The Benefits of Reciprocated Friendships for Treatment-seeking Obese Youth

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Objective  The current study examined the attributes of the reciprocated friends (RF) of a group of clinically referred obese children and the impact of these friendships on emotional well-being.  Methods  Classroom visits for 87 obese youth [body mass index (BMI) >95th percentile; 8- to 16-years old) were completed to obtain peer reports of social functioning, including reciprocated friendships, and to identify a demographically similar non-overweight comparison peer (CPO, n = 76). Subsequently, data regarding self-reported emotional well-being were collected from 84 obese children and 74 CPOs.  Results  Most obese children (68%) had at least one RF in their classroom. RFs were similar socially to CPOs and functioned more adaptively in the peer environment relative to obese children. Among obese youth, having at least one reciprocated friendship moderated the effect of sensitive-isolated behavior on loneliness.  Conclusion  Friendships may be a source of support for better psychosocial outcomes for obese youth.

Key words  depression; obesity; peer relationships; psychosocial; self-concept; self-esteem.

Introduction

A growing empirical literature has demonstrated that obese youth experience problematic peer relations, including stigmatization, teasing, and victimization (Janssen, Craig, Boyce, & Pickett, 2004; Neumark-Sztainer et al., 2002; Puhl & Latner, 2007). In addition, they are less liked, have fewer friendships (Strauss & Pollack, 2003; Zeller, Reiter-Purtill, & Ramey, 2008), and are described by multiple sources (e.g., peers, teachers, self) as less socially competent (Zeller, Reiter-Purtill, & Ramey, 2008) relative to nonoverweight youth. Given the importance of peer relations to positive development (Bagwell, Newcomb, & Bukowski, 1998; Roisman, Masten, Coatsworth, & Tellegen, 2004), this research suggests that obese youth may be on a trajectory of considerable psychosocial risk without intervention.

Conversely, and consistent with the broader developmental literature (Bagwell et al., 1998; Bukowski & Hoza, 1989; Parker & Asher, 1993), problematic peer relations should not presume an obese youth lacks social ties. In fact, our recent data demonstrated that obese youth did not differ from nonoverweight comparisons in the mean number of reciprocated friendships in the classroom (Zeller, Reiter-Purtill, & Ramey, 2008). This is notable, as having a friendship, independent of a child’s level of overall peer acceptance, has been shown to be concurrently and longitudinally associated with less loneliness and depression as well as better self-concept (Bagwell et al., 1998; Nangle, Erdley, Newman, Mason, & Carpenter, 2003; Parker & Asher, 1993) and further, may offer protection against the effects of victimization (Hodges, Boivin, Vitaro, & Bukowski, 1999). However, friendships are typically formed between peers who are more similar to each other behaviorally and socially than are nonfriends (Haselager, Hartup, van LIEShout, & Riksen-Walraven, 1998; Kupersmidt, DeRosier, & Patterson, 1995; Rubin, Wojlawowicz, Rose-Krasnor, Booth-LaForce, & Burgess, 2006). When friends are similar in behaviors considered maladaptive, the potential benefit of that friendship in buffering against difficulties may be reduced (Haselager et al., 1998; Rubin et al., 2006). Thus, given the social difficulties experienced by obese youth, it might be expected that their social ties are with youth who may also be struggling in the peer domain. Indeed, sociometric data from a large epidemiological study indicated that adolescents whose
friendship choices included overweight youth [i.e., body mass index (BMI) > 85th percentile] received fewer friendship nominations from peers than adolescents who nominated normal weight children as friends (Strauss & Pollack, 2003). We believe it is important to understand who the reciprocated friends (RFs) of obese children are and whether these friendships serve as protective factors against psychosocial risk.

