

# Adolescent Girls' and Boys' Weight-Related Health Behaviors and Cognitions: Associations With Reputation- and Preference-Based Peer Status

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In this study, the authors examined associations between preference- and reputation-based peer status and weight-related behaviors and cognitions for both adolescent boys and girls. Sociometric measures of peer likability and peer-perceived popularity, as well as self-reported measures of body size, dieting behavior, and weight-related cognitions were collected from a sample of 441 adolescents in Grades 11 and 12. Results revealed weight-related cognitions for girls (concerning obesity) and boys (concerning musculature/fitness). Peer-perceived popularity, but not likability, was significantly associated with both boys' and girls' body size and dieting. Lower levels of popularity were associated with heavier body shapes for girls and with both thin and heavier body shapes for boys. Findings suggest that peer status is an important source of social reinforcement associated with weight-related behaviors and cognitions.

*Keywords:* peer relationships, body image, dieting, weight, eating disorder

The developmental transition to adolescence is accompanied by numerous interacting changes in a youth's physical development and social-psychological functioning. Perhaps most salient, adolescence is accompanied by increased concerns and dissatisfaction regarding body image and a stronger reliance on peer interactions as a basis for identity development, particularly among girls (Brown, 1990; Harter, Stocker, & Robinson, 1996; Littleton & Ollendick, 2003). Accordingly, many past studies have examined the potential role of peers as influential agents in the development of adolescents' perceived body size and weight-related behaviors. For example, studies examining adolescents' perceptions of peers' attitudes or values have suggested that girls' own levels of body dissatisfaction, dieting behavior, and disordered eating behavior are significantly associated with their beliefs that their peers diet, value dieting, or encourage thinness and weight loss (Huon, Lim, & Gunewardene, 2000; Huon & Walton, 2000; Lattimore & Butterworth, 1999; van den Berg, Thompson, Obremski-Brandon, & Coover, 2002; Vincent & McCabe, 2000; Young, McFatter, & Clopton, 2001). Research rarely has examined similar associations among boys.

Unfortunately, much of this past research has been limited by at least three methodological and conceptual issues, each of which has been addressed in this investigation. First, most past research has been confounded by an exclusive reliance on self-report meth-

ods to assess peer influence. Adolescents' reports of both their own and their friends' attitudes and behaviors yield important information regarding adolescents' perceptions of norms; however, this design precludes conclusions regarding peers' actual preferences and pressures. Moreover, associations revealed from self-report measures also may be inflated because of shared method variance. Using peer-reported sociometric methods, we had the unique opportunity in this study to examine potential peer influences using separate reports from adolescents and their peers.

A second issue pertains to conceptual ambiguity in prior investigations of peer influence. Although many studies previously have examined social pressures or peers' values, mechanisms explaining why peers' values would exert such a powerful influence over adolescents' own behaviors or body-related cognitions rarely have been proposed. Presumably, adolescents feel that their failure to ascribe to peers' values or conform to pressures will be met with negative social consequences, such as unpopularity, rejection, and peer victimization. Findings from two bodies of literature offer preliminary support for this hypothesis. First, evidence suggests that girls' specific concerns about their acceptance among peers are uniquely associated with body dissatisfaction, dieting, and binge eating (French et al., 1997; McVey, Pepler, Davis, Flett, & Abdolell, 2002). Second, evidence regarding the psychological correlates of obesity among boys and girls indeed reveals that overweight adolescents report greater levels of victimization, lower levels of acceptance among peers, fewer friends, and fewer dating opportunities than peers of average weight (Cattarin & Thompson, 1994; Neumark-Sztainer et al., 2002; Pearce, Boergers, & Prinstein, 2002; Strauss, Smith, Frame, & Forehand, 1985). Adolescents may recognize and be motivated by these observable negative social consequences associated with obesity. Unfortunately, many of these prior studies regarding associations between peer status and adolescents' body dissatisfaction, body size, and eating behavior have also relied almost exclusively on self-report data.

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To date, two studies examining peer-reported correlates of adolescents' body dissatisfaction and dieting are available, yielding conflicting results. Lieberman, Gauvin, Bukowski, and White (2001) examined associations between girls' peer-reported friendship affiliations and girls' own reports of body self-esteem, dieting, and bulimic behavior. Findings revealed that higher numbers of girls' friendship nominations were associated with lower levels of body self-esteem and higher levels of dieting and bulimic behavior (Lieberman et al., 2001). However, this study did not examine peer status or popularity specifically. In contrast, Graham, Eich, Kephart, and Peterson (2000) examined associations between peer ratings of likability among peers, revealing the opposite association. Among adolescents in this study (i.e., boys and girls combined), high levels of peer likability were associated with a smaller discrepancy between actual and ideal ratings of body size through the use of a body silhouette measure (i.e., lower levels of body dissatisfaction). Associations with eating behaviors or dieting were not explored.

