

RESEARCH ARTICLE

Weight-Based Victimization Toward Overweight Adolescents: Observations and Reactions of Peers

REBECCA M. PUHL, PhDa JOERG LUEDICKE, MSb CHESLEA HEUER, MPHa

- ABSTRACT -

BACKGROUND: Weight-based victimization has become increasingly reported among overweight youth, but little is known about adolescents' perceptions and observations of weight-based teasing and bullying. This study examined adolescents' observations of and reactions to weight-based victimization toward overweight students at school.

METHODS: Adolescents (N = 1555) at 2 high schools in central Connecticut completed a questionnaire that examined their perceptions of how common weight-based victimization is compared to other forms of teasing at school, what types of weight-based teasing are frequently observed, who typical perpetrators of weight-based victimization are, and their own reactions to observed teasing incidents. Participants also completed the Fat Phobia Scale.

RESULTS: Participants perceived being overweight as a primary reason that peers are victimized at school. At least 84% of participants observed overweight students being teased in a mean way and teased during physical activities, and 65% to 77% of students observed overweight and obese peers being ignored, avoided, excluded from social activities, having negative rumors spread about them, and being teased in the cafeteria. Most students also observed verbal threats and physical harassment toward overweight and obese students. Although the majority of participants felt comfortable stepping in to help an overweight peer who has been teased, many remain passive bystanders following these incidents.

CONCLUSION: Youth perceive frequent and multiple forms of weight-based victimization. Schools' efforts to address weight bias and assist overweight and obese students are important.

Keywords: obesity; overweight; stigma; bullying; teasing.

Citation: Puhl RM, Luedicke J, Heuer C. Weight-based victimization toward overweight adolescents: observations and reactions of peers. J Sch Health. 2011; 81: 696-703.

Received on September 30, 2010 Accepted on December 14, 2010

Overweight youth face substantial stigmatization and victimization from peers because of their weight. Negative stereotypes toward overweight peers begins early in childhood, 1,2 and by adolescence weight-based victimization is common. Overweight and obese adolescents are more likely to be victims of teasing and bullying than average weight peers. The likelihood of verbal, relational, and physical peer victimization increases with body mass index (BMI) among adolescents, and longitudinal research demonstrates that weight category significantly predicts future victimization, leaving

adolescents at the highest levels of obesity especially vulnerable to stigmatization. Research suggests that one third of girls and one fourth of boys report weight-based teasing from peers, but prevalence rates increase to approximately 60% among the heaviest students.⁸

With recent prevalence estimates indicating that 34% of adolescents in the United States have a BMI at or above the 85th percentile, the proportion of adolescents who are overweight or obese is significant, and raises concerns about the vulnerability of so many youth to weight bias, which can have immediate and long-term adverse consequences for their emotional, social, and physical health. 3,10-20

Address correspondence to: Rebecca M. Puhl, Director of Research, (Rebecca.puhl@yale.edu), Rudd Center for Food Policy and Obesity, Yale University, 309 Edwards Street, New Haven. CT 06520-8369.

This research was supported by a grant from the Rudd Center for Food Policy & Obesity at Yale University.

^aDirector of Research, (Rebecca.puhl@yale.edu), Rudd Center for Food Policy and Obesity, Yale University, 309 Edwards Street, New Haven, CT 06520-8369.

bStatistician, (joerg.luedicke@yale.edu), Rudd Center for Food Policy and Obesity, Yale University, 309 Edwards Street, New Haven, CT 06520-8369.

^cResearch Associate, (Chelsea_heuer@yahoo.com), Rudd Center for Food Policy and Obesity, Yale University, 309 Edwards Street, New Haven, CT 06520-8369.

Despite increasing attention to weight stigmatization in youth, little is known about adolescents' perceptions and observations of weight-based victimization toward overweight peers. Peers can provide useful information about stigmatization in the school setting because they are privy to encounters of teasing and victimization that often occur in situations with no adult observers.²¹ However, to date, research has primarily examined weight bias in youth by assessing previous history of teasing reported by overweight youth or documenting negative attitudes toward overweight youth by peers. 5,8,10,13,22-26 To our knowledge no work has explored adolescents' observations of, or reactions to, weight-based teasing toward their overweight peers. An increased understanding of adolescents' perceptions of weight-based victimization has important implications for determining what components need to be addressed in interventions to prevent and reduce weight stigmatization.

