

# Teasing, depression and unhealthy weight control behaviour in obese children

J. Madowitz<sup>1</sup>, S. Knatz<sup>2</sup>, T. Maginot<sup>3</sup>, S. J. Crow<sup>4</sup> and K. N. Boutelle<sup>2,5</sup>

<sup>1</sup>San Diego State University/University of California, San Diego Joint Doctoral Program in Clinical Psychology, San Diego, CA, USA; <sup>2</sup>Department of Pediatrics, University of California, San Diego, La Jolla, CA, USA; <sup>3</sup>Alliant International University, California School of Professional Psychology, San Diego, CA, USA; <sup>4</sup>Department of Psychiatry, University of Minnesota, Minneapolis, MN, USA; <sup>5</sup>Department of Psychiatry, University of California, San Diego, La Jolla, CA, USA

Received 23 January 2012; revised 12 May 2012; accepted 6 June 2012

## What is already known about this subject

- Overweight children are teased more than normal weight children.
- Weight-related teasing can come from a variety of sources.
- Weight-related teasing is associated with depression and disordered eating.

## What this study adds

- Overweight children who experience peer teasing have higher levels of depression and unhealthy weight control behaviours than those who are not teased by peers.
- Overweight children who are bothered by weight-related teasing have higher levels of depression than those who are not bothered by weight-related teasing.

## Summary

**Background:** Data were taken from 80 obese children (mean age = 10.03 years; mean body mass index = 27.37; %white = 29.37%; %female = 58.8%). Self-report surveys were used to collect data on rates of depressive symptoms, unhealthy weight control behaviours (UWCBs), teasing, sources of teasing and how much the teasing bothered the child.

**Objectives:** This study aimed to evaluate relationships between weight-related teasing and UWCBs and depression in obese children. Teasing by peers and/or family, negative feelings due to teasing, frequency of teasing, and number of teasing sources reported and associations with UWCBs and depression were analysed.

**Methods:** Logistical and linear regressions were used to evaluate relationships between the teasing variables, depression and UWCBs, controlling for age and gender.

**Results:** Results indicated that children teased by other children have significantly higher levels of depression ( $B = 6.1$  [SE = 2.3]) and are five times more likely to engage in UWCBs (OR = 5.1 [CI = 1.5–17.4]). Children who endorsed that teasing by peers bothered them had significantly higher levels of depression ( $B = 2.3$  [SE = 0.8]). The frequency of weight-related teasing was significantly associated with depression ( $B = 2.5$  [SE = 0.8]), as was the number of teasing sources ( $B = 4.6$  [SE = 1.5]). No significant relationships were found between familial teasing and depression or UWCBs.

**Conclusions:** Weight-related teasing, especially by other children, was associated with negative psychosocial measures in these obese children. Interventions are needed to reduce teasing, and longitudinal studies are recommended to understand the impact of teasing over time.

**Key words:** Children, depression, obesity, teasing.

Address for correspondence: J Madowitz, Center for Healthy Eating and Activity Research, University of California, San Diego, 8950 Villa La Jolla Drive, Suite A-203, San Diego, CA 92037, USA. E-mail: jmadowitz@ucsd.edu

© 2012 The Authors

Pediatric Obesity © 2012 International Association for the Study of Obesity. **Pediatric Obesity** 7, 446–452

## Introduction

Teasing is a stressor that is associated with negative psychological outcomes (1) and occurs more frequently in overweight children (2). Unhealthy weight control behaviours (UWCBs), including vomiting, the use of laxatives and diet pills, are more prominent in overweight youth than normal weight youth (3). Overweight and obese children are often teased by multiple sources, including peers and family, and are more distressed than their normal weight counterparts (1,4,5). One school-based study of 4746 youth showed that 43.2% of overweight and obese girls and 42.9% of overweight and obese boys were teased by peers; while 38.9% of overweight and obese girls and 25.8% of overweight and obese boys were teased by their family (5). Another study showed that 78% of overweight children experienced appearance-related teasing; of those teased, 89% of obese children were teased about their weight (6). Approximately 20% of healthy weight and overweight children experienced weight-related teasing from a family member (1). Weight-related teasing during physical activity is significantly higher for overweight children than normal weight children (7). This frequent and often persistent stressor may have detrimental effects on children over time (8). It is important to evaluate these relationships in overweight children because of the high prevalence of weight-related teasing.

