Longitudinal Associations Between Teasing and Health-related Quality of Life Among Treatment-seeking Overweight and Obese Youth

Chad D. Jensen, PhD, and Ric G. Steele, PhD, ABPP

1Department of Psychology, Brigham Young University, and 2Clinical Child Psychology Program, University of Kansas

All correspondence concerning this article should be addressed to Chad D. Jensen, PhD, Department of Psychology, Brigham Young University, 1030 SWKT, Provo, UT, 84602, USA. E-mail: chad_jensen@byu.edu

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Objectives To examine concurrent and prospective associations between perceptions of teasing and health-related quality of life (HRQOL) over the course of a behavioral/educational intervention and the subsequent year in a sample of overweight and obese children and adolescents.

Method A clinical sample of 93 overweight or obese youths (ages 7–17 years) and 1 parent/guardian completed measures of teasing and HRQOL at pre- and posttreatment and follow-up assessments. Structural equation modeling was used to examine the factor structure of the measures and to assess prospective associations over a 15-month period.

Results Results indicate that, concurrently, weight-related teasing is inversely associated with HRQOL and that, prospectively, HRQOL is inversely associated with subsequent teasing.

Conclusions Study findings are suggestive of a directional relationship with lower quality of life predicting subsequent higher levels of teasing. Results suggest the potential for interventions designed to improve HRQOL to reduce teasing experiences for overweight and obese youth.

Key words health-related quality of life; pediatric obesity; teasing.

Teasing during childhood and adolescence, a significant threat to social and psychological well-being, has been widely studied over the past three decades. Numerous cross-sectional studies have detailed the many potentially detrimental psychosocial correlates of teasing including social anxiety, depression, loneliness, poor self-esteem, low social competence and acceptance, and academic problems (e.g., Schwartz, Groman, Nakamoto, & Toblin, 2005; Storch, Masia-Warner, & Brassard, 2003; Storch, Nock, Masia-Warner, & Barlas, 2003). Moreover, longitudinal studies have demonstrated that teasing in childhood may be associated with psychological distress and interpersonal difficulties years later in young adulthood (Ledley et al., 2006). Research examining the causes of teasing suggests that individual characteristics which increase the likelihood of being teased include physical weakness, poor social skills, internalizing and externalizing symptoms, and socially stigmatizing physical characteristics (e.g., short stature, obesity; Card & Hodges, 2008).

A growing body of literature suggests that overweight and obese youth are at particularly high risk for general and weight-specific teasing. For example, Neumark-Sztainer et al. (2002) reported that approximately 50% of a sample of overweight adolescents experienced teasing compared to less than 20% of average weight peers. Similarly, Hayden-Wade et al. (2005) found that 78% of a sample of overweight youth experienced teasing compared to 37.2% of a nonoverweight sample. Overweight youth who experience frequent teasing are at particular risk for numerous negative psychosocial outcomes, including poor...
self-esteem, depression, anxiety, and suicidal ideation (Eisenberg, Neumark-Sztainer, & Story, 2003; Storch et al., 2007). Furthermore, recent research has demonstrated that victimized overweight youth are less likely to be physically active (Faith, Leone, Ayers, Heo, & Pietrobelli, 2002; Jensen & Steele, 2008), perhaps contributing to poorer subsequent weight-related health.

An additional potentially negative outcome of teasing, particularly among overweight and obese youth, is the possibility of reduced health-related quality of life (HRQOL). HRQOL encompasses a wide array of indicators of health including physical and psychological functioning, social activity, cognition, health perception, and general life satisfaction (National Institutes of Health, 2009). Among children and adolescents, HRQOL has often been conceptualized as functioning across four broad domains; physical, emotional, social, and school (Varni, Seid, & Kurtin, 2001). Given the chronic, systemic effects of pediatric overweight and obesity, HRQOL is of particular interest as an outcome measure for children and adolescents because it assesses functional impairment that may not be identifiable through objective measures such as body mass index (BMI) (Modi & Zeller, 2008).