This study explored adolescents' perceptions and observations of weight-based victimization toward overweight students in the school setting. Specific objectives included examining perceptions of how common weight stigmatization is compared to other forms of teasing at school, what types of weight-based teasing are frequently observed, and who the typical perpetrators of weight-based victimization are. A second aim of the study was to examine how adolescents typically react to or intervene in situations of weight-based teasing that they observe, and whether their own attitudes about obese persons influences these reactions.

METHODS

Participants

Self-report data on weight-based teasing and bullying (via questionnaires) were collected from 2 high schools in central Connecticut that were invited to participate in this study during a 1-week period in winter 2009. Table 1 provides a description of the key sample characteristics including demographics of the student population, locales, and socioeconomic status (SES) as measured by the percentage of students eligible for free or reduced-cost lunches and median family income of each town.

Students (grades 9-12) at each school who were present on the day of data collection were invited to participate. Passive consent was obtained from parents, who received letters explaining that their child's participation was voluntary, and assuring that all responses from their child would be anonymous. At the time of data collection, 1154 students were registered at one school (sample 1), and 944 students were registered at the second school (sample 2). Seventy-three percent of students (N = 844) in sample 1 and 79% of students (N = 754) in sample 2

Table 1. Sample Characteristics of Participating Schools*

Variable	Sample 1 N = 816 %, Mean (SD)	Sample 2 N = 739 %, Mean (SD)
Gender (girls)	49%	55%
Age	16.31 (1.07)	16.47 (1.17)
Race (non-Caucasian)	18%	18%
Grades		
Mean (range: 1-5)	1.67 (.76)	2.10 (.79)
Mostly A	48%	21%
Mostly B	40%	52%
Mostly C-F	12%	27%
BMI		
Mean	21.91 (3.68)	22.91 (4.36)
Underweight	3%	3%
Healthy weight	80%	70%
Overweight	11%	16%
Obese	6%	11%
Area characteristics		
Locale (town population)	25,114	28,825
Free and reduced lunch	5%	19%
Median family income	\$85,396	\$60,439

^{*}The 2 samples differ significantly for sex, age, grades, and body mass index (BMI) (p < .05).

completed surveys during the data collection period. Surveys were excluded from data analysis if 50% or more of the questions were missing or incomplete. This resulted in 28 surveys being excluded from sample 1 and 15 surveys excluded from sample 2. The final sample consisted of 1555 students (816 students from sample 1 and 739 students in sample 2).

Instruments

Sociodemographic Variables. Participants completed self-report questions to obtain their age, gender, ethnicity, and current grades in school (ranging from "Mostly A's" to "Mostly F's"). Self-reported height and weight were collected to determine students' BMI. Body mass index-for-age percentiles were calculated and plotted on the Centers for Disease Control and Prevention 2000 sex-specific growth curves.²⁷ Using the most recent established definitions of childhood obesity and overweight, adolescents with BMI values above the 85th percentile but below the 95th percentile are considered "overweight," and those above the 95th percentile are considered "obese." For multivariate analyses, BMI was used as a continuous variable to account for more detailed differences between students in the same weight category. Instead of the absolute BMI, gender- and agespecific z-scores were used that represent the deviation from the mean within a respective group.

Observations of Weight-Based Teasing and Bullying. The nature and extent of weight-based teasing and bullying toward peers, as observed by the students, was assessed with a number of questionnaire items developed by the researchers for this study. Participants were asked how often students at their school were

called names, teased, or bullied due to 7 different possible reasons, including being overweight, sexual orientation, race/ethnicity, religion, intelligence, physical disability, or low family income. Students reported their perceptions of how often other students were teased for each of these reasons using a 5-point scale ranging from "never" to "very often." Participants were then asked which of the above 7 reasons they perceive other students are *most* often teased or bullied at their school, requiring them to choose only 1 of the 7 reasons provided.

To assess different forms of weight-based victimization observed by students, participants were asked how often they observed 10 different types of weight-based teasing and bullying at their school. Items included overweight students being made fun of, called names, teased in a mean way, ignored or avoided, excluded from social activities, teased in the school cafeteria, teased during physical activities (eg, gym class), having negative rumors spread about them, being verbally threatened, or physically harassed. Students were asked how often they had observed each of these forms of weight-based victimization using a 5-point Likert-type response format ranging from "never" to "very often".