There are several studies that assess the psychosocial effects of weight-related teasing on overweight children. In youth 10–14 years, overweight youth encountered significantly more appearance-related teasing and were consistently more distressed by teasing when compared to non-overweight youth (4). Teasing in this study was a compilation of teasing from family members, peers and other adults. The specific source of teasing was not included in the analysis, although a later meta-analysis stated the need to address source-specific effects of teasing (4,9). Distress associated with teasing was related to higher depressive symptoms in overweight youth (10–12). Teasing is also associated with other psychological symptoms, including body dissatisfaction, disturbed eating thoughts, anxiety and self-esteem issues (13–15).

Furthermore, weight-related teasing has been shown to be associated with disordered eating behaviours and obesity. Studies have shown that teasing is associated with UWCBs and eating disturbances in children (6,16). Longitudinally, teasing is associated with later eating disorder symptomatology and lower body satisfaction (17,18). This finding

is especially relevant in an overweight population because body dissatisfaction is associated with binge eating, an unhealthy eating disturbance that is associated with obesity (19). Teasing in pre-adolescence and early adolescence is associated with weight gain in late adolescence and adulthood (20). In overweight youth, teasing is associated with a series of negative psychosocial consequences and unhealthy behaviours. However, very little is known about the impact of specific sources of teasing and less is known about the impact of teasing on younger overweight children.

The purpose of this study was to fill this gap and examine associations between weight-related teasing and depression and UWCBs in overweight children. We evaluated whether the source of teasing or how much a child is bothered by teasing is related to depression or UWCBs.

## Methods

### Study design

#### *Participants*

Data for this study were collected during the baseline assessment for the Parents as Agents of Change study (21). This study included 80 overweight parent–child pairs who completed a baseline assessment for a family-based behavioural weight loss treatment programme in the Minneapolis, MN ( $n = 66$ ) and San Diego, CA ( $n = 14$ ) areas. Data used for this analysis were taken from the children's self-report questionnaires at baseline. Due to missing data, the final usable sample included 79 children. All subjects were between the ages of 8 and 12 years old (mean age = 10.0 years [SD = 1.27 years]). The sample consisted of overweight and obese children according to established norms (body mass index [BMI] = 27.31 [SD = 3.62]) (22). The sample consisted of 58.8% female children with a diverse, but mostly white ethnic background (76% White; 10% African–American; 17.5% Hispanic or Latino; 5% Asian; 2.5% Hawaiian or Pacific Islander; 2.5% Native American; 7.5% Other). The Institutional Review Boards at both the University of Minnesota and the University of California San Diego approved the study protocol. Informed parent consent and child assent were obtained from all participating dyads.

### Measures

Children had their height and weight measured and completed a survey. Measures included in this analysis from the survey are listed below.

### Teasing

Children were asked four questions to assess teasing. The questions asked were: 'Have you been teased or made fun of about your weight by other kids your age?'; 'If you have been teased or made fun of about your weight by other kids your age, how much did this make you mad, sad, or worried?'; 'Have you been teased or made fun of about your weight by family members?'; 'If you have been teased or made fun of about your weight by family members, how much did this make you mad, sad, or worried?' Children rated the presence of teasing questions with 'Yes' or 'No'. Children answered the questions regarding how much they were bothered by the teasing on a Likert scale (ranging from 'Not at all' to 'Very much', with an option for selecting 'I have not been teased because of my weight'). The Likert scale questions were analysed on a continuous scale (range = 1–5). The number of teasing sources was calculated by summing the positive responses to teasing experiences by both sources (range = 0–2).

### UWCB

Children responded to seven UWCBs taken from the Eating Disorder Examination Self-Report Questionnaire (23). Children were asked 'Yes' or 'No' questions about dieting, fasting, vomiting, excessive exercise, use of diet pills, diuretics and laxative use. UWCB were dichotomized into 'any' or 'none' for analysis.

### Depression

Youth depression was assessed using the Center for Epidemiological Studies Depression Scale for Children (CES-DC). The CES-DC is a 20-item self-report depression survey which has been shown to have a Cronbach's alpha of 0.84 in a large sample of youth (24). Children were asked to report on the frequency of various depressive symptoms, with possible responses ranging from 'Not at all' to 'Nearly every day'. A higher score on the CES-DC is indicative of higher levels of depressive symptomology. For the child questionnaire, one item was omitted: 'I felt like something good was going to happen'. Depression was analysed on a continuous scale (range = 1–19).