Past studies have demonstrated that HRQOL is significantly lower among overweight and obese youth than among their average-weight peers (Schwimmer, Burwinkle, & Varni, 2003; Williams, Wake, Hesketh, Maher, & Waters, 2004), and that HRQOL may be functionally related to teasing and peer-victimization. For example, Janicke and colleagues (2007) reported that a psychosocial model including peer victimization, child depressive symptoms, and parent distress significantly predicted both parent- and child-reported HRQOL. Similarly, Stern et al. (2007) demonstrated that weight-related teasing (WRT), as measured by the Perceptions of Teasing Scale (Thompson, Cattarin, Fowler, & Fisher, 1995), was associated with decreased HRQOL in a sample of treatment-seeking obese adolescents.

Although some explanations for increased risk for teasing among overweight youth are intuitive (i.e., observable weight status increases risk for WRT), dyadic theories of peer victimization (including acts of relational aggression such as teasing) suggest that individual characteristics of victims may represent social weaknesses that bullies may exploit to gain higher status among peers (e.g., Veenstra, Lindenber, Zuijstra, DeWinter, & Verhulst, 2007). Overweight children who evidence lower HRQOL (i.e., those with poorer social competence, school difficulties, emotional problems, and/or physical impairments) may be more likely to be targeted because they may be perceived as less able than nonobese peers to prevent or stop bullies’ relationally aggressive actions. Indeed, Dyadic Theory might suggest a bidirectional association between teasing and lower HRQOL among youths with obesity: children with obesity and lower HRQOL would be expected to be easier “targets” for bullies, and such targeting would likely have a negative impact on obese youths’ HRQOL. Consistent with this idea, the current study was designed to examine the possible bi-directional associations among HRQOL and teasing in a treatment-seeking sample of youths with overweight or obesity.

Several limitations to the existing literature examining the teasing—HRQOL relationship were also addressed by this study. First, both of the aforementioned studies examining the associations among HRQOL and teasing employed cross-sectional methodologies, a design that limits conclusions about causality and the stability of teasing and HRQOL over time. Moreover, previous studies (e.g., Janicke et al., 2007; Stern et al., 2007) have suggested unidirectional relationships between teasing and psychosocial outcomes. However, as noted above, Dyadic Theory (e.g., Veenstra et al., 2007) suggests that a bidirectional relationship may more accurately characterize this association, a hypothesis which can only be tested in a longitudinal data set. Third, only one of the studies located on this topic (i.e., Janicke et al., 2007) employed multiple reports of pediatric HRQOL. Incorporating parent and child report of HRQOL is important, particularly in light of mixed evidence for parent–child agreement on the PedsQL (e.g., Cremeens, Eiser, & Blades, 2006; Zeller & Modi, 2006). Finally, and consistent with only a few studies in the literature (e.g., Stern et al., 2007), the study was conducted in a sample of youths participating in one of two weight control treatments—a characteristic of the study that underscores the importance of addressing psychosocial outcomes as part of comprehensive weight management treatment for youths.

In light of these limitations in the extant literature, the current study tests a longitudinal model of the teasing–HRQOL relationship in the context of a larger investigation of the effectiveness of a treatment program for children and adolescents. The current investigation examines three hypotheses. First, it was hypothesized that treatment-seeking youth who reported more teasing would report (concurrently) poorer self- and parent-reported HRQOL than those experiencing less teasing. Second, it was expected that a bidirectional association between Teasing and HRQOL would be observed longitudinally in latent regression models. Specifically, it was hypothesized that Teasing would predict subsequent HRQOL and that HRQOL would predict subsequent teasing in latent regression.
analyses (Figure 1). Finally, it was anticipated that the two latent constructs (HRQOL and Teasing) and the associations between them would remain stable over the course of 1 year.

