

# Gender, Ethnicity, Psychosocial Factors, and Quality of Life Among Severely Overweight, Treatment-Seeking Adolescents

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**Objective** To examine gender and ethnic differences in psychosocial functioning among 100 (78% African American and 59% girls) treatment-seeking overweight 11- to 18-year-old adolescents. Self-esteem was examined as a potential mediator of the association between weight-related teasing and quality of life (QOL). **Methods** Adolescents completed measures evaluating self-esteem, dietary habits, teasing, and QOL. **Results** Few racial or gender differences were found. Mean QOL was similar to that reported in another study examining treatment-seeking overweight adolescents and substantially lower than what has been reported for non-treatment-seeking overweight adolescents. Self-esteem partially mediated the association between teasing and QOL. **Conclusions** Severely overweight adolescents of both genders and diverse ethnicities face significant stigmatization and manifest poor overall psychosocial functioning, which is negatively associated with QOL. Furthermore, self-esteem appears to partially mediate the negative relationship between teasing and QOL.

**Key words** adolescent overweight; psychosocial functioning; quality of life.

Within the last 30 years, the percentage of children who are overweight or at risk for overweight has more than doubled (Hedley et al., 2004). Almost one third of children (31.5%) aged between 6 and 19 are overweight [body mass index (BMI) for age  $\geq$ 95th percentile] or at risk for overweight (BMI for age  $\geq$ 85th percentile; Hedley et al.). Moreover, there are significant ethnic disparities in childhood overweight; African-American, Hispanic, and Native American children are more likely to be overweight than Caucasians (Hedley et al.).

Pediatric overweight is associated with increased risk of adult obesity (Serdula et al., 1993) and with pediatric health problems including hypertension and type II diabetes (Institute of Medicine, 2004; Kiess et al., 2001). Psychological well-being can also be significantly negatively impacted by overweight. One recent study (Schwimmer, Burwinkle, & Varni, 2003) found that

quality of life (QOL) among severely overweight children was similar to that of children with cancer, undergoing chemotherapy.

Weight-related teasing may be a particularly important contributor to the poor QOL experienced by many overweight children. Teasing is commonly experienced by overweight children of both African-American and Caucasian backgrounds (e.g., Eisenberg, Neumark-Sztainer, & Story, 2003; Neumark-Sztainer, Story, & Faibisch, 1998). However, many previous studies have focused on non-treatment-seeking girls. Thus, research examining potential gender differences in the experience of teasing among treatment-seeking adolescents seems warranted.

One study conducted with overweight African-American adolescent girls presenting to an intervention for pediatric overweight has suggested that teasing may

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play an important role in the association between weight status and psychosocial outcomes (Stern, Mazzeo, Porter, Gerke, & Laver, in press). Specifically, results indicated that these adolescents experienced significant teasing, and teasing was inversely associated with QOL. Pediatric overweight is also associated with lower self-esteem, particularly among adolescents, although results have been somewhat inconsistent (e.g., French, Story, & Perry, 1995, for a review). These inconsistencies may be attributable to the influence of factors such as gender, race, or teasing experiences, which were not assessed in all studies.

In a study of adolescents, Eisenberg et al. (2003) found that teasing was associated with lower self-esteem and higher depressive symptoms in both genders and across ethnic groups. These results further suggest that gender (male) and race (non-Caucasian) may not protect adolescents against the impact of teasing and peer stigmatization. However, it is important that this study used a school-based sample rather than a sample of treatment-seeking overweight adolescents. As psychosocial problems are likely to be more severe among individuals seeking treatment, it is important to examine further the specific characteristics of ethnically diverse, treatment-seeking samples of boys and girls.

The current study extends investigations of associations among teasing, self-esteem, and QOL in treatment-seeking overweight adolescents. Specifically, we tested whether self-esteem mediates the association between teasing and other psychosocial outcomes, such as QOL, using a cross-sectional approach. Although there are significant limitations to testing mediation cross sectionally, as Davison and Birch (2002) suggest, the need for studies which incorporate mediators of the association between weight status and psychological outcomes indicates that this approach may be useful when used cautiously as a first step in developing testable models.

The current study also extends previous work in several other ways. First, we included participants of both genders and from diverse ethnic backgrounds (although most are Caucasian or African American). Relatively little previous research has examined gender differences in psychosocial correlates of overweight. It is important to understand potential gender differences in these variables, as rates of overweight have increased in both boys and girls (Hedley et al., 2004), and both genders experience negative social consequences, such as teasing, as a result (Eisenberg et al., 2003). Furthermore, we assessed the associations among BMI, self-esteem, teasing, QOL, and dietary behaviors. Thus, the overall purposes of this study were to examine (a) potential gender and ethnic differences in psychosocial

functioning and other correlates of overweight among treatment-seeking adolescents and (b) the potential role of self-esteem as a mediator of the association between weight-related teasing and QOL.