### Anthropometry

Height and weight data were taken by trained research staff using standardized equipment and procedures. BMI was calculated using the formula kg per m<sup>2</sup>. Cut-off points for BMI were calculated using BMI-for-age growth charts developed by the Center for Disease Control (25).

### Demographics

Demographics questions including age, gender and ethnicity were obtained by self-report by the child.

### Analyses

SPSS Version 18 (SPSS Inc., Chicago, IL, USA) was used to conduct the analyses for this study. To further consider the potential confounding effects of these variables, the authors compared the absolute difference in coefficients of primary interest between the regression model that included the potential confounders and one that excluded these variables (data not shown). The difference was found to be less than 15% for all variables, except age and gender. Thus, age and gender were included in the final model (26).

Univariate logistic regression analyses were conducted to examine whether weight-related teasing, psychological distress from teasing, frequency of teasing or number of teasing sources were related to UWCBs. Linear regressions were performed to assess the impact of being teased by peers and/or family on the likelihood that participants would report depressive symptoms. Further linear regressions were executed to analyse whether or not being bothered by peer and/or familial teasing was related to depression.

## Results

### Prevalence of teasing

Teasing by family members was endorsed by 33% of children; teasing by peers was endorsed by 49% of the sample. Eighty-nine percent of those teased by peers endorsed being bothered by peer teasing. Of those who endorsed familial teasing, 25% reported being bothered by the teasing. Thirty-two percent of the total sample reported being bothered by familial teasing; 59% of the overall sample was bothered by peer teasing.

### Relationship between teasing and depression

The relationship between teasing and depression is shown in Table 1. Results indicated that children who were teased by their peer group had significantly higher levels of depression ( $B = 6.1$  [SE = 2.3]  $P = 0.009$ ). Children who were bothered by teasing by peers also had significantly higher levels of depression ( $B = 2.3$  [SE = 0.8]  $P = 0.003$ ). Frequency of teasing and the number of sources of teasing were positively associated with depression (frequency of teasing:  $B = 2.5$  [SE = 0.8]  $P = 0.002$ ; number of sources of teasing:  $B = 4.6$  [SD = 1.5]  $P = 0.004$ ).

**Table 1** Linear regression examining the relationship between depression and teasing by family and peers, number of sources of teasing, frequency of teasing, and the amount that the child was bothered by peer and family teasing

	Teased by family	Bothered by familial teasing	Teased by peers	Bothered by peer teasing	Number of sources of teasing	Frequency of teasing about weight
Depression	3.2 (2.4)	0.7 (0.8)	6.1 (2.3)**	2.3 (0.8)**	4.6 (1.5)**	2.5 (0.8)**

\* $P < .05$ , \*\* $P < .001$ .

All models include age and gender as covariates. Estimates and standard errors are presented.

## Relationship between teasing and UWCBs

The relationships between teasing and UWCBs are shown in Table 2. Children who experienced teasing by peers were five times more likely to engage in at least one UWCB (OR = 5.2 [CI = 1.6–17.4]). Additionally, the number of teasing sources was associated with UWCB. Children who endorsed two teasing sources were four times more likely than those who endorsed neither source of teasing to engage in UWCB (OR = 4.4 [CI = 1.74–11.17]). Interestingly, family teasing variables and frequency of teasing had no significant relationship with UWCB in this sample.

## Discussion

This study examined sources of teasing and the relationship between the effects of teasing on depression and the engagement in UWCB in overweight and obese children. This study adds to the current literature by analysing the impact of the source of weight-related teasing and the associations with depression and UWCB in obese children. We found that overweight children who experienced peer teasing had higher levels of depression and UWCB than those who did not experience teasing by peers. This study also found that children who were bothered by teasing experienced more depression than those who were not bothered by this stressor. Surprisingly, familial teasing did not have a significant association with child depression or UWCB.

Relatively little literature has been published on the psychological and behavioural consequences of weight-related teasing in overweight youth samples (9). However, previous research has shown relationships between teasing, decreased psychosocial functioning and weight control behaviours that may put an overweight youth at risk for an eating disorder later in life (20,27). This line of research has important implications in the research of mood and eating disturbances for this at-risk population.