Method

Participants

Ninety-three overweight or obese children and adolescents (ages 7–17 years; mean BMI percentile = 98.2) who participated in a randomized clinical trial of a behavioral/educational pediatric weight management program and their participating parent/guardian (i.e., parent–child dyad) comprised the study sample. Participants were recruited through pediatric medical clinics, school nurses in public primary and secondary schools, flyers posted in community centers, and advertisements in newspapers. All participants attended either public or private Midwestern elementary or secondary schools. Eligibility criteria for participation in the study included: (a) the participating child or adolescent was between the ages of 7–17, (b) the participant’s BMI percentile was categorized as overweight (i.e., BMI ≥ 85th percentile) or obese (i.e., BMI ≥ 95th percentile), (c) one parent/guardian participated in the intervention, (d) the participant had no serious mental illness or developmental delay, (e) the parent and child spoke English, (f) the parent provided written informed consent, and (g) the child verbally assented to participation. Participants who met enrollment eligibility criteria were stratified by age (i.e., ages 7–12 years; ages 13–17 years) and randomly assigned into intervention (Positively Fit) and control groups (Brief Family Intervention [BFI]) in blocks of 4–7 families using a random number generator.

Positively Fit

This manualized intervention (Steele et al., n.d.) was comprised of 10 90-min weekly group treatment sessions held over conducted separately for parents and children. Groups ranged in size from 4 to 8 families per group and separate groups were held for children (7–12 years) and adolescents (13–17 years). Of particular interest to the present study, one session directly addressed bullying and teasing from peers. Children were instructed about appropriate actions to deter future victimization and cognitive and behavioral strategies intended to reduce the effects of victimization were presented. Steele et al. (2011) reported that this intervention produced favorable reductions in BMI percentile and increases in HRQOL among children.

Brief Family Intervention

Participants randomly assigned to the BFI intervention participated in the Trim Kids manualized treatment program (Southern, von Almen, & Schumacher, 2002). Consistent with recommendations made by the authors of this program, participants received 36-min individual face-to-face visits with a licensed nutritionist within a 10-week period. Families in this condition received the Trim Kids manual at initial (pretreatment) assessment and were instructed to read the first four book chapters prior to their first meeting.

Figure 1. Path diagram for final child-report structural model. Model Fit: $\chi^2 (116, n = 93) = 162.23, p < .005$, RMSEA = .058, NNFI = .96, CFI = .97.
with the nutritionist. Subsequently, participating families attended three meetings with a nutritionist over the course of 10 weeks.

**Measures**

**Teasing**

This construct was measured using the Perceptions of Teasing Scale (POTS; Thompson et al., 1995), an 11-item measure of teasing that assesses two distinct teasing constructs: WRT (six items; e.g., “People made jokes about you being too heavy”) and Teasing about Abilities/Competency (Competency Teasing; CT; five items; e.g., “People laughed at you because you didn’t understand something”), from kindergarten until the present. Consistent with Thompson et al., WRT scale scores consist of numerical ratings of frequency for six weight-related items plus associated ratings of distress, and CT scores consisted of five competency teasing ratings plus attendant distress ratings. Higher scores indicate more self-reported teasing. Good test–retest reliability was reported by Thompson and colleagues in the measure’s original development among young adults ($r = .88$). Test–retest reliability in the current study was acceptable between Times 1 and 2 (i.e., 10–12 weeks; $r = .79$) and between Times 2 and 3 (i.e., 1 year; $r = .57$). Internal consistency in the present sample was very good at all three time points ($\alpha = .91$, $\alpha = .92$, $\alpha = .90$, respectively).

**Quality of Life**

Self-reported HRQOL was measured using the Pediatric Quality of Life Inventory (PedsQL) 4.0 Generic Core Scales. This 23-item self-report measure of HRQOL yields scores on four subscales: physical functioning (eight items); emotional functioning (five items); social functioning (five items); and school functioning (five items). The PedsQL has demonstrated good reliability and validity with internal consistency statistics consistently $> .70$ (Varni et al., 2001). Test–retest reliability for child-reported HRQOL in the present sample was acceptable between Times 1 and 2 ($r = .61$) and between Times 2 and 3 ($r = .45$). Internal consistency was acceptable at all three time points in the present sample ($\alpha = .86$, $\alpha = .87$, $\alpha = .81$, respectively).