## Methods

### Overview of Program

Data are from the baseline phase of a multidisciplinary, culturally appropriate intervention for pediatric overweight conducted at an urban medical center. Adolescents (11–18 years) are eligible if they are  $\geq 95$ th BMI percentile for age and have at least one caregiver committed to attending the program. The program focuses on nutrition, exercise, and behavioral modification.

### Participants

A total of 100 adolescents between the ages of 11 and 18 ( $M$  age = 14.28 years) completed the baseline assessment; 45 girls were African American, 10 girls were Caucasian, 2 were Hispanic, and 2 were identified as “other.” Among the boys, 31 were African American, 8 were Caucasian, 1 was Asian, and 1 was identified as Native American. The mean baseline BMI percentile for both the boys and the girls was in the overweight range ( $M$  BMI percentile for boys = 99.34, range 96.21–99.94 and  $M$  weight = 110.5 kg, range 69.2–184.4 kg;  $M$  BMI percentile for girls = 98.77, range 95.59–99.81 and  $M$  weight = 104.4 kg, range 59.3–210.9 kg). No significant differences were found in BMI percentile as a function of gender; however, African Americans had higher BMIs ( $M$  percentile = 99.28) than Caucasians [ $M$  = 98.6,  $F(1, 93) = 6.57, p < .01$ ].

Although participants were not billed for the program (because they were enrolled in a research project), insurance status was obtained as a proxy for socioeconomic status (SES). Just over one third (34%) of the sample had Medicaid or was uninsured; the majority had some form of private or commercial insurance. This relatively high proportion of uninsured/Medicaid families is consistent with the lower SES population generally seen at this urban medical center.

### Procedure

At baseline, all children and adults completed a detailed consent process which explained study requirements. This consent process was approved by our university's Institutional Review Board. After providing consent, participants completed the measures described in the following section. Both parents and adolescents complete a set of measures; however, because the focus of

this study is on adolescents' perceptions, only those measures completed by adolescents are reported here.

### Measures

#### Coopersmith Self-Esteem Inventory (Coopersmith, 1981)

The self-esteem inventory (SEI) is a 25-item, self-report measure of global self-esteem. Respondents indicate whether the item is "like me" or "unlike me." One point is assigned for each item connoting high self-esteem. Mean internal consistency (Cronbach's  $\alpha$ ) of the SEI is .83, and test-retest reliability is good.

#### Food Habits Questionnaire

A version of the modified qualitative dietary fat index questionnaire (Yaroch, Resnicow, Petty, & Khan, 2000) was administered. This measure was originally designed as an interview; however, it was modified to self-report format in this study. Previous research with this measure has found that it manifested acceptable test-retest reliability in a sample of low-income, urban adolescent girls (Yaroch et al.), and scores were significantly correlated with dietary fat intake. Higher scores are associated with healthier eating habits. In the current study, internal consistency was .83.

#### Perceptions of Teasing Scale (Thompson, Cattarin, Fowler, & Fisher, 1995)

This 11-item measure includes two subscales, general weight teasing and competency teasing, and has been found to yield reliable and valid scores (Thompson et al., 1995). Only the general weight-teasing subscale was used in the present study; alpha was found to be high (coefficient = .94).

#### Pediatric Health-Related Quality of Life

The pediatric health-related quality of life (PedsQL) has been widely used with adolescents with chronic illnesses and assesses perceptions of how health affects daily life in four areas: physical, emotional, social, and school. The PedsQL has been found to discriminate effectively between healthy children and children with health problems (HRQOL) (Varni, Seid, & Kurtin, 2001). In the current study, the total QOL score was used, which represents the mean of the sum of all four QOL dimensions. Internal consistency in this sample was .91.

### Results

Analyses proceeded in the following order. First, relationships among the main psychosocial variables of self-esteem (SEI), weight-related teasing [Perceptions of Teasing Scale (POTS)], QOL, and dietary habits [Modified

Food Habits Questionnaire (MFHQ)] were examined via correlations. Descriptive statistics are summarized in Table I. Second, we examined potential ethnic and gender differences in scores on each of the psychosocial measures and dietary habits. Last, on the basis of previous research (Eisenberg et al., 2003; Neumark-Sztainer et al., 1998), we evaluated an exploratory model in which self-esteem mediated the effects of teasing on QOL. Given the number of analyses conducted, only total QOL score was used in the analyses (vs. each of the four subscales) to reduce the type I error rate.