The present study: (a) examined the social (i.e., behavioral reputation, general peer acceptance) and nonsocial attributes (i.e., attractiveness, athletic and academic competence) of the RFs of obese children and adolescents relative to these obese youth and a group of nonoverweight comparison peers; and (b) explored the impact of these reciprocated friendships on self-reported emotional well-being for obese youth relative to comparison peers. Based on the broader developmental literature, we proposed the following hypotheses: First, obese youth and their RFs were expected to be similar with regard to social and nonsocial attributes. Accordingly, because obese youth have been demonstrated to have numerous social difficulties relative to nonoverweight comparison peers, their RFs were expected to have more peer relationship difficulties than this comparison group. Second, obese children with a RF were hypothesized to report lower depressive symptoms, less loneliness, and higher self-concept than obese children without a RF. Finally, additional exploratory analyses examined whether having a reciprocated friendship moderated the effect of social difficulties (i.e., social withdrawal, low peer acceptance) on emotional well-being (i.e., depressive symptoms, loneliness, and poor self-concept) in obese children and their nonoverweight comparison peers.

**Research Methods and Procedures**

The current research is part of a larger two-phase study examining the psychosocial adjustment of treatment-seeking obese youth and demographically similar nonoverweight comparison peers and their respective families. In Phase 1, data on peer relations were collected in each obese child’s school classroom and nonoverweight comparison peers were identified (Zeller, Reiter-Purtill, & Ramey, 2008). During Phase 2, data were collected on psychosocial functioning from the obese children, the comparison peers, and caregivers (Zeller et al., 2007). Institutional Review Board approval was obtained for this study.

**Participants**

Obese youth were identified from a hospital-based pediatric weight management clinic, requiring a BMI greater than the 95th percentile for age and gender for program entry. Study eligibility criteria required that youth: (a) were 8–16 years of age; (b) without genetic syndromes for which obesity is a comorbidity; and (c) were not home-schooled or receiving full time special education. Of 107 eligible families, 11 families and, subsequently, 6 schools declined study participation, leaving 90 youth (84%) who completed Phase 1. For the present analyses involving the attributes of RFs, we excluded two participants who had initially met BMI criteria for program entry, but were found to be overweight (BMI between the 85th and 95th percentile) as well as one participant who did not complete the friendship measure. Subsequently, 84 of 87 (96.6%) available obese youth completed Phase 2 (58.3% female; 48% White, 51.2% African American, Mage = 12.44 ± 1.95 years), and their data were available for analyses involving emotional well-being.

Comparison peers for the obese children (CPO) were identified from classmates who were the same gender and race as the obese child. Because no anthropometric data were obtained during Phase 1 of the study, the nonoverweight status of the comparison peer was based on the research assistant’s visual ratings at this time. Lists were prioritized on the basis of closest birthdate to the obese child, with 70% of comparison families who agreed to participate in Phase 2 being first choice comparisons. For Phase 2, one CPO whose obese classmate declined participation was not approached, and no comparison peer agreed to participate in one classroom. Further, during Phase 2 data collection, anthropometric measurements were obtained by a trained research assistant for all CPOs. Fourteen CPOs were found to meet criteria for overweight (e.g., BMI: 85–95th percentile) and were excluded, leaving a final comparison sample of 74 CPOs (52.7% female, 55% White, 45% African American, M zBMI = −0.05 ± 0.73, Mage = 12.66 ± 2.06 years). Our previously published work demonstrated that families of CPOs were demographically similar to the families of the obese children (Zeller et al., 2007; Zeller, Reiter-Purtill, & Ramey, 2008).

**Procedures**

Trained research assistants met with each obese child’s teacher to explain the study and provide parental consent forms. In total, 85 schools were visited, with 5 schools having 2 obese participants each. Data were collected in the primary classroom in elementary grades. In later grades, data were collected in a required academic class where children with similar abilities and interests are grouped, thus increasing the probability they would be sufficiently familiar with one another to provide valid
peer assessments (Ollendick, Greene, Weist, & Oswald, 1990). To prevent stigmatization, classmates were blind to the fact that there was an identified target. Classmates returning a consent form (1,613 of 1,863; 87%) participated as a group in Phase 1, completing measures regarding behavioral reputation, nonsocial attributes and peer acceptance within their peer group. As explained below, children who were the RFs of the obese children were identified from these data.