Parent-report of HRQOL was measured using the PedsQL 4.0 Parent Proxy Report. Internal consistency statistics for this measure have also consistently been $> .70$. Construct validity has been established using the known-groups method (Varni, Limbers, & Burwinkle, 2007). In the present study, internal consistency was good at all three measurement occasions ($\alpha = .91$, $\alpha = .85$, $\alpha = .87$, respectively) and test–retest reliability was comparable to self-report measures between Times 1 and 2 ($r = .57$), and between Times 2 and 3 ($r = .48$). Consistent with Varni and colleagues (2001) scoring instructions, items were reverse scored and converted to a 0–100 scale such that higher scores indicated better HRQOL and the mean scale score was used in study analyses.

**Procedures**

Participants completed study measures at three time points over the course of the study. After completing informed consent and assent procedures, the participating child/adolescent and one parent/guardian completed study measures prior to beginning treatment (Time 1), following treatment completion (approximately 10 weeks after commencing treatment; Time 2) and approximately 1 year following treatment completion (Time 3). The institutional review board of the authors’ institution approved these procedures.

A priori power analyses were conducted to determine the likelihood of detecting good and not-good global model fit using a SAS program created by MacCallum, Brown, and Sugawara (1996). Generally, power estimates of .80 or above are considered sufficient (Muthe´n & Muthe ´n, 2002). Results of this analysis, conducted with $\alpha$ set to .05, 123 degrees of freedom, and a sample size of 93, indicated a 98% chance of detecting close model fit. Further tests revealed a 47% chance of detecting not-good model fit.

Missing data resulting from participant attrition were best judged to be missing at random. Therefore, a maximum likelihood multiple imputation procedure (Buhi, Goodson, & Neilands, 2008) was performed prior to conducting study analyses using SPSS version 19. Study variables associated with missing data were included as predictors in the imputation procedure and $m = 100$ imputations were conducted (Graham, Olchowski, & Gilreath, 2006). Overall, 24.6% of the raw data necessary for analyses in the present study was imputed. Missing data resulted primarily from participant attrition and unwillingness (or inability to make contact with participants) to complete assessments after completion of the weight control intervention.

**Analytic Plan**

Measurement and predictive analyses were conducted using structural equation modeling (SEM) techniques in LISREL 8.80 (Jöreskog & Sörbom, 2007). An advantage of SEM that is particularly salient to this investigation is the ability to test bidirectional associations within the same structural model. That is, a variable can be analyzed...
as both a cause and an effect of other variables simultaneously (Farrell, 1994). Because the χ² statistic (routinely used to evaluate model fit in SEM) is highly sensitive to sample size (Kline, 2005), alternative fit statistics such as RMSEA, CFI, and NNFI were used to evaluate model fit for all CFA and SEM analyses.

Because the study sample was comprised of participants receiving two different treatments (i.e., Positively Fit and BFI), a two-group confirmatory factor analysis (CFA) and structural equation model were constructed to establish measurement comparability. This analysis supported measurement equivalence across both groups and no group-specific differences in predictive relationships were observed. These findings indicate that the participants receiving Positively Fit did not experience greater improvements in HRQOL attributable to teasing compared to those receiving the BFI. Thus, the two intervention groups were combined for all subsequent study analyses.

Consistent with guidelines for conducting statistical analyses using SEM (Brown, 2006), the present investigation began with a CFA including both measures of interest (POTS and PedsQL). Consistent with previous validation studies (Thompson et al., 1995; Varni et al., 2001), two parcels were created for the POTS (WRT and CT) while four parcels were specified for the PedsQL (Physical, Emotional, Social, and School functioning). These parcels represent the subscales of each measure and allowed for evaluation of specific subscale loadings on latent constructs (i.e., teasing and HRQOL) at each of the three time points.

To evaluate the aforementioned hypotheses, subsequent directional regressions were performed using latent variables within the SEM framework. Using a longitudinal panel design (Little, Preacher, Selig, & Card, 2007), the associations between latent variables at all three time points were tested simultaneously (Figure 1). Moreover, the structural model incorporated autoregressive paths designed to determine the stability of the latent constructs over time. Advantages of using a fully cross-lagged, autoregressive longitudinal panel design within an SEM framework include the ability to control for measurement error by modeling constructs using latent representations, the ability to assess stability of constructs over time, the ability to test complex models with multiple interacting dependent variables, and the ability to test bidirectional associations (i.e., a variable can be analyzed as both a cause and an effect of other variables simultaneously) within the same structural model (Farrell, 1994).