### Correlations among Psychosocial Variables and BMI

Table I summarizes the *M*, *SD*, and correlations among the measures. In general, the psychosocial variables were significantly correlated with one another in the expected direction. However, BMI percentile was only associated with self-esteem and dietary habits. These results may be attributable to the limited variability of BMI percentile in this severely overweight (all BMI  $\geq 95$ th percentile) sample. Furthermore, the mean total QOL score ( $M = 66$ ) was similar to that reported by Schwimmer et al. (2003) ( $M = 67$ ) and substantially lower than healthy adolescents ( $M = 83$ ; Schwimmer et al.) and adolescent survivors of cancer ( $M = 81$ ; Stern, Bitsko, Shivy, & Dillon, 2004).

### Differences on Psychosocial Measures and Dietary Habits as a Function of Gender and Race

A series of 2 (male or female gender)  $\times$  2 (Caucasian or African American) multivariate analyses of variance (MANOVAs) were conducted to assess demographic differences in psychosocial adjustment and dietary habits. Specifically, QOL, self-esteem, teasing, and dietary habits were entered simultaneously into one multivariate set. No multivariate interactions involving race and gender were found.

**Table I.** Intercorrelations: Self-Esteem Inventory (SEI), MFHQ, Perceptions of Teasing Scale (POTS), Quality of Life (QOL), and Body Mass Index (BMI)

Measure	1	2	3	4	5
Self-esteem	–	.11	–.39***	.66***	.22*
Modified dietary habits		–	–.13	.34**	–.21*
Teasing			–	–.53***	–.05
QOL				–	–.10
BMI percentile					–
<i>M</i>	58.20	40.81	25.24	66.38	99.00
<i>SD</i>	18.89	8.86	12.36	18.91	0.97

For each of the scales, higher scores reflect greater endorsement of the variable.  
\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

### **Relations among Adolescent Perceptions and QOL**

Next, we examined whether self-esteem mediated the relationship between teasing and QOL. Baron and Kenny's (1986) criteria for mediation were used. Teasing was significantly associated with both self-esteem ( $r = -.39, p = .001$ ) and QOL ( $r = -.53, p = .001$ ), thereby meeting Baron and Kenny's first two criteria. The third and fourth criteria were tested by entering teasing and self-esteem simultaneously in a regression equation with QOL as the dependent variable. Within this model, self-esteem was significantly associated with QOL ( $\beta = .54, t = 5.59, p < .001$ ), but the relationship between teasing and QOL decreased ( $\beta = -.32, t = 3.31, p < .01$ ). Although, as predicted, teasing was less strongly associated with QOL when controlling for self-esteem, this relationship was not reduced to nonsignificance. Therefore, it seems that self-esteem is a partial mediator of the relationship between teasing and QOL. Sobel's test (Sobel, 1982) was also conducted to examine the significance of this mediating effect, and results indicated that this mediator was robust (Sobel's test =  $-2.86, p < .05$ ).

### **Discussion**

The main focus of this study was to investigate the influence of gender and race on psychosocial factors and dietary habits associated with pediatric overweight. We found few gender or ethnic differences on the psychosocial variables assessed. Adolescents appeared to be vulnerable to stigmatization, regardless of gender or ethnicity. This suggests that severe overweight probably mitigates any protective mechanisms often associated with being male or African American in dealing with the negative psychosocial effects of high BMI (Eisenberg et al., 2003; Neumark-Sztainer et al., 1998).

Results of the current study further indicate that QOL among overweight adolescents is associated with both teasing and low self-esteem. Moreover, the *M* QOL score in this study was similar to that reported by Schwimmer et al. (2003), who found that treatment-seeking severely overweight children's QOL scores were comparable to those of children undergoing cancer treatments. Although a subsequent study found smaller decrements in QOL among a non-treatment-seeking sample of overweight children (Williams, Wake, Hesketh, Maher, & Wats, 2005), the current results, along with those of Schwimmer et al., suggest that treatment-seeking overweight adolescents may be at particular risk for poor psychosocial outcomes.

Current results also indicate that the relationship between teasing and QOL is partially mediated by self-esteem. Although the cross-sectional nature of this exploratory research precludes conclusions regarding causality and, therefore, is a significant limitation, these results do suggest that the teasing overweight adolescents experience may lower their self-esteem, which, in turn, may reduce their overall QOL. However, longitudinal research is needed before mediation can be definitively established. Furthermore, other variables may also account for the teasing-QOL relationship. For example, teasing may increase feelings of depression or interfere with peer relationships, both of which could affect QOL. It will be important for future research to investigate these possibilities, particularly with longitudinal approaches and larger and more diverse samples. Future research should also attempt to facilitate overweight adolescents' resilience to teasing.