Differences across prior investigations in the conceptualization of peer status and the methodological approaches used to assess peer reputations highlight the third important issue relevant to work in this area. Developmental work on peer relationships provides clear recommendations for the appropriate measurement of peer reputations, requiring an assessment of both positive and negative peer reputations (Coie & Dodge, 1983) and, perhaps most relevant, an assessment of both social preference (i.e., peer likability) and social reputation (i.e., peer-perceived popularity) constructs (Parkhurst & Hopmeyer, 1998). Social preference (i.e., on the basis of "like-most" and "like-least" peer nominations) indicates the extent to which adolescents are liked and/or disliked by peers (Coie & Dodge, 1983). This measure of peer likability (i.e., peer acceptance/rejection) has been associated with a variety of developmental outcomes in childhood and adolescence, including aggressive behavior, school dropout, and severe psychological symptoms (Parker & Asher, 1987). Emerging as a distinct construct in adolescence, social reputation (i.e., on the basis of "most-popular" and "least-popular" peer nominations) reflects adolescents' reputations of popularity (LaFontana & Cillessen, 1999; Parkhurst & Hopmeyer, 1998; Prinstein, Meade, & Cohen, 2003). Unlike preference-based measures of peer status, reputation-based measures have origins in sociology and human ethology literatures and are thought to reflect adolescents' dominance positions within the social hierarchy and access to resources (Hawley, 1999). Accordingly, reputations of peer status are especially relevant for understanding social reinforcements of health behaviors and sources of peer influence. Social reputation, but not social preference, appears to be uniquely associated with adolescents' substance use, sexual risk, and aggressive behaviors (Prinstein & Cillessen, 2003; Prinstein et al., 2003).

In the current study, we examined associations among distinct measures of preference- and reputation-based popularity and several indices of weight-related behaviors and cognitions for adolescents. An initial goal was to examine potential gender differences in the associations among these main constructs. It was hypothesized that cognitions regarding weight gain would be most relevant and most closely associated with reputation-based levels of peer status among girls, whereas cognitions regarding overall muscularity and fitness would be most relevant and most closely associated with reputation-based popularity for boys. Second, associ-

ations between adolescents' body size and both preference- and reputation-based levels of popularity were examined. For girls, a linear, inverse relationship between social reputation and perceived body size was anticipated, suggesting that smaller body sizes would be associated with higher levels of popularity among girls. For boys, a curvilinear association between perceived body size and reputation-based popularity was anticipated, reflecting body ideals toward body shapes that are muscular and neither thin nor heavy. A third and final goal was to examine preference- and reputation-based measures of peer status as concurrent predictors of girls' and boys' dieting behavior. It was hypothesized that reputation-based popularity would be significantly associated with both boys' and girls' dieting behavior above and beyond the effects of body dissatisfaction and obesity or muscle/fitness cognitions.

## Method

### *Participants*

Participants included 441 students in Grades 11 and 12 (179 boys, 40.6%; 262 girls, 59.4%) attending a public high school in New England. All students were between the ages of 16 and 19 years ( $M = 17.0$ ,  $SD = 0.50$ ). The sample included 75.5% Caucasians, 17.3% African Americans, 2.7% Hispanics, and 4.4% Asian Americans and other-mixed ethnicities. The ethnic composition of the sample was not significantly different from the school population,  $\chi^2(3, N = 824) = 3.53$ , *ns*. School district records indicated middle-income socioeconomic status (per capita income = \$25,175), with approximately 18% of students eligible for free or reduced-fare lunch.

### *Procedures*

All students in Grades 11 and 12 were recruited to participate in the study. Of 824 students initially recruited, 598 (73%) returned consent forms, and 547 (91%) of these had parental consent to participate. A total of 25 students moved or withdrew from school before data collection began. Data therefore were collected from 522 adolescents as part of a larger study on peer relationships and adolescent health-risk behaviors. Data required to examine hypotheses in this study were available for 441 of these adolescents (81 adolescents were absent for 1 or more days of data collection, or they provided incomplete data). Analyses revealed two significant differences between adolescents with and without available data; 12th-grade students,  $\chi^2(1, N = 522) = 11.82$ ,  $p < .001$ , and students with somewhat lower social preference scores (i.e., indicating peer rejection),  $t(520) = 2.96$ ,  $p < .01$ , were more likely than others to have missing data.