Students were also asked to report their perceptions of the most common sources (perpetrators) of weight-based teasing and bullying. Specifically, students reported whether or not they had observed weight-based victimization by male peers (not personal friends), female peers (not personal friends), male friends, and female friends.

To assess students' reactions following observations of weight-based teasing, 3 questions developed by the experimenters were used to build a mean scale (willingness-to-help scale) measuring students' willingness to (1) help a peer who has been teased, (2) tell an adult at school about the teasing incidents they witnessed, or (3) choose to remain a passive bystander. Participants rated their agreement to each of these items using a 4-point scale from "strongly disagree" to "strongly agree." A composite score was calculated with these items (Mean = 2.47, SD =.57, $\alpha = .65$, item 3 reverse coded). Participants were then asked "If you saw somebody getting teased, bullied or treated unkindly because of their weight, who would you most likely report this to at school?" Response options included a teacher, principal, guidance counselor, school nurse, coach, other, and no one.

Fat Phobia Scale. Students completed the Fat Phobia Scale, ²⁹ a 14-item scale that assesses attitudes about obese people. Fourteen pairs of adjectives used to describe obese people are listed (eg, "no will power" versus "has will power"), and respondents are asked to indicate on a scale from 1 to 5 which adjective they feel best describes their feelings and beliefs. A score of

2.5 indicates a neutral attitude, and a score of more than 2.5 denotes a negative attitude. This measure has demonstrated good reliability in adult samples, ^{29,30} and showed very good reliability in both samples in this study ($\alpha = .89$).

Data Analysis

The assessment of the nature and extent of weight-based victimization as observed by students is presented with descriptive analyses. Statistical significance was assessed using chi-square tests for differences between schools regarding either entire variables (referred to as overall difference) or for certain categories of variables. To determine multivariate relations between students' observations of teasing, their reactions to observations of weight-based teasing, and their general attitudes toward obese people, linear regression models with linear and non-linear effects were estimated. All analyses were performed using STATA version 11.1 (StataCorp, College Station, TX).

RESULTS

Sample Characteristics

Table 1 summarizes sample characteristics in each school. Of the 1555 adolescents that completed the survey, 816 (52.5%) were from sample 1 and 739 (47.5%) were from sample 2. The students' ages ranged from 13 to 19 years. The majority of students in both samples were Caucasian, and differed slightly but significantly with regard to composition of gender, age, self-reported grades, and BMI (Table 1). We therefore present the descriptive analyses separately for each sample and control for these variables (and school) in the multivariate models.

Do Students Perceive Weight-Based Teasing to Be Common? Table 2 summarizes responses of students when asked what they perceive to be the main reason that others are teased or bullied. Overall, approximately 41% of students identified being overweight as the primary reason for being victimized, followed by sexual orientation (38%), intelligence/ability at school (10%), race/ethnicity (6%), physical disability (3%), religion (1%), and low family income (1%). Observations of weight-based teasing were more prevalent in sample 2, where 46% of the students reported being overweight as the most important reason for teasing compared to 36% in sample 1 $(c^2(1, N = 1530) = 18.16, p < .001)$.

When asked about how frequently they observe weight-based teasing, students at both schools, 28% (sample 1) and 38% (sample 2) reported observing weight-based teasing "often" or "very often." More than three fourth of students (sample 1 : 76%; sample 2 : 81%) observed weight-based victimization at least

Table 2. Adolescents' Perceptions of Why Peers Are Teased/Bullied: Observed Frequency

	Primary Reason That Students Report Peers Are Teased/Bullied			Observed Sometimes, Often, or Very Often by Students		
Perceived Reason for Teasing	Sample 1	Sample 2	Total	Sample 1	Sample 2	Total
Being overweight	35.7*	46.4*	40.8	76.4*	81.0*	78.5
Gay/lesbian	40.2*	35.3*	37.8	79.3	77.7	78.5
Ability at school	13.7*	5.1*	9.6	66.5*	55.3*	61.2
Race/ethnicity	5.5	7.7	6.5	43.5	48.5	45.8
Physical disability	2.6	4.0	3.3	31.3*	40.8*	35.8
Religion	1.7*	0.6*	1.2	23.2*	18.2*	20.8
Low income/status	0.6	1.0	0.8	21.1*	29.2*	24.9
N	804	726	1530	812	730	1542

^{*}A significant difference between the 2 samples (p < .05).