The findings from this study shed light on the psychological and behavioural consequences of weight-related teasing. This study indicates that overweight children who are teased have compromised psychological health and a greater likelihood of engaging in UWCB. Because there are such negative depressive and behavioural associations with teasing, this study has practical implications for screening overweight children for teasing, depression and UWCB. Health practitioners and school officials should provide education regarding the psychological and behavioural

**Table 2** Logistic regression examining the relationship between unhealthy weight control behaviour (UWCB) to teasing by family and peers, number of sources of teasing, frequency of teasing, and the amount that the child was bothered by peer and family teasing

	Teased by family	Bothered by familial teasing	Teased by peers	Bothered by peer teasing	Number of sources of teasing	Frequency of teasing
UWCBs	3.47 (0.85–14.24)	1.71 (0.98–2.98)	5.19 (1.55–17.38)	1.39 (0.93–2.07)	4.4 (1.74–11.17)	1.21 (0.83–1.75)

All models include age and gender as covariates. Odds ratios and 95% confidence intervals are presented.

impact of teasing on children and work towards reducing the child's exposure to teasing in the home and at school.

Findings also point to the continued importance of the regulation of teasing in schools and other organizations where overweight children may be exposed to scrutiny by their peers. This is especially important due to the high prevalence of weight-related teasing in overweight populations. When children and adults were presented with pictures of obese and non-obese individuals in a laboratory setting, children were found to be more critical of the obese persons pictured than adults (28). Teasing is associated with lower levels of self-esteem in overweight children which could discourage the overweight child from engaging in healthy weight control behaviours, such as participating in physical activity (29). Programmes that assist overweight children in feeling more comfortable in their school setting may increase their comfort and willingness to engage in healthy weight control behaviours, such as physical activity.

As in all research, there are both strengths and weaknesses to consider. Some strengths include: access to an under-researched population, a racially diverse sample, an entirely overweight sample and an entirely treatment-seeking sample. Additional strengths include the collection of information on many different sources of teasing and psychological variables such as depression and eating behaviours. This study is limited by its cross-sectional study design, which does not allow for conclusions to be drawn about causality. It is possible that overweight status and the experience of teasing perpetuate an unhealthy weight management cycle for children. Therefore, we do not know whether teasing causes UWCB and/or depression. This study was also limited because it did not assess the frequency of teasing with concrete numbers and specific time frames as in other studies (10). It is possible that the extent to which a child is bothered by teasing is related to frequency of teasing and this was not accounted for in this study. Further limitations include the use of self-report measures and a modest sample size.

Despite these limitations, this study adds to a growing body of literature describing psychosocial and behavioural associations with teasing in overweight children. Further research could include a longitudinal study that assesses teasing, depression symptoms and the continual engagement in UWCB, which could determine the strength of teasing as a risk factor in the development of a future eating disorder. Furthermore, a longitudinal study would have the ability to establish causality between teasing and

UWCB and depression by establishing a timeline of teasing and measured symptoms.

## Conflict of Interest Statement

No conflict of interest was declared.