### *Measures*

*Perceived body size.* Girls completed the Ideal Body Subscale–Female (Cogan, Bhalla, Sefa-Dedeh, & Rothblum, 1996), consisting of 12 female silhouettes ranging in size from very thin to very obese. Using numbers corresponding to each silhouette, participants were instructed to indicate their perceived actual body size and their ideal body size. A discrepancy score was computed for each adolescent by subtracting reports of ideal body size from actual body size as an index of girls' body dissatisfaction, with higher discrepancy scores indicating higher levels of dissatisfaction. Approximately 8% of girls ( $n = 22$ ) reported an ideal body size that was heavier than their current perceived body size, thus the absolute value of the discrepancy was taken. All analyses reported below were repeated both with and without the absolute value, yielding an identical pattern of findings.

Boys completed the Ideal Body Subscale–Male (Cogan et al., 1996), consisting of a similar set of 12 silhouettes depicting very thin, muscular, and very obese male adolescents. Boys also indicated their perceived actual and ideal body size. As with girls, two measures from this instrument were incorporated in analyses (i.e., self-reported actual body size and body dissatisfaction). Most boys selected muscular silhouettes in the center of the scale as an ideal body size, thus the absolute value of discrepancies between actual and ideal body size was computed to serve as an index of deviations from boys' ideal body size that was comparable for boys heavier or thinner than their ideal. As with girls, higher levels of boys' discrepancy scores on this measure indicated higher levels of dissatisfaction.

**Body-related cognitions.** Using items adapted from existing instruments (Cooper & Fairburn, 1987; Garner & Garfinkel, 1979), we created a brief checklist for this study to examine the frequency of adolescents' cognitions about their body appearance and size (1 = *never*, 5 = *all the time*). Separate factor analyses conducted for boys and girls with an oblique rotation each revealed the presence of two distinct subscales (i.e., obesity cognitions, muscle/fitness cognitions), with subtle differences between genders. For girls, a mean was computed for the five items reflecting obesity cognitions (e.g., "How often have you thought about having fat on your body?"; "How often have you felt fat?"; "How often have you felt too thin or scrawny?" [reverse coded]; "How often have you thought about wanting to be thinner?"; "How often have you worried about gaining two pounds?";  $\alpha = .84$ ). A mean was computed for two additional items reflecting muscle/fitness cognitions ("How often have you thought about wanting to be more muscular?"; "How often have you thought about wanting to be more physically fit?";  $r = .32, p < .001$ ). Factor analyses revealed similar results for boys with two exceptions. First, one item ("How often have you worried about gaining two pounds?") failed to load uniquely on any factor and was therefore removed from analyses of boys' body-related cognitions. Second, one item loading on the obesity cognitions factor for girls, when reverse coded, loaded on the muscle/fitness factor as originally coded for boys ("How often have you felt too thin or scrawny?"). Thus, means were computed for the three remaining items as a measure of obesity cognitions ( $\alpha = .86$ ) and for the three items of muscle/fitness cognitions ( $\alpha = .63$ ).

**Dieting.** Four items consistent with past research were included as an index of dieting behavior (Cooper & Fairburn, 1987; Garner & Garfinkel, 1979). For each item, adolescents were asked to report how often (1 = *never*, 3 = *once a week*, 5 = *every day*) each behavior was used in the past month as a strategy to change body weight or shape ("changed your eating habits"; "exercised"; "consumed nutritional supplements, such as vitamins, herbs, proteins"; "consumed weight loss or weight gain products"). A mean score was computed across all four items; internal consistency was fairly comparable for both girls ( $\alpha = .53$ ) and boys ( $\alpha = .63$ ).

**Peer-rated social preference and social reputation.** Using an alphabetized roster of all grade mates, adolescents were instructed to nominate

an unlimited number of peers for four sociometric items. The order of names was counterbalanced on this roster to control for possible effects of alphabetization on nominee selection. Adolescents nominated those peers with whom they "liked to spend time with the most" and "liked to spend time with the least." Scores were derived in accordance with formal guidelines used in this research (Coie & Dodge, 1983). A standardized score was computed on the basis of the number of nominations that each teen received for these items, and the difference between "liked most" and "liked least" scores was computed and restandardized to create a measure of social preference, with higher scores indicating higher likability among peers (Coie & Dodge, 1983). Adolescents also were asked to nominate those peers who were "most popular" and "least popular" (LaFontana & Cillessen, 1999; Parkhurst & Hopmeyer, 1998). Standardized scores were computed for responses to each of these items, and a difference score was computed and restandardized to indicate each adolescent's social reputation, with higher scores indicating higher levels of reputation-based popularity. Sociometric assessments that have used these administration and scoring procedures have yielded the most reliable and valid indices of peer status and peer popularity (Coie & Dodge, 1983).