Phase 2 psychosocial and anthropometric data were collected from obese children and the CPOs by a research assistant at a location not associated with the clinic (e.g., home, research space). After obtaining informed consent/assent, participants completed questionnaires and had heights/weights measured. Families received $100 for participation. RFs did not participate in Phase 2 of data collection, and thus, no psychosocial or anthropometric data were obtained for them.

**Measures—Phase 1**

**Three Best Friends**

Children were asked to choose three classmates whom they thought of as their first, second, and third best friend (Bukowski & Hoza, 1989). From these data, each child was given: (a) a score indicating the number of times he/she was chosen as a best friend, and (b) a score indicating how many of his/her friendship selections were reciprocated. Z-score transformations were completed to adjust for unequal class size. In addition, the first child from among the obese child’s best friend nominations who reciprocated that nomination was included in the group of RFs. Only one RF per obese child was selected.

**Like Ratings**

Children were asked to rate how much they liked each of their classmates on a 5-point scale from “1” (do not like) to “5” (like a lot). Each child was given an average social preference score, standardized by gender within each classroom. This measure is a reliable and valid index of a child’s peer acceptance (Parker & Asher, 1993).

**Revised Class Play**

The Revised Class Play (RCP) (Masten, Morison, & Pellegrini, 1985) asks children to imagine that they are the director of a play and to cast classmates into 30 roles. Recent work with the RCP (Zeller, Vannatta, Schafer, & Noll, 2003) has demonstrated four dimensions of behavioral reputation: (a) Popular–Leader (e.g., someone everybody likes to be with; a good leader); (b) Prosocial (e.g., polite; helps others); (c) Aggressive–Disruptive (e.g., fights a lot; teases others); and (d) Sensitive–Isolated (i.e., socially withdrawn; e.g., often left out; trouble making friends; feelings get easily hurt). Children were assigned scores according to the number of times they were nominated for each role, and these item scores were summed to create dimension scores. Z-score transformations were completed within each classroom to adjust for unequal class size (Masten et al., 1985). These dimension scores have demonstrated adequate psychometric properties (Masten et al., 1985; Vannatta, Gartstein, Zeller, & Noll, 2009; Zeller et al., 2003) for children from elementary though high school and are predictive of later functioning (Morison & Masten, 1991).

For nonsocial attributes, two additional roles were added to the RCP for each attribute (i.e., physical attractiveness, athletic competence, and academic competence). A score was created for each nonsocial attribute (e.g., physical attractiveness, athletic competence, and academic competence) by combining the two corresponding standardized roles, with higher scores indicating more positive peer perceptions. These additional roles have been utilized in studies characterizing other pediatric populations (Noll, Reiter-Purtill, Vannatta, Gerhardt, & Short, 2007) and have demonstrated inter-rater reliability (Vannatta et al., 2009).

**Measures—Phase 2**

**Children’s Depression Inventory**

The Children’s Depression Inventory (CDI) (Kovacs, 1992) is a 27-item self-report of depressive symptoms experienced over the past two weeks for children aged 7- to 17-years old. The CDI has demonstrated good internal consistency and test-retest reliability, as well as concurrent and predictive validity (Ialongo, Edelsohn, & Kellam, 2001; Kovacs, 1992).

**Loneliness and Social Dissatisfaction Questionnaire**

The Loneliness and Social Dissatisfaction Questionnaire (LSDQ) (Asher, Hymel, & Renshaw, 1984), which evaluates a child’s self-perceptions of loneliness, has been shown to be internally consistent and stable and related to other measures of acceptance and behavior with peers (Asher & Wheeler, 1985).

**Self-perception Profile for Children**

The Self-perception Profile for Children (SPPC) (Harter, 1985) is a self-report measure designed to assess self-perceptions of competence in five separate areas (e.g., Scholastic Competence, Athletic Competence,
Physical Appearance, Social Acceptance, and Behavioral Conduct) as well as a global perception of self-worth. The subscales have demonstrated acceptable reliability and validity (Cole et al., 2001; Harter, 1985).