## References

- Keery H, Boutelle K, van den Berg P, Thompson JK. The impact of appearance-related teasing by family members. *J Adolesc Health* 2005; 37: 120–127.
- 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 Relat Metab Disord* 2002; 26: 123–131.
- Boutelle K, Neumark-Sztainer D, Story M, Resnick M. Weight control behaviors among obese, overweight, and nonoverweight adolescents. *J Pediatr Psychol* 2002; 27: 531–540.
- Hayden-Wade HA, Stein RI, Ghaderi A, Saelens BE, Zabinski MF, Wilfley DE. Prevalence, characteristics, and correlates of teasing experiences among overweight children vs. non-overweight peers. *Obes Res* 2005; 13: 1381–1392.
- van den Berg P, Neumark-Sztainer D, Eisenberg ME, Haines J. Racial/ethnic differences in weight-related teasing in adolescents. *Obesity (Silver Spring)* 2008; 16 (Suppl. 2): S3–S10.
- Hayden-Wade HA, Stein RI, Ghaderi A, Saelens BE, Zabinski MF, Wilfley DE. Prevalence, characteristics, and correlates of teasing experiences among overweight children vs. non-overweight peers. *Obes Res* 2005; 13: 1381–1392.
- Faith M, Leone M, Ayers TS, Heo M, Pietrobelli A. Weight criticism during physical activity, coping skills, and reported physical activity in children. *Pediatrics* 2002; 110: e23.
- Puhl RM, Latner JD. Stigma, obesity, and the health of the nation's children. *Psychol Bull* 2007; 133: 557–580.
- Menzel JE, Schaefer LM, Burke NL, Mayhew LL, Branick MT, Thompson JK. Appearance-related teasing, body dissatisfaction, and disordered eating: a meta-analysis. *Body Image* 2010; 7: 261–270.
- Quinlan NP, Hoy MB, Costanzo PR. Sticks and stones: the effects of teasing on psychosocial functioning in an overweight treatment-seeking sample. *Soc Dev* 2009; 18: 978–1001.
- Haines J, Neumark-Sztainer D, Wall M, Story M. Personal, behavioral, and environmental risk and protective factors for adolescent overweight. *Obesity (Silver Spring)* 2007; 15: 2748–2760.
- Young-Hyman D, Tanofsky-Kraff M, Yanovski SZ, et al. Psychological status and weight-related distress in overweight or at-risk-for-overweight children. *Obesity* 2006; 14: 2249–2258.
- Libbey HP, Story MT, Neumark-Sztainer DR, Boutelle KN. Teasing, disordered eating behaviors, and psychological morbidities among overweight adolescents. *Obesity (Silver Spring)* 2008; 16 (Suppl. 2): S24–S29.
- 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.
- Phares V, Sternberg AR, Thompson JK. Gender differences in peer and parental influences: body image disturbance, self-worth, and psychological functioning in preadolescent children. *J Youth Adolesc* 2004; 33: 421–429.
- Gardner RM, Stark K, Friedman BN, Jackson NA. Predictors of eating disorder scores in children ages 6 through 14: a longitudinal study. *J Psychosom Res* 2000; 49: 199–205.
- Eddy KT, Tanofsky-Kraff M, Thompson-Brenner H, Herzog DB, Brown TA, Ludwig DS. Eating disorder pathology among overweight treatment-seeking youth: clinical correlates and cross-sectional risk modeling. *Behav Res Ther* 2007; 45: 2360–2371.
- McCormack LA, Laska MN, Gray C, Veblen-Mortenson S, Barr-Anderson D, Story M. Weight-related teasing in a racially diverse sample of sixth-grade children. *J Am Diet Assoc* 2011; 111: 431–436.
- Stice E, Presnell K, Spangler D. Risk factors for binge eating onset in adolescent girls: a 2-year prospective investigation. *Health Psychol* 2002; 21: 131–138.
- Neumark-Sztainer DR, Wall MM, Haines JI, Story MT, Sherwood NE, van den Berg PA. Shared risk and protective factors for overweight and disordered eating in adolescents. *Am J Prev Med* 2007; 33: 359–369.
- Boutelle KN, Cafri G, Crow SJ. Parent-only treatment for childhood obesity: a randomized controlled trial. *Obesity (Silver Spring)* 2011; 19: 574–580.
- Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing a standard definition for child overweight and obesity worldwide: international survey. *BMJ* 2000; 320: 1240–1243.
- Luce KH, Crowther JH. The reliability of the Eating Disorder Examination-Self-Report Questionnaire Version (EDE-Q). *Int J Eat Disord* 1999; 25: 349–351.
- Fendrich M, Weissman MM, Warner V. Screening for depressive disorder in children and adolescents: validating the Center for Epidemiologic Studies Depression Scale for Children. *Am J Epidemiol* 1990; 131: 538–551.
- Kuczarski RJ, Ogden CL, Guo SS, et al. 2000 CDC Growth Charts for the United States: methods and development. *Vital Health Stat* 2002; 11: 1–190.
- Kleinbaum DG, Kupper LL, Muller KE. *Applied Regression Analysis and Other Multivariable Methods*. Brooks/Cole: Belmont, Ca, 2007.
- Gardner RM, Stark K, Friedman BN, Jackson NA. Predictors of eating disorder scores in children ages 6

through 14: a longitudinal study. *J Psychosom Res* 2000; 49: 199–205.

28. Latner JD, Stunkard AJ, Wilson GT. Stigmatized students: age, sex, and ethnicity effects in the stigmatization of obesity. *Obes Res* 2005; 13: 1226–1231.

29. 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.