## Results

### Descriptive Statistics

Analyses first were conducted to examine gender differences in the main study constructs (see Table 1 for means and standard deviations); *t* tests revealed no significant differences in body dissatisfaction, dieting behavior, peer acceptance/rejection, or peer popularity between boys and girls. We examined gender differences in body-related cognitions using only items common to both genders. Girls reported significantly higher levels of obesity cognitions than boys,  $t(440) = -10.52, p < .0001$ , and boys reported greater levels of muscle/fitness cognitions than girls,  $t(440) = 3.42, p < .0001$ .

There were no differences in body dissatisfaction or dieting behavior between girls from different ethnic groups. The mean perceived body size was significantly greater among African American girls ( $M = 6.58, SD = 2.31$ ) as compared with Caucasian girls ( $M = 5.73, SD = 2.02; t = 2.45, p < .05$ ). Caucasian girls reported significantly more thoughts about dieting ( $M = 10.04, SD = 2.86$ ) than African American girls ( $M = 9.83, SD = 3.03; t = -0.41, ns$ ). Ethnicity initially was examined as a potential moderator in all analyses reported below; no significant effects for ethnicity emerged.

Table 1  
Bivariate Associations Among Primary Variables for Girls (Above Diagonal) and Boys (Below Diagonal)

Variable	Body dissatisfaction	Obesity cognitions	Muscle/fitness cognitions	Dieting behavior	Social preference	Social reputation
Girls, <i>M</i> ( <i>SD</i> )	1.59 (1.41)	3.26 (1.19)	3.27 (0.89)	2.50 (0.75)	-0.03 (0.99)	0.02 (1.06)
Body dissatisfaction	—	.50****	.27****	.20***	.01	-.10
Obesity cognitions	.25***	—	.42****	.32****	.10	.03
Muscle/fitness cognitions	.26***	.24***	—	.18***	.23****	.08
Dieting behavior	.00	.14**	.25***	—	.12	.17***
Social preference	-.08	-.14	.00	.06	—	.35****
Social reputation	-.09	-.09	.06	.19**	.50****	—
Boys, <i>M</i> ( <i>SD</i> )	1.63 (1.20)	2.17 (1.02)	3.56 (0.92)	2.57 (0.85)	0.05 (1.01)	-0.03 (0.91)

\*\*  $p < .01$ . \*\*\*  $p < .001$ . \*\*\*\*  $p < .0001$ .

Correlations among primary variables were computed to examine bivariate associations (see Table 1). For both girls and boys, results revealed significant associations between dieting behavior and social reputation but not social preference. However, body dissatisfaction was not significantly associated with either measure of peer status for girls or boys. Results also revealed that the association between body dissatisfaction and obesity cognitions was stronger for girls than boys, Fisher's  $z = 2.96, p < .01$ ; the association between body dissatisfaction and dieting was stronger for girls than boys, Fisher's  $z = 2.05, p < .05$ ; and the association between muscle/fitness cognitions and social preference was stronger for girls than boys, Fisher's  $z = 2.36, p < .05$ .

### Associations Between Self-Reported Body Size and Peer-Reported Peer Status

Analyses also were conducted to examine associations among perceived body size, peer-reported peer acceptance/rejection, and popularity. Both linear and curvilinear associations were examined; an inverted U-shaped curve was expected for boys, indicating that the lowest levels of popularity were associated with body shapes at each extreme of the silhouette scale. Both linear and curvilinear associations also were examined for girls.

Using hierarchical multiple regression, we entered (a) boys' perceived body size as a dependent variable, (b) social preference and social reputation on an initial step to examine linear effects, and (c) quadratic terms for each measure of peer status on a second step to examine curvilinear effects. A significant model was re-

vealed for the concurrent prediction of boys' actual body size (total  $R^2 = .08, p < .001$ ). Although no significant effects were revealed for linear terms, a significant curvilinear effect ( $\Delta R^2 = .08$ ) was revealed for social reputation only ( $\beta = .48, p < .05$ ). As predicted, lower levels of popularity were associated with boys' reports of thin and heavy silhouettes, whereas higher levels of popularity were associated with boys' reports of muscular silhouettes (see Figure 1).