Weight and Height
The weight and standing height of obese youth and CPOs were measured with a portable SECA digital scale (SECA, Hamburg, Germany) and a calibrated custom portable stadiometer (Creative Health Products, Plymouth, MI, USA), respectively. Measurements were taken in triplicate and the means used to calculate BMI (kg/m²). BMI Z-score values (zBMI) were calculated for child participants using age- (to the nearest month) and sex-specific median, standard deviation, and power of the Box-Cox transformation (LMS method) based on national norms from the Centers for Disease Control (Kuczmarski et al., 2000).

Statistical Analyses
For the first aim, two-tailed independent $t$-tests were used to examine the social (e.g., RCP behavioral reputation scores, Like Ratings) and nonsocial (i.e., RCP physical attractiveness, athletic competence, and academic competence) attributes of the RFs compared to the obese children as well as to the CPOs. For the second aim, a series of 2 (obese vs. CPO) $\times$ 2 (friendship vs. no friendship) ANOVAs were completed to examine group differences in depressive symptoms (CDI), loneliness (LSDQ), and self-concept (SPPC). For exploratory analyses, multiple regression analyses were used to test whether having a reciprocated friendship moderated the association between peer difficulties (i.e., RCP sensitive–isolated behavior, low peer acceptance) and emotional well-being (i.e., depression, loneliness, poor global self-worth). Regressions were run separately for obese children and CPOs for each outcome of emotional well-being. RF status (friendship vs. no friendship) and one of the measures of peer difficulties were entered in the first step, followed by the interaction in step 2 in the prediction of depression, loneliness, or self-worth. All continuous predictor variables were centered, and the interaction term was formed by multiplying the centered variables (Holmbeck, 2002). Significant interactions were probed as defined in Holmbeck (2002). Effect sizes were calculated as Cohen’s $d$ (1992) for all mean comparisons. Using G-POWER3 for power calculations (Faul, Erdfelder, Lang, & Buchner, 2007), the sample of 116-125 children yielded sufficient power ($0.76$–$0.77$) to detect medium effect sizes for $t$-tests ($d = 0.5$). There was $88\%$ power to detect main effects and interactions in all $2 \times 2$ ANOVAs ($f = 0.25$).

Results

**Aim 1: Social and Nonsocial Attributes of Friends of Obese Youth**
Chi-squared analyses indicated no significant differences between the number of obese children without a reciprocated friendship (32%, $n = 28$ of 87) relative to CPOs without a friendship [20%, $n = 15$ of 76; $\chi^2 (N = 163) = 3.24$, $p = .07$]. Of those obese children with a reciprocated friendship, 34% ($n = 20$ of 59) chose a classmate who similarly nominated them as their first friend choice.²

Seventy-nine percent of RFs ($n = 45$ of 57) were not rated as overweight by the research assistant who supervised classroom data collection.³ Relative to obese children, peers perceived RFs as displaying significantly more leadership behavior and as more attractive and athletically skilled when using the RCP (Table 1). In addition, RFs received a greater number of best friend nominations (Table 1). Analyses were also completed to compare RFs and CPOs. RFs were similar to CPOs on all variables with two exceptions. The RFs (who were not themselves CPOs) received more friendship nominations ($M = 0.62$, $SD = 0.87$) and had a greater number of reciprocated friendships ($M = 0.65$, $SD = 0.81$) relative to CPOs ($M_{friend} = 0.24$, $SD_{friend} = 0.91$, $p = .02$; $M_{reciprocated} = 0.03$, $SD_{reciprocated} = 0.90$, $p < .001$).⁴ Effect sizes for all significant comparisons were found to be medium.

**Aim 2: The Effect of Reciprocated Friendships on Emotional Well-Being**
Using a series of 2 (obese vs. CPO) $\times$ 2 (reciprocated friendship vs. no reciprocated friendship) ANOVAs, ² Two obese children had RFs of the opposite gender. These RFs were removed from analyses examining the social and nonsocial attributes of the RFs.

