtful way.

Our results on underweight status and victimization showed that underweight boys and girls are targets of different types of bullying. The higher risk for physical victimization among underweight boys is consistent with Olweus's findings [6], which imply an imbalance of physical power between the bullies and victims. Conversely, underweight girls were more likely to be socially excluded or be targets of spreading rumors. The gender difference may reflect the corresponding gender difference in involvement in bullying: boys are more involved in physical bullying, whereas girls are more involved in relational bullying [2]. Another possible explanation is that the underweight boys and girls only constituted 4.2% and 2.8% and were considered different from others in terms of body size. As few previous studies have included underweight youth and different types of victimization, this finding is especially unique.

This study extended previous studies by examining four types of victimization and five weight groups in a nationally representative sample. Our results highlight the advantage of drawing a distinction between various types of victimization. Research and intervention efforts are needed to address victimization experiences not only among the overweight and obese, but also among underweight youth.

Acknowledgments

This research was supported by the Intramural Research Program of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development and the Maternal and Child Health Bureau of the Health Resources and Services Administration.

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Table 1Physical, Verbal, Relational and Cyber Victimization by Weight Group^a

Five BMI Weight Groups:						
All Individuals	Total	At Risk for				
		Underweight	Underweight	Normal	Overweight	Obese
N (% ^a)	6939	255 (3.5)	360 (5.0)	4211 (61.0)	1147 (17.1)	966 (13.4)
Victimization ^b						
Physical	12.9	17.8	14.5	11.5	15.1	14.6
Verbal	36.7	40.0	34.2	35.1	39.1	41.1
Relational	41.1	44.8	39.9	40.5	43.1	43.0
Cyber	9.9	10.6	9.6	9.7	9.1	11.8
Five BMI Weight Groups:						
Male	Total	At Risk for				
		Underweight	Underweight	Normal	Overweight	Obese
N (% ^a)	3328	134 (4.2)	162 (4.8)	1920 (57.5)	580 (18.2)	532 (15.2)
Victimization ^b						
Physical	17.5	26.4	19.1	15.9	18.8	19.0
Verbal	38.2	42.3	39.7	35.8	42.0	41.2
Relational	36.4	35.2	39.6	35.2	37.9	38.3
Cyber	9.7	11.3	8.7	9.3	8.1	12.8
Five BMI Weight Groups:						
Female	Total	At Risk for				
		Underweight	Underweight	Normal	Overweight	Obese
N (% ^a)	3611	121 (2.8)	198 (5.1)	2291 (64.4)	567 (16.0)	434 (11.7)
Victimization ^b						
Physical	8.5	5.4	10.0	7.7	11.1	9.0
Verbal	35.3	36.7	29.5	34.5	36.0	41.1
Relational	46.1	58.9	40.1	45.0	48.6	48.8
Cyber	10.1	9.5	10.4	10.1	10.1	10.7

Note.^aWeighted percentages of BMI weight groups.

b Weighted percentages of involvement in victimization.

Table 2

Physical, Verbal, Relational and Cyber Victimization by Weight Group

Outcome	Model 1: Physical	Model 2: Verbal	Model 3: Relational	Model 4: Cyber
Predictor	OR [95% CI]	OR [95% CI]	OR [95% CI]	OR [95% CI]
Male				
Age	0.76 [0.70–0.83]	0.84 [0.79–0.90]	0.81 [0.76–0.86]	0.89 [0.81–0.98]
BMI category				
Underweight	1.87 [1.02–3.43]	1.29 [0.84–2.00]	0.96 [0.60–1.54]	1.22 [0.56–2.65]
At risk for underweight	1.19 [0.66–2.16]	1.13 [0.71–1.79]	1.13 [0.69–1.85]	0.89 [0.48–1.66]
Normal	1.00	1.00	1.00	1.00
Overweight	1.19 [0.81–1.71]	1.27 [1.04–1.55]	1.09 [0.86–1.38]	0.84 [0.56–1.27]
Obese	1.26 [0.91–1.73]	1.26 [0.98–1.63]	1.11 [0.76–1.42]	1.44 [0.93–2.24]
Female				
Age	0.80 [0.72–0.90]	0.89 [0.83–0.95]	0.97 [0.91–1.04]	0.96 [0.86–1.07]
BMI category				
Underweight	0.56 [0.26–1.19]	0.99 [0.66–1.50]	1.71 [1.06–2.75]	0.90 [0.45–1.81]
At risk for underweight	1.24 [0.59–2.62]	0.77 [0.53–1.13]	0.81 [0.57–1.16]	1.00 [0.42–2.39]
Normal	1.00	1.00	1.00	1.00
Overweight	1.46 [0.99–2.16]	1.06 [0.85–1.34]	1.15 [0.93–1.44]	0.99 [0.63–1.57]
Obese	1.16 [0.77–1.74]	1.36 [1.03–1.79]	1.21 [0.89–1.65]	1.06 [0.68–1.67]

Note. As race/ethnicity had no significant influence for most analyses, race/ethnicity was not included.