A similar regression analysis was conducted to examine the association between body size and peer status for girls. A significant linear trend was revealed for the association between body size and social reputation only ( $R^2 = .04, p < .01$ ). Results revealed that larger body shapes were associated with lower levels of peer-reported popularity ( $\beta = -.09, r = -.19, p < .01$ ). No significant association for social preference or significant curvilinear effects were revealed for girls.

### Peer Status as a Concurrent Predictor of Dieting Behavior

A final goal of this study was to examine whether reputation- and/or preference-based measures of peer status might offer an incremental contribution to the concurrent prediction of dieting behavior after accounting for the effects of adolescents' body dissatisfaction and weight-related cognitions. Two hierarchical multiple regressions were conducted to examine this hypothesis among girls and boys, respectively. For each analysis, (a) dieting behavior was entered as a dependent variable; (b) adolescents'

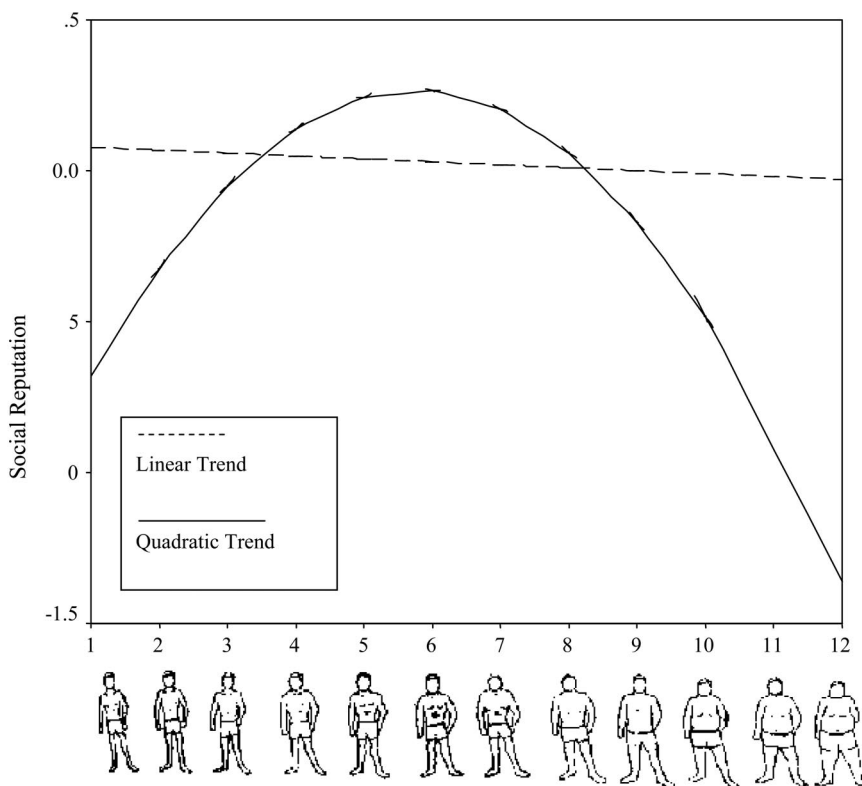


Figure 1. Linear and curvilinear associations between boys' self-reported body size and peer-reported social reputation.

body dissatisfaction, obesity cognitions, and muscle/fitness cognitions were entered on an initial step; and (c) peer-reported measures of social preference and social reputation were entered on a second step (see Table 2). Results revealed a similar pattern of findings across gender. For girls, higher levels of obesity cognitions were significantly associated with reports of more frequent dieting behavior. After accounting for this association, a significant effect for social reputation suggested that higher levels of peer-reported popularity were also significantly associated with more frequent dieting behavior. For boys, higher levels of muscle/fitness cognitions were associated with reports of more frequent dieting behavior; above and beyond this association, greater levels of peer-reported popularity also were associated with higher levels of dieting.

### Discussion

Although past research frequently has posited important peer influence effects on adolescent perceived body image, dissatisfaction, and weight-related behaviors, surprisingly few researchers have examined the potential role of peers using constructs and methods from the peer relations literature or have investigated basic assumptions regarding peer status correlates of weight-related constructs. Results from this investigation offer important preliminary support for several tenets of a peer-influence model. Specifically, findings indicate that (a) “ideal” body shapes are significantly associated with high levels of peer-perceived popularity, but not peer likability, among adolescents; and (b) peer popularity is significantly associated with dieting behavior, after accounting for body dissatisfaction and weight-related cognitions. We find it interesting that the results revealed some similarities and differences across gender.