³ Although measuring the height and weight of each child in the classroom would have been ideal, it was beyond the scope of the current study. Instead, a single research assistant executing Phase 1 data collection, rated the weight status of every child in the classroom visually as overweight or nonoverweight. This was done to identify a potential pool of nonoverweight children from which the CPO could be selected based on similarity in gender, race, and age to the obese child. Although the actual heights and weights of both obese youth and their CPOs were measured subsequently in Phase 2 of data collection outside of school, the classification of RFs as overweight or not overweight was based solely on the visual ratings made by the research assistant. However, height/weight measurements obtained for CPOs during Phase 2 indicated that research assistants were accurate 86% of the time ($n = 76$ of 88) in choosing CPOs who were not overweight.

⁴ Analyses comparing RFs to both obese children and to CPOs were recalculated with those RFs rated as overweight by the research assistant ($n = 12$) removed. Results did not vary.
we compared whether the depressive symptoms, loneliness, and self-concept of obese children and CPOs varied by reciprocated friendship status (Table II). Consistent with our aims, we discuss only results for the main effect of obesity status and the interaction of obesity status with reciprocated friendship status. Although no effects were identified for depressive symptoms or loneliness, a number of significant effects were found for self-concept. Obese children had significantly lower global self-worth \(F(3, 154) = 6.99, p = .009\) and lower self-perceptions of athletic competence \(F(3, 154) = 8.51, p = .004\) than CPOs. Obese children also had lower self-perceptions of physical appearance than CPOs \(F(3, 154) = 36.38, p < .001\) which varied by reciprocated friendship status \(F(3, 154) = 4.63, p = .03\). Post hoc analyses indicated that among obese children, those with no reciprocated friendship had significantly lower self-perceptions of appearance than those with a reciprocated friendship \((t = 2.20, p = .03)\).

Finally, Pearson correlations were completed to examine the associations between social functioning and emotional well-being within each group of children (obese and CPO). For these correlational analyses, we used reciprocated friendship as a continuous, rather than dichotomous, variable (Table III). Notably, for obese children, a
greater number of reciprocated friendships was significantly associated with less loneliness and higher global self-worth, although no significant association was found with depressive symptoms. The number of reciprocated friendships was not significantly associated with emotional well-being for CPOs.

**Reciprocated Friendship as a Moderator of Social Functioning and Emotional Well-being**

We explored whether having at least one reciprocated friendship moderated the association of social difficulties (i.e., RCP sensitive–isolated behavior or low peer acceptance) with depressive symptoms, loneliness, or poor global self-worth for obese children and CPOs. For the purposes of these analyses, only significant interactions are reported. No significant interactions were identified for CPOs. For obese children, the interaction between sensitive–isolated behavior and reciprocated friend status in the prediction of loneliness was significant (standardized $B = -0.36$, $p = .008$; change in $R^2 = .06$, $p = .008$; $R^2$ for entire model $= .36$) and was examined and plotted (Figure 1). Loneliness increased with greater sensitive-isolated behavior for all obese children. However, the slope of the association between loneliness and sensitive-isolated behavior was significant only for obese children with no reciprocated friendship (slope $= 8.43$; $t = 5.15$; $p < .001$) and not for those with a reciprocated friendship (slope $= 2.22$; $t = 1.40$; $p = .17$). Thus, at high levels of sensitive–isolated behavior, obese children with no reciprocated friendship experienced greater loneliness; in contrast, friendship buffered the effect of sensitive–isolated behavior on loneliness for some obese children.

**Discussion**

The present study extends our previous work by examining the reciprocated friendships of obese youth in their classroom environment. While the majority of obese children had at least one reciprocated friendship in their classroom, ~32% lacked a friendship. In contrast to developmental literature suggesting that friends tend to be similar, our data suggest that the reciprocated friends of obese youth function more adaptively in the peer environment. These RFs were more well-liked, had more positive social behaviors, and were seen as more attractive and athletically skilled than the obese children. Furthermore, the majority of these RFs were not visually rated as overweight.