"sometimes." Very few students at both schools (less than 5%) stated that they had never observed weight-based teasing. Overall, the differences between the samples were statistically significant ($c^2(4, N = 1551) = 17.57$, p = .001).

What Forms of Weight-Based Teasing and Bullying Do Students Observe? Table 3 shows the percentage of students who observed different types of weight-based teasing at their school. At both schools, the most common forms of weight-based teasing observed were making fun of overweight students, overweight students being called names, getting teased in a mean way by other students, and being teased during physical activities (eg, in gym class). Observations of these types of weight-based teasing were reported by 85-92% of students. When asked how frequently students witness these forms of weight-based teasing, 58-69% of participants (in both schools) reported observing these situations at least sometimes, often, or very often.

Other forms of weight-based victimization were frequently observed in both samples, including overweight and obese students being ignored or avoided (76%), being teased in the cafeteria (71%), being excluded from social activities at school (67%),

and being the target of negative rumors (68%). At least one third of students in both samples reported observing these forms of weight-based teasing sometimes, often, or very often. Students were least likely to report observing verbal threats and physical harassment toward overweight or obese peers. Still, the majority of students reported witnessing these forms of weight-based victimization, and 25-28% of students indicated that they observed these events at least sometimes. Overall, both samples reported observing similar types of weight-based teasing with similar frequency. However, several significant differences emerged, where students in sample 2 reported more observations of weight-based teasing during physical activity ($c^2(1, N = 1535) = 21.31$, p < .001), spreading rumors ($c^2(1, N = 1539) = 8.28$. p = .004), and physical harassment ($c^2(1, N = 1543) =$ 4.21, p = .04) toward overweight students compared to sample 1.

Who Are the Most Common Sources of Weight-Based Teasing? Both samples reported observing similar sources of weight-based teasing. Approximately 70% of students (sample 1 : 70%; sample 2 : 67%, n.s.) identified male peers whom they are not friends with as typical perpetrators, compared to 40% (sample

Table 3. Frequency of Different Forms of Weight-Based Teasing as Observed by Students

Types of Weight-Based Teasing Observed Toward Overweight/Obese Students	% Students Who Observed Types of Weight-Based Teasing			% Observed At Least Sometimes, Often, Very Often		
	Sample 1	Sample 2	Total	Sample 1	Sample 2	Total
Made fun of	92	92	92	68	71	69
Called names	91	92	91	66	69	68
Teased in a mean way	87	88	88	58	62	60
Teased during physical activity	84	86	85	52*	64*	58
Ignored or avoided	76	77	76	48	52	50
Teased in the cafeteria	72	71	71	42	43	43
Excluded from activities	68	65	67	40	40	40
Students spread rumors	67	70	68	36*	43*	39
Verbally threatened	55	59	57	26	30	28
Physically harassed	51*	57*	54	23*	28*	25

^{*}A significant difference between the 2 schools (p < .05).

1:44%; sample 2:43%, n.s.) who identified female students that they are not friends with as perpetrators. In contrast, less than a third of students (16-28%) reported their male and female friends to be typical sources of teasing or bullying overweight students. The only significant difference between samples was that male friends were reported to be more common perpetrators in sample 1 (28%) compared to sample 2 (22%) (sample 1:28%; sample 2:22%, $c^2(1, N = 1538) = 5.99$, p = .014).

How Do Students React After Observing These Experiences? Approximately 60% of students (sample 1: 58%; sample 2: 62%, n.s.) agreed that they would feel comfortable stepping in to help if they observed an overweight or obese peer getting teased. Thirty-two percent of the students in sample 1 and 38% of students in sample 2 stated that they felt comfortable telling an adult at school ($c^2(1, N = 1533) = 5.03$, p = .025). However, about 50% of students (sample 1 : 55%; sample 2 : 49%, $c^2(1, N = 1532) = 5.07$, p = .024) reported that they usually did not do anything if they witnessed a peer getting teased.