### Results

Demographic and anthropometric statistics are displayed in Table I. Means and standard deviations of primary study variables are presented in Table II. A preliminary analysis of variance indicated that no significant mean differences in teasing or HRQOL existed across ethnic groups at any of three measurement occasions.

#### Measurement Model

Preliminary confirmatory factor analyses were conducted to determine whether the two latent constructs of interest were measured comparably across measurement periods (i.e., pretreatment, posttreatment, 1-year follow-up; configural invariance). The initial, freely estimated model constructed using child-report Teasing and HRQOL data, demonstrated acceptable fit [χ² (102, n = 93) = 151.20, p = .001, RMSEA = .062, NNFI = .95, CFI = .97], suggesting that the pattern of free and fixed parameters was equivalent across measurement occasions. Next, the loadings of the indicators on the latent constructs were equated

#### Table I. Demographic and Anthropometric Variable Means, Standard Deviations, and Frequencies

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>Range</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>11.74 (2.66)</td>
<td>7.17–17.93</td>
<td>7.5</td>
</tr>
<tr>
<td>BMI %</td>
<td>98.18 (1.78)</td>
<td>88.6–99.8</td>
<td>59</td>
</tr>
<tr>
<td>Monthly income</td>
<td>4072.54 (2724.70)</td>
<td>550–14500</td>
<td>92.5</td>
</tr>
<tr>
<td>Overweight</td>
<td></td>
<td></td>
<td>41</td>
</tr>
<tr>
<td>Obese</td>
<td></td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td>5.4</td>
</tr>
<tr>
<td>Caucasian</td>
<td></td>
<td></td>
<td>72.0</td>
</tr>
<tr>
<td>African-American</td>
<td></td>
<td></td>
<td>12.9</td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td>4.3</td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>Native American</td>
<td></td>
<td></td>
<td>5.4</td>
</tr>
<tr>
<td>Biracial</td>
<td></td>
<td></td>
<td>4.3</td>
</tr>
</tbody>
</table>

Note: BMI% = Body Mass Index Percentile for Age; Overweight = BMI% ≥ 85; Obese = BMI% ≥ 95 (CDC, 2007). Values for anthropometric data were reported at baseline (Time 1).

#### Table II. Means and Standard Deviations of Primary Study Variables

<table>
<thead>
<tr>
<th>Measure</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTS</td>
<td>32.78 (18.87)</td>
<td>24.97 (15.41)</td>
<td>24.28 (14.06)</td>
</tr>
<tr>
<td>PedsQL Self-report</td>
<td>74.84 (13.95)</td>
<td>78.80 (14.07)</td>
<td>81.27 (11.22)</td>
</tr>
<tr>
<td>PedsQL Parent-report</td>
<td>69.83 (17.15)</td>
<td>78.11 (13.29)</td>
<td>73.83 (13.85)</td>
</tr>
</tbody>
</table>

Note: POTS = Perceptions of Teasing Scale; PedsQL = Pediatric Quality of Life Inventory.
across measurements to test for weak factorial invariance, a model that also demonstrated acceptable fit \(\chi^2 (110, n = 93) = 156.78, p = .002, \text{RMSEA} = .06, \text{NNFI} = .95, \text{CFI} = .97\). No significant changes in model fit were observed based on the RMSEA model test (i.e., does the RMSEA value of the nested model fall within the 90% confidence interval of the comparison model? Little, 1997). Finally, tests of strong factorial invariance were conducted by equating the intercepts. Results indicated that the model fit was acceptable \(\chi^2 (118, n = 93) = 168.69, p = .001, \text{RMSEA} = .57, \text{NNFI} = .95, \text{CFI} = .97\). Again, no significant changes in model fit were observed based on the RMSEA model test. Taken together, these tests indicate that the constructs included in the model (WRT and CT) were invariant when measured across time periods.