Our findings are in contrast to those of Strauss and Pollack (2003) who reported low rates of friendship nominations and reciprocity for overweight adolescents relative to normal-weight peers. Further, they found that adolescent who nominated an overweight peer as a friend,

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**Table III. Intercorrelations Among Measures of Social Functioning and Emotional Well-being for Obese Children (n = 84) and Comparison Peers (CPOs; n = 74)**

<table>
<thead>
<tr>
<th>Measures*</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of Friendships</td>
<td>–</td>
<td>–0.53***</td>
<td>0.56***</td>
<td>–0.23</td>
<td>–0.32**</td>
<td>0.30**</td>
</tr>
<tr>
<td>2. RCP Sensitive-Isolated Behavior</td>
<td>–0.41***</td>
<td>–</td>
<td>–0.66***</td>
<td>0.40***</td>
<td>0.53***</td>
<td>–0.41***</td>
</tr>
<tr>
<td>3. Like Ratings</td>
<td>0.64***</td>
<td>–0.56***</td>
<td>–</td>
<td>–0.37**</td>
<td>–0.38***</td>
<td>0.28**</td>
</tr>
<tr>
<td>4. Depressive Symptoms</td>
<td>–0.07</td>
<td>0.15</td>
<td>–0.19</td>
<td>–</td>
<td>0.71***</td>
<td>–0.71***</td>
</tr>
<tr>
<td>5. Loneliness</td>
<td>–0.19</td>
<td>0.49***</td>
<td>–0.29</td>
<td>0.51***</td>
<td>–</td>
<td>–0.63***</td>
</tr>
<tr>
<td>6. Global Self-Worth</td>
<td>0.10</td>
<td>–0.15</td>
<td>0.21</td>
<td>–0.61***</td>
<td>–0.47***</td>
<td>–</td>
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*Note: Obese children’s (n = 84) data are above the diagonal; nonoverweight CPOs’ (n = 74) data are below the diagonal. Significance values were set at $p < .01$ to control for Type 1 error.

*Social functioning measures were based on peer report; measures of depressive symptoms, loneliness, and global self-worth were based on self-report.

**p < .01; ***p < .001.**
received less friendship nominations than friends of normal weight youth. Comparison of our data to Strauss and Pollack’s proves difficult given the use of differing sociometric procedures and the potential differences in that study’s use of a large epidemiological sample (Add Health) relative to our clinical sample. In addition, Add Health participants were older (13–18 years) than those in the current study (8–16 years), and recent work has suggested that stigmatization/weight bias from peers may worsen as children become adolescents (Puhl & Latner, 2007). Our finding that most of the RFs of obese children were not visually rated as overweight is also in contrast to two recent studies that suggest that overweight adolescents are more likely to have overweight friends (Halliday & Kwak, 2009; Valente, Fujimoto, Chou, & Spruijt-Metz, 2009). The current finding however should be interpreted cautiously, given that the weight status (overweight or non-overweight) of RFs was based on a visual rating by research staff rather than the obtainment of anthropometric measurements either objectively or through self-report.

Although not a primary aim of the present study, it is noteworthy that our findings suggest obese children do not differ from nonoverweight peers in self-reported depressive symptoms. These data add to the literature documenting that depressive symptomatology is not a consistent correlate of obesity in youth (Zeller & Modi, 2008). Similarly, group differences were not found for self-reported loneliness. However, consistent with extant pediatric obesity literature (Phillips & Hill, 1998; Thompson et al., 2007), obese children reported significantly lower global self-worth as well as lower self-perceptions of appearance and athleticism relative to comparisons. Contrary to our hypotheses, only one dimension of emotional well-being varied significantly by friendship status. Specifically, obese children with a reciprocated friendship had higher self-perceptions of appearance than those obese children without a friendship. This suggests a potential buffering effect for a friendship tie. Perhaps, having a reciprocated friendship with a peer who is socially well-adjusted and nonoverweight protects obese youth from appearance and weight-based teasing or the internalization of any such stigmatizing experiences, resulting in them feeling better about their appearance. This is important as some research has suggested that weight-related teasing by peers is associated with low body satisfaction and low self-esteem (Eisenberg, Neumark-Sztainer, & Story, 2003). However, in contrast to this research, no interaction between obesity status and reciprocated friendship status was identified for global self-worth in the current study.