Who Would Students Most Likely Report Incidents To? In sample 1, 39% of students reported their teacher to be the most likely person they would report a teasing incident, 21% named the guidance counselor, and 23% stated that they would not report such incidents. In sample 2, 29% of the students would tell a teacher about an observed incident, 31% would talk to the guidance counselor, and 27% would not report to anybody. Twelve percent in sample 1 and 17% in sample 2 would consider telling the principal or other adults at school. The differences between the 2 samples are significant ($c^2(4, N = 1527) = 42.56$, p < .001).

Do Students Express Negative Attitudes Toward Obese Persons? Table 4 summarizes the percentage of students in both schools who agreed with negative stereotypes about obese persons on the Fat Phobia Scale. Mean scores in both samples reflect moderately negative attitudes toward obese persons, and are similar to means reported in previous studies.³⁰ However, sample 1's mean score (Mean = 3.64, SD =.67) was slightly but significantly higher (reflecting worse attitudes) than sample 2's score (Mean = 3.48, SD = .69; t(1477) = 4.71, p < .0001). In a linear regression model in which we excluded underweight students and controlled for school, gender, age, race, and grades, it was found that students with a lower BMI expressed more negative attitudes toward obese persons than heavier students ($\beta = -.08$, t(1322) =3.05, p = .002).

Are Students With Negative Attitudes Less Likely to Help Overweight Students Who Are Teased? To address this question, we estimated a linear regression with the willingness-to-help scale as the dependent variable (Table 5). To improve interpretability of the

Table 4. Percentage of Students Agreeing or Strongly Agreeing With Negative Adjectives on the Fat Phobia Scale

Negative Adjective About Obese	% Agreement			
Persons as Measured by the Fat Phobia Scale	Sample 1	Sample 2		
Lazy	58	43		
No willpower	38	30		
Unattractive	62	47		
Poor self-control	50	42		
Slow	75	63		
Having no endurance	68	53		
Inactive	64	53		
Weak	30	25		
Self-indulgent	39	27		
Likes food	80	72		
Shapeless	34	31		
Overeats	73	61		
Insecure	65	61		
Low self-esteem	65	62		
Mean scale, Mean (SD)	3.64 (.67)	3.48 (.69)		
Cronbach's α	.89	.88		

Table 5. Determinants of the Willingness to Help Overweight Peers Who Are Teased Because of Their Weight*

	b	β	р
Sample (sample 2)	1.378	0.068	.014
Gender (girls)	1.875	0.093	.001
Age	0.602	0.067	.012
Race (non-White)	1.301	0.049	.065
Grades	-1.130	-0.089	.002
Fat Phobia Scale	-0.195	-0.192	.000
BMI	1.132	1.109	.001
BMI squared	-0.005	-1.073	.001
Constant	43.215		.023
R^2		.08	
N		1326	

BMI, body mass index

 * Underweight students (N = 42) and 2 outliers (BMI) are excluded. The remaining difference to the original sample size is due to item nonresponse and listwise exclusion.

coefficients, the scale was standardized and rescaled with a mean of 100 and a standard deviation of 10. The effect of the Fat Phobia Scale was significant, showing that students with more negative attitudes toward obese persons are less likely to help overweight students who are teased. The size of this effect is moderate, where the willingness to help is decreased by a fifth standard deviation per increase in standard deviation in the Fat Phobia Scale. In addition, girls and students with higher grades expressed more willingness to help overweight and obese students in teasing situations, as were students in sample 2.

Are Overweight Students More or Less Likely to Help Overweight Peers Who Are Teased? A linear relationship was not observed between BMI of students and their willingness to help overweight students who are teased. However, a sizable bell-shaped effect was

observed after examining a nonlinear effect with a quadratic term for BMI. This effect indicates that the relation between the willingness to help peers who are teased and a student's BMI is curvilinear. The willingness to help increases up to 1 standard deviation above the mean BMI and then declines at the same pace. Specifically, the inflection point of the curve was located at the 89th BMI percentile. Hence, "normal" weight and obese students were less willing than overweight students (and those at the threshold of being overweight) to help peers who are getting teased about their weight.