Measurement invariance was established for parent-report measures of quality of life using an identical procedure. The initial CFA model including parent reports of HRQOL and child reports of Teasing demonstrated excellent model fit, \(\chi^2 (102, n = 93) = 115.22, p = .175, \text{RMSEA} = .02, \text{NNFI} = .99, \text{CFI} = .99\). The subsequent test of weak factorial invariance also indicated close model fit, \(\chi^2 (114, n = 93) = 147.12, p = .020, \text{RMSEA} = .04, \text{NNFI} = .97, \text{CFI} = .98\). No significant changes in fit were observed based on the RMSEA Model Test. Finally, the strong factorial (i.e., intercept) invariance model demonstrated acceptable fit, \(\chi^2 (122, n = 93) = 163.91, p = .006, \text{RMSEA} = .05, \text{NNFI} = .97, \text{CFI} = .97\). Similarly, no significant difference in model fit was observed between weak and strong invariance models based on the RMSEA Model test.

**Structural Models**

After establishing measurement equivalence over time, associations between latent constructs (i.e., Teasing and HRQOL) over time were examined.

**Child Report**

The first structural model, constructed using child-report data, demonstrated close model fit and no significant difference in model fit was detected relative to the weak invariance model \(\chi^2 (114, n = 93) = 167.70, p < .001, \Delta\chi^2 (4, n = 93) = 4.98, p > .25, \text{RMSEA} = .059, \text{NNFI} = .99, \text{CFI} = .97\), indicating that the specified directional associations are tenable. Consistent with the first study hypothesis, child-reported Teasing and HRQOL remained significantly negatively correlated at each of the three assessments.

Next, the study hypothesis postulating a bidirectional association between Teasing and HRQOL (i.e., teasing would predict HRQOL and HRQOL would predict teasing prospectively) was examined. To test this hypothesis, longitudinal structural paths were specified between Time 1 Teasing and Time 2 HRQOL and between Time 2 Teasing and Time 3 HRQOL. Teasing at Time 1 did not significantly predict HRQOL at Time 2 nor did Teasing at Time 2 predict HRQOL at Time 3 (\(\beta = .07, p > .05; \beta = .039, p > .05\), respectively). However, findings indicated that HRQOL at Time 1 significantly predicted Teasing at Time 2 (\(\beta = .33, p < .01\)) and HRQOL at Time 2 predicted Teasing at Time 3 (\(\beta = .40, p < .01\)), with higher HRQOL predicting lower levels of teasing. In summary, the hypothesized predictive relationship with Teasing predicting HRQOL was not supported. However, the hypothesis that HRQOL would predict subsequent teasing was confirmed.

Finally, the hypothesis predicting that both latent constructs would remain temporally stable was evaluated by examining the autoregressive pathways within constructs at each measurement occasion. In these analyses, Teasing at Time 1 significantly predicted teasing at Time 2 (\(\beta = .35, p < .01\)) and Time 2 teasing also predicted Teasing at Time 3 (\(\beta = .35, p < .01\)). Similarly, Time 1 HRQOL significantly predicted HRQOL at time 2 (\(\beta = .50, p < .01\)) and Time 2 HRQOL predicted HRQOL at Time 3 (\(\beta = .41, p < .01\)).

Since hypothesized latent regressions with teasing predicting QOL were not significant, these pathways were removed one at a time, resulting in a close-fitting final structural model \(\chi^2 (116, n = 93) = 162.23, p < .005, \text{RMSEA} = .058, \text{NNFI} = .96, \text{CFI} = .97\) presented in Figure 1. Again, no significant difference in model fit was detected relative to the weak invariance model \(\Delta\chi^2 (6, n = 93) = 5.14, p > .25\).