Clearly, in the broader developmental literature, friendship has been demonstrated to be important for all children regardless of weight status (Bagwell et al., 1998; Nangle et al., 2003; Parker & Asher, 1993). However, in the current study, correlational analyses indicated that having more reciprocated friendships was significantly associated with less loneliness and higher global self-worth for obese children, but not nonoverweight comparisons. In addition, for obese children, a friendship tie in the classroom was found to buffer the expected link between sensitive–isolated behaviors and feelings of loneliness. Perhaps, having a reciprocated friendship is particularly salient for obese children given their other social difficulties, including low peer acceptance. Further, the present findings suggest that the RFs were better socially adapted than the obese children. This is noteworthy given that friendships are typically formed between peers who are more similar to each other than are non-friends (Haselager et al., 1998; Kupersmidt et al., 1995; Rubin et al., 2006), and that this similarity has implications for emotional well-being. For instance, Rubin and colleagues (2006) found that the best friends of shy/withdrawn children were perceived by peers as more shy and withdrawn relative to the best friends of controls, and that shy/withdrawn children and their best friends experienced more victimization than control children and their friends. Furthermore, there is some evidence for peer contagion of internalizing difficulties such that the depressive symptoms of friends are longitudinally predictive of adolescents’ own depressive symptoms (Prinstein, 2007). Thus, friendships with better socially adapted youth may be especially beneficial in buffering obese children against future difficulties such as depressive symptoms.

Strengths of this study include use of psychometrically sound measures, a demographically similar nonoverweight comparison group, and multiple reporters (e.g., peer and self-report). Although researchers have found links between overweight or obese youth’s self-perceptions of their peer experiences (e.g., victimization, weight-related teasing) with depressive symptoms, loneliness, or poor self-concept (Eisenberg et al., 2003; Storch et al., 2007), this is the first study to utilize peer perceptions, considered the most valid source of social functioning (Cavell, 1990), with self-reported emotional well-being for obese children. However, this study has several limitations. First, these data characterize a clinically referred sample of obese youth. The addition of a nontreatment seeking and demographically similar obese comparison group would further elucidate whether these peer relationship patterns are also typical of obese youth in the broader community who do not or cannot access care. Second, these data were cross-sectional in nature. Future studies should examine the impact of reciprocated friendships on the social
functioning of obese youth over time as well as to address the reciprocal effects between social functioning and emotional well-being as these youth enter later adolescence and early adulthood. It may be that over time, obese children with RFs function more adaptively in the peer environment, similar to their RFs, or conversely, their social difficulties may continue over time, resulting in later internalizing difficulties. Third, although this study provided evidence that obese children’s RFs were better socially adjusted in general than they were, friendship quality (e.g., closeness, security, conflict) was not evaluated. Moreover, only friendship ties within one classroom were examined. For younger children, friendships are typically made within the classroom where children with similar abilities are grouped together (Ollendick et al., 1990). However, some children, and adolescents in particular, may have additional friendships outside of the classroom. These data may have important implications for the physical health of obese youth. Although we did not examine physical health or lifestyle behaviors, previous work has indicated the benefits of friendship for greater activity (Strauss & Pollack, 2003) and of peer social support for weight loss and maintenance for adolescents (Jelalian & Mehlenbeck, 2002) and children (Wilfley et al., 2007). Because the majority of the RFs of obese youth in the current study were doing well socially and were not overweight, they may be a source of support for better psychosocial and physical health outcomes for obese children. In contrast, obese children without friendships may be at particular risk for poor outcomes, suggesting that interventions such as social skills training are necessary.

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