DISCUSSION

To our knowledge, this study is the first to examine adolescents' perceptions of weight-based victimization toward overweight peers. Findings show that being overweight was perceived by adolescents to be the primary reason that peers are victimized in sample 1, and the second most common reason (behind sexual orientation) among students in sample 2. Of concern, these findings suggest that a variety of types of weightbased victimization at school are common. At least 84% of students observed overweight students being called names, getting teased in a mean way, and teased during physical activities. Prior work has demonstrated that overweight students may avoid physical activity due to teasing and weight criticism, 19,20,31 and our findings suggest that overweight and obese adolescents are frequently observed being teased during physical activities. At least two thirds of students observed overweight and obese peers being ignored, avoided, excluded from social activities, having negative rumors spread about them, and being teased in the cafeteria. The majority of students at both schools also observed verbal threats and physical harassment toward overweight and obese students. Overall, these results suggest that overweight and obese adolescents are vulnerable to frequent and multiple forms of peer victimization.

Males were observed to be more common perpetrators of weight-based victimization than females. Some work has documented different types of weightbased bullying experienced and endorsed by girls and boys. 4,6 Assessment of such differences was beyond the scope of this study, but warrants additional research in adolescent samples. Our findings indicate some ambiguity in students' willingness to help overweight or obese peers who are teased. Although the majority of students reported willingness to help an overweight peer who has been teased, approximately half of the students typically remain passive bystanders in these situations. These reactions may be partially attributed to their own attitudes about obese persons, which were moderately negative and correlated with less willingness to help an overweight peer compared to students with more favorable attitudes. In addition, students' own body weight may contribute to their responses to peers. Similar to previous research, 32 thinner students endorsed worse attitudes toward obese persons than heavier students. We observed a curvilinear effect of body weight and willingness to help peers, with overweight students being more likely to help overweight or obese peers than both normal weight and the heaviest students. It could be that heightened vulnerability to stigma among the heaviest students creates fear or fewer coping strategies in helping peers who are targeted, whereas normal weight students may have more negative weight-based attitudes which may lead to lower helping tendencies. Overweight students may feel better equipped to support a peer if they are less frequent targets of stigma compared to their heavier peers, and if they have generally more favorable attitudes toward obese persons. Future research is needed to examine these hypotheses.

The overall findings of this study were similar among students in both schools. However, observations of weight-based teasing appeared to be more frequent in sample 2, in which students were also more willing to help overweight and obese peers in teasing situations compared to students in sample 1, who were more likely be bystanders, less comfortable telling an adult, and expressed slightly more negative attitudes toward obese persons. The lower percentage of students who were overweight or obese in sample 1 compared to sample 2 may partially explain these differences. In addition, the SES of sample 1 was somewhat higher than sample 2, which may have contributed to these differences, although links between SES and weight-based teasing in adolescents have not been studied.

Limitations

Although this study provides new insights into adolescents' experiences of weight-based victimization in the school setting, several limitations of this research should be noted. First, the data presented are largely descriptive and cross-sectional. Longitudinal research examining observations of and reactions to weight-victimization throughout adolescence would be informative. Given the lack of random sampling of schools in this study, results may not accurately represent adolescents in the larger population. In addition, the relative homogeneity of both samples indicates the need for future research to examine perceptions of weight-based teasing in more ethnically and economically diverse samples. Despite these limitations, this data provides a valuable source of information about adolescents' views of weight-based victimization in the school setting, and represents an important step beyond simply asking youth whether or not they have ever been teased about their weight, or documenting negative attitudes toward overweight youth.

Conclusion

The study indicates that adolescents frequently observe weight-based teasing and bullying toward overweight peers, and that being overweight is observed to be the primary reason that students are teased at school. Findings additionally suggest that overweight and obese adolescents are observed as targets of multiple forms of peer victimization, including verbal teasing, physical aggression, and relational victimization. While the majority of students reported willingness to help an overweight peer who has been teased, many remain passive bystanders in these situations, leaving overweight students to cope with these experiences on their own.

IMPLICATIONS FOR SCHOOL HEALTH

The pervasiveness of weight-based victimization perceived by adolescents in this study is cause for concern, and reinforces the need for effective school-based interventions to protect overweight students. While many schools have anti-bullying policies in place, the present findings suggest the importance of additional targeted strategies to educate students about weight bias in the school setting and the need for increased efforts by educators and school staff to intervene on behalf of overweight and obese students. Given the high percentage of students who reported remaining passive bystanders during weight-based bullying encounters, there is a need for increased vigilance and responsiveness to weight-based victimization from educators, guidance counselors, and school psychologists in efforts to protect overweight and obese students.