**Parent Report**

Next, an identical structural model was specified for parent report of HRQOL and child report of teasing. This model demonstrated close model fit \(\chi^2 (114, n = 93) = 133.90, p = .09, \text{RMSEA} = .027, \text{NNFI} = .99, \text{CFI} = .99\), however, none of the specified cross-lagged regressive paths were significant. These paths were subsequently removed, yielding a close-fitting structural model \(\chi^2 (118, n = 93) = 138.41, p = .09, \text{RMSEA} = .028, \text{NNFI} = .99, \text{CFI} = .99\). No significant difference in model fit was detected relative to the weak invariance model \(\Delta\chi^2 (8, n = 93) = 8.71, p > .25\).

**Discussion**

Numerous negative psychosocial correlates of overweight and obesity in childhood and adolescence have been
identified, including increased teasing. Moreover, research has demonstrated significant reductions in HRQOL among overweight and obese youth compared to normal-weight peers. The primary aim of this investigation was to examine the longitudinal associations between perceived teasing experiences and HRQOL among children and adolescents who are overweight or obese. Consistent with previous studies, results from this investigation suggest that child-reported teasing and HRQOL are correlated across three measurement periods spanning 15 months. However, results from latent regression analyses did not support the hypothesis that teasing would predict subsequent HRQOL. Rather, findings suggest that HRQOL negatively predicts teasing at two prospective time periods. Furthermore, the correlations between these constructs remained consistent (and relatively high) across a 15-month time period, suggesting stability in teasing and HRQOL over time.

Overall, our findings contribute to the literature on the health-related correlates of peer-victimization and WRT. Consistent with previous reports (Schwimmer, Burwinkle, & Varni, 2003; Stern et al., 2007), our findings confirm associations between teasing and HRQOL. However, our study is unique in its choice of sample (i.e., overweight and obese children participating in weight management programs), and in its longitudinal measurement of relevant constructs. Correspondingly, this study was able to advance the literature by demonstrating the stability of teasing over time, as well as the stability of the associations among teasing and HRQOL. Despite increases in HRQOL over time (reported previously, Steele et al., 2011), associations between HRQOL and teasing remained significant. This finding may underscore the robust association between teasing and QOL, as well as the risk for teasing despite weight control treatment.

Hypothesized predictive relationships between teasing and HRQOL were examined to provide further information about directionality of influence. Previous cross-sectional studies have inferred that higher levels of teasing predict poorer quality of life outcomes (e.g., Janicke et al. 2007). One of the express aims of this study was to test this assumed predictive relationship. Contrary to the study hypothesis and in contrast with the previously assumed direction of influence, teasing did not significantly predict HRQOL at subsequent time periods. Although this null finding does not provide definitive evidence that this predictive relationship is not possible, this study casts doubt on the previously inferred, and possibly intuitive, direction of influence in the teasing–HRQOL relationship for overweight and obese youths.

Next, this study sought to evaluate the hypothesis that HRQOL would significantly predict teasing at subsequent measurement occasions. Study results supported this hypothesis at both prospective time intervals. This is perhaps the most interesting study finding, particularly because HRQOL has predominantly been conceptualized as an outcome variable in previous investigations (e.g., Janicke et al., 2007). Consistent with the Dyadic Theory of peer victimization, our study results suggest that psychosocial deficits consistent with poorer quality of life are likely to represent social weaknesses that increase risk for teasing. This may be an important area for future research, particularly because significant variability in HRQOL exists among overweight and obese youths (Williams et al., 2005). Moreover, findings from this study provide evidence that improving children’s adaptive functioning may decrease the frequency and psychological impact of teasing, suggesting that increasing HRQOL may discourage teasing among overweight youth. A similar pattern has been demonstrated in studies examining self-esteem among overweight children. For example, Jelalian et al. (2006) demonstrated that an intervention incorporating peer-based social skills training improved overweight children’s self-esteem, even in the absence of weight loss. It is conceivable that increasing children’s HRQOL (e.g., social skills training, increasing physical competencies) may not only lead to primary benefits of improved health but salutary effects on teasing.

Study results also provide support for the longitudinal stability of both teasing and HRQOL constructs among treatment-seeking overweight youth. Specifically, latent regression analyses demonstrated that earlier teasing and HRQOL predicted later levels for both constructs. Furthermore, these regression coefficients remained consistent over the three measurement occasions spanning 15 months.1 These findings provide additional support to previous Investigations, which have reported longitudinal stability in both teasing and HRQOL for overweight and obese youth (e.g., Eisenberg, Neumark-Sztainer, Haines, & Wall, 2006).