Consistent with past research suggesting negative stereotypes associated with obesity (Greenberg, Eastin, Hofschire, Lachlan, & Brownell, 2003), findings for girls indicated that lower levels of peer-perceived popularity were associated with larger body shapes. For boys, results indicated that both thin and heavier body shapes were associated with lower levels of boys’ peer-perceived popularity, which is consistent with recent work regarding pressures

toward muscle mass and fitness among men (Cochrane & Pope, 2001). Given adolescents’ primary reliance on peers as a source of reflected appraisal during a critical developmental period, findings have significant implications. Messages within the media or family promoting “ideal” body shapes may be locally reinforced within adolescents’ own peer groups and associated with social rewards (i.e., peer popularity) that are particularly salient during this developmental stage. Adolescents who desire to achieve high levels of status among peers may be motivated to engage in behaviors that will help them achieve an “ideal” body shape.

Analysis of concurrent associations between measures of peer status and dieting behavior offered a preliminary test of this idea. We find it interesting that the results suggested that both girls and boys reported comparable levels of body dissatisfaction and also comparable frequencies of cognitions related to their weight and body shape. As would be expected, weight-related cognitions among girls more frequently pertained to concerns regarding obesity than about musculature and fitness, whereas among boys the reverse was true. However, results regarding the relevance of peer-perceived popularity as a concurrent predictor of dieting were significant for both girls and boys. These findings, as well as others from exploratory analyses of gender differences in this study, hopefully will guide future research efforts among both adolescent girls and boys.

Overall, results suggest that there may be strong social reinforcements to achieve an ideal body shape among adolescents. These findings bolster evidence from related work suggesting that adolescents’ perceptions of their peers’ values and attitudes may be important correlates of body dissatisfaction and eating disordered behaviors. Findings also offer important avenues for preventive interventions, including the use of peer-led programs to promote fitness and healthful eating habits.

Future research in this area would benefit by addressing some of the limitations of this study. Although the use of peer-reported measures of peer status is a significant contribution of this study, measures of body shape, dissatisfaction, and dieting exclusively relied on self-report. We assessed a variety of risk behaviors in this study and thus used shortened measures to briefly screen dieting behaviors to assess these multiple constructs. This is a study limitation; findings require replication with traditional measures of dieting. Objective measures of adolescents’ actual body shape and body mass index in future research will allow for an examination of adolescents’ perceptions and actual body size as correlates of peer status. A measure that separates a desire for muscularity and a “toned” look from simply overall body weight (e.g., overweight vs. thin) would strengthen future work in this area. Similarly, the assessment of adolescents’ distress regarding their body size is important to conceptualize the potential effects of body dissatisfaction. In the existing eating disorders literature, discrepancy and distress are often conflated; it is usually assumed that discrepancy means that individuals are dissatisfied with their current body. Also, the generalizability of these findings to adolescents of different ethnic backgrounds or levels of socioeconomic status should not be assumed, as different norms, attitudes, and behaviors may exist and be rewarded in different peer groups. Future work involving adolescents from a higher risk or clinically referred sample would offer an opportunity to examine peer influences relevant to severely maladaptive eating behaviors. Longitudinal studies are

Table 2  
*Body Dissatisfaction, Weight-Related Cognitions, and Reputation- and Preference-Based Peer Status as Concurrent Predictors of Girls’ and Boys’ Dieting Behavior*

Variable	Girls		Boys	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	.11***		.08**	
Body dissatisfaction		.09		.09
Obesity cognitions <sup>a</sup>		.23**		.10
Muscle/fitness cognitions <sup>a</sup>		.06		.25**
Step 2	.03*		.03*	
Social reputation		.16*		.19*
Social preference		.03		.02
Total $R^2$	.14***		.11**	

<sup>a</sup>Subscales that used gender-specific items as described in the *Method* section were used for this analysis.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

also needed to examine potential prospective and reciprocal associations between peer status, body shape, and dieting behavior.

Overall, results from this study offer evidence to suggest that adolescents' perceived body size and dieting behavior are associated with reputations of popularity among peers in a manner that might lead to problematic weight-related behaviors and cognitions. The powerful influence of peers has previously been demonstrated for numerous health and health-risk behaviors. Recognizing the developmental salience of peer relationships during adolescence will be necessary when designing prospective preventive interventions for eating disorders.

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