In addition, with increasing implementation of school-based programs to promote healthy lifestyle behaviors and prevent obesity in youth, it will be critical to ensure that these programs do not impose further stigmatization on overweight and obese students who are already vulnerable to victimization from peers. Addressing weight bias in school-based health interventions is key, as is the importance of educating students about the complex etiology of obesity, and focusing on improved health as both the primary motivator and outcome for behavior change, rather than messages that emphasize "thinness" or obtaining an ideal weight, which can perpetuate weight-based stereotypes and teasing.³³ This is consistent with the 2005 report issued by the Institute of Medicine indicating the importance of addressing weight-based stigmatization in childhood obesity interventions and shifting the focus to behaviors that promote health rather than physical appearance.³⁴

With over one third of American adolescents now overweight or obese, the findings of this study imply that stigma-reduction efforts are needed on a large scale to help shift societal attitudes and combat weight bias. Schools can play an important role in these efforts by treating the importance of weight tolerance on par with racial or religious tolerance, educating students about how the media perpetuates negative weight bias and prejudice, and implementing clear policies against weight-based victimization to ensure that all students, regardless of their body weight, can experience a positive and safe climate in their classrooms and schools.

Human Subjects Approval Statement

Treatment of human subjects for this study was reviewed and approved by the institutional review board of Yale University and by the principals of each participating school.

REFERENCES

- 1. Cramer P, Steinwert T. Thin is good, fat is bad: how early does it begin? *J Appl Dev Psychol*. 1998;19:429-451.
- Rich SS, Essery EV, Sanborn CF, DiMarco NM, Morales LK, LeClere SM. Predictors of body size stigmatization in Hispanic preschool children. *Obesity*. 2008;16(suppl 2):S11-S7.
- 3. Haines J, Neumark-Sztainer DR, Hannan PJ, van den Berg P, Eisenberg ME. Longitudinal and secular trends in weight-related teasing during adolescence. *Obesity.* 2008;16(suppl 2): S18-S23.
- 4. Janssen I, Craig WM, Boyce WF, Pickett W. Associations between overweight and obesity and bullying behaviors in school-aged children. *Pediatrics*. 2004;113:1187-1193.
- 5. Hayden-Wade HA, Stein RI, Ghaderi A, Saelens BE, Zabinski MF, Wilfey DE. Prevalence, characteristics, and correlates of teasing experiences among overweight children vs. non-overweight peers. *Obes Res.* 2005;13:1381-1392.
- Pearce MJ, Boergers J, Prinstein MJ. Adolescent obesity, overt and relational peer victimization, and romantic relationships. *Obes Res.* 2002;10:386-393.
- 7. Griffiths LJ, Wolke D, Page AS, Horwood JP, Team AS. Obesity and bullying: different effects for boys and girls. *Arch Dis Child*. 2006;91:121-125.
- 8. Neumark-Sztainer D, Falkner N, Story M, Perry C, Hannan PJ, Mulert S. Weight-teasing among adolescents: correlations with weight status and disordered eating behaviors. *Int J Obes.* 2002;26:123-131.
- 9. Ogden CL, Carroll MD, Curtin LR, et al. Prevalence of high body mass index in US children and adolescents, 2007-2008. *JAMA*. 2010;303(3):242-249. doi:10.1001/jama.2009.12.
- Eisenberg ME, Neumark-Sztainer D, Story M. Associations of weight-based teasing and emotional well-being among adolescents. Arch Pediatr Adolesc Med. 2003;157:733-738.
- 11. Libbey HP, Story MT, Neumark-Sztainer DR, Boutelle KN. Teasing, disordered eating behaviors, and psychological morbidities among overweight adolescents. *Obesity*. 2008;16: S24-S29.
- 12. Griffiths LJ, Page AS. The impact of weight-related victimization on peer relationships: the female adolescent perspective. *Obesity*. 2008;16(suppl 2):S39-S45.
- 13. Puhl RM, Latner JD. Stigma, obesity, and the health of the nation's children. *Psychol Bull.* 2007;133:557-580.
- Lunner K, Werthem E, Thompson JK, Paxton SJ, McDonald F, Halvaarson KS. A cross-cultural comparison of weight-related teasing, body image, and eating disturbances in Swedish and Australian samples. *Int J Eat Disord*. 2000;28:430-435.