1Findings regarding the stability of teasing and HRQOL and related predictive associations do not imply that mean-level changes in these variables did not occur as a result of the intervention. As reported previously (Steele et al., 2011), both intervention groups demonstrated increases in HRQOL, with participants in the Positively Fit condition experiencing larger improvements. However, the latent constructs and latent regressions remained consistent in this study, suggesting that the constructs were measured consistently and that changes in HRQOL were not attributable to changes in teasing.
Although improvements in physical health are often the ultimate goal of weight management intervention, numerous investigators have suggested that diminished HRQOL is the most prevalent and immediate consequence of obesity in childhood (Wallander, Taylor, Grunbaum, Franklin, Harrison, Kelder, & Schuster, 2009). Results from the present study provide additional support to this thesis, suggesting that improvements in HRQOL may lead to decreased risk for teasing.

In contrast to study results employing child-reported HRQOL, parent-reported teasing was not highly correlated with HRQOL at any of the measurement occasions. This result contradicts Janicke and colleagues’ (2007) finding that child-reported peer victimization correlated with parent-reported HRQOL. However, this discrepancy may be a result of differences between measured peer victimization constructs: Janicke et al. measured peer victimization generally (including physical aggression) while this study limited its scope to teasing about weight and ability. Moreover, this discrepancy may not be surprising given the reported inconsistencies between parent- and child-reported HRQOL in the larger literature (Cremeens et al., 2006; Zeller & Modi, 2006). Predictive regressions between parent-reported HRQOL and child-reported teasing were nonsignificant. As mentioned previously, correlations at the three measurement intervals were small and only the Time 2 correlation reached statistical significance. As might be expected given this lack of association, none of the hypothesized longitudinal predictive regressions were significant. Because youth-reported teasing was used in both models, these discrepancies are likely attributable to differences in self- and parent-reported HRQOL discussed previously.

Limitations

Several methodological limitations to the present study should be noted.

First, the use of a passive longitudinal design does not allow causal inferences to be drawn because this methodology does not allow for isolation of independent variables nor does it control potential confounding variables. Thus, causality can only be implied using the present study design (Farrell, 1994; Little et al., 2007). An experimental test of an intervention engendering increased HRQOL with appropriate control would be necessary to confirm a causal relationship with HRQOL predicting teasing. Moreover, because of the specific study sample, the results of this study are generalizable only to treatment-seeking overweight and obese youths. Additionally, the wide age range of participants (ages 7–17) may have masked age-related differences in study variables. Finally, the existing literature suggests that peer victimization/teasing and the impact of these experiences vary across gender and ethnic/racial groups. Results of the current study should not be generalized outside of the specific demographic groups represented in the study sample.

Implications

Results from this study suggest that interventions designed to improve HRQOL outcomes may reduce teasing among overweight and obese youth. Although quality of life is most often conceptualized as an outcome variable, this study provides evidence that poor physical and psychosocial functioning (e.g., mood problems, social interaction difficulties, physical limitations, and school problems) are risk factors for later teasing. Moreover, results suggest that interventions leading to improved HRQOL may reduce teasing. In general, multi-component pediatric weight management programs have proven to be the most effective currently available method for improving HRQOL among overweight youth, although specific mechanisms behind this improvement (i.e., which components lead to change) are unclear (Lamanna, Kelly, Stern & Mazzeo, 2010). Future interventions for overweight youth and experimental studies of their effectiveness could target more proximal/functional variables associated with HRQOL even more so than weight reduction as critical outcomes.

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References


Steele, R. G., Aylward, B. S., Jensen, C. D., Cushing, C. C., Davis, A. M., & Bovaird, J. A.
Comparison of a family-based group intervention for youths with obesity to a brief family intervention: A practical clinical trial of Positively Fit. *Journal of Pediatric Psychology*, Advance online publication. doi:10.1093/jpepsy/jsr057