Another limitation of this study is that it included only severely overweight, treatment-seeking adolescents. Thus, results may not be generalizable to non-treatment-seeking or less severely overweight adolescents. In addition, this sample is relatively small, and results should be replicated in a larger group of adolescents. Lastly, all of the measures used in this study were self-reports and, thus, are limited by monomethod bias. However, despite these limitations, this study represents an important step in examining factors associated with severe overweight in treatment-seeking adolescents, providing several important directions for future research.

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## References

- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- Coopersmith, S. (1981). *The Self Esteem Inventory (SEI)*. Palo Alto, CA: Consulting Psychologist Press.
- Davison, K. K., & Birch, L. L. (2002). Processes linking weight status and self-concept among girls from ages 5–7 years. *Developmental Psychology*, *38*, 735–748.
- Eisenberg, M. E., Neumark-Sztainer, D., & Story, M. (2003). Associations of weight-based teasing and emotional well-being among adolescents. *Archives of Pediatric and Adolescent Medicine*, *157*, 733–738.
- French, S. A., Story, M., & Perry, C. L. (1995). Self-esteem and obesity in children and adolescents: A literature review. *Obesity Research*, *3*, 479–490.
- Hedley, A. A., Ogden, C. L., Johnson, C. L., Carroll, M. D., Curtin, L. R., & Flegal, K. M. (2004). Prevalence of overweight and obesity among US children, adolescents, and adults, 1999–2002. *JAMA*, *291*, 2847–2850.
- Institute of Medicine. (2004). *Preventing childhood obesity: Health in the balance*. Washington, DC: The National Academies.
- Kiess, W., Galler, A., Reich, A., Muller, G., Kapellen, T., Deutscher, J., et al. (2001). Clinical aspects of obesity in childhood and adolescence. *Obesity Reviews*, *1*, 29–36.
- Neumark-Sztainer, D., Story, M., & Faibisch, L. (1998). Perceived stigmatization among overweight African American girls and Caucasian adolescent girls. *Journal of Adolescent Health*, *23*, 264–270.
- Schwimmer, J. B., Burwinkle, T. M., & Varni, J. W. (2003). Health-related quality of life of severely obese children and adolescents. *JAMA*, *289*, 1813–1819.
- Serdula, M. K., Ivery, D., Coates, R. J., Freedman, D. S., Williamson, D. F., & Byers, T. (1993). Do obese children become obese adults? A review of the literature. *Preventive Medicine*, *22*, 167–177.
- Sobel, M. (1982). Asymptotic confidence intervals for indirect effects in structural equations models. In S. Leinhardt (Ed.), *Sociological methodology 1982* (pp. 290–312). Washington, DC: American Sociological Association.
- Stern, M., Bitsko, M., Shivvy, V., & Dillon, R. (2004, April). *Psychosocial adjustment of adolescent cancer survivors: Parental attachment, self-efficacy and career aspirations*. Paper presented at the meetings of the Society of Pediatric Psychology, Charleston, SC.
- Stern, M., Mazzeo, S. E., Porter, J., Gerke, C., & Laver, J. (2006). Self-esteem, teasing and quality of life: African American adolescent girls participating in a family-based pediatric obesity intervention. *Journal of Clinical Psychology in Medical Settings*. Online publication date: June 17, 2006. DOI: 10.1007/s10880-006-9029-4.
- Thompson, J. K., Cattarin, J., Fowler, H., & Fisher, E. (1995). The Perception of Teasing Scale (POTS): A revision and extension of the Physical Appearance Related Teasing Scale (PARTS). *Journal of Personality Assessment*, *65*, 146–157.
- Varni, J. W., Seid, M., & Kurtin, P. S. (2001). PedsQL 4.0: Reliability and validity of the pediatric quality of life inventory version 4.0 generic core scales in healthy and patient populations. *Medical Care*, *39*, 800–812.
- Williams, J., Wake, M., Hesketh, K., Maher, E., & Wats, E. (2005). Health-related quality of life of overweight and obese children. *JAMA*, *293*, 70–76.
- Yaroch, A. L., Resnicow, K., Petty, A. D., & Khan, L. K. (2000). Validity and reliability of a modified qualitative dietary fat index in low-income, overweight, African American adolescent girls. *Journal of the American Dietetic Association*, *100*, 1525–1529.