- 15. Shroff H, Thompson JK. Body image and eating disturbance in India: media and interpersonal influences. *Int J Eat Disord*. 2004;35:198-203.
- Thompson JK, Coovert MD, Richards KJ, Johnson S, Cattarin J. Development of body image, eating disturbance, and general psychological functioning in female adolescents: covariance structure modeling and longitudinal investigations. *Int J Eat Disord.* 1995;18:221-236.
- Neumark-Sztainer DR, Wall MM, Haines J, Story M, Sherwood NE, Van den Berg P. Shared risk and protective factors for overweight and disordered eating in adolescents. *Am J Prev Med.* 2007;33:359-369.
- Striegel-Moore RH, Dohm FA, Pike KM, Wilfley DE, Fairburn CG. Abuse, bullying, and discrimination as risk factors for binge eating disorder. *Am J Psychiatry*. 2002;159:1902-1907.
- Storch EA, Milsom VA, DeBraganza N, Lewin AB, Geffken GR, Silverstein JH. Peer victimization, psychosocial adjustment, and physical activity in overweight and at-risk-for-overweight youth. *J Pediatr Psychol.* 2007;32:80-89.
- Faith MS, Leone MA, Ayers TS, Moonseong H, Pietrobelli A. Weight criticism during physical activity, coping skills, and reported physical activity in children. *Pediatrics*. 2002;110:e23.
- Juvonen J, Nishina A, Graham S. Self-views versus peer perceptions of victim status among early adolescents. In: Juvonen J, Graham S, eds. *Peer Harassment in School: The Plight* of the Vulnerable and Victimized. New York: Guilford Press; 2001:105-124.
- Haines J, Neumark-Sztainer DR, Wall M, Story MT. Personal, behavioral and environmental risk and protective factors for adolescent overweight. *Obesity*. 2007;15:2748-2760.
- Crystal DS, Marjor B, Steele C. Reactions to morphological deviance: a comparison of Japanese and American children and adolescents. Soc Dev. 1998;9:40-61.

- 24. Tiggermann M, Wilson-Barrett E. Children's figure ratings: relationship to self-esteem and negative stereotyping. *Int J Eat Disord.* 1998;23:83-88.
- 25. Kraig KA, Keel PK. Weight-based stigmatization in children. *Int J Obes.* 2001;25:1661-1666.
- Solbes I, Enesco I. Explicit and implicit anti-fat attitudes in children and their relationships with their body images. *Obes Facts*. 2010;3:23-32.
- Ogden CL, Kuczmarski RJ, Flegal KM, et al. Centers for Disease Control and Prevention 2000 growth charts for the United States: improvements to the 1977 National Center for Health Statistics version. *Pediatrics*. 2002;109:45-60.
- 28. Nihiser AJ, Lee SM, Wechsler H, et al. Body mass index measurement in schools. *J School Health*. 2007;77(10): 651-671
- 29. Bacon JG, Scheltema KE, Robinson BE. Fat phobia scale revisited: the short form. *Int J Obes Relat Metab Disord*. 2001;25:252-257.
- Puhl RM, Wharton C, Heuer CA. Weight bias among dietetics students: implications for treatment practices. J Am Diet Assoc. 2009;109:438-444.
- 31. Bauer KW, Yang YW, Austin SB. "How can we stay healthy when you're throwing all this in front of us?" Findings from focus groups and interviews in middle schools on environmental influences on nutrition and physical activity. *Health Educ Behav.* 2004;31:34-36.
- Schwartz MB, Vartanian LR, Nosek BA, Brownell KD. The influence of one's own body weight on implicit and explicit anti-fat bias. *Obesity*. 2006;14:440-447.
- 33. Puhl RM, Heuer CA. Obesity stigma: important considerations for public health. *Am J Public Health*. 2010;100:1019-1028.
- 34. Institute of Medicine. *Preventing Childhood Obesity: Health in the Balance*. Washington, DC: The National Academies Press; 2005.