Weight and muscularity concerns as longitudinal predictors of body image among early adolescent boys: A test of the dual pathways model

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Abstract

The purpose of this research was to examine the longitudinal contributions of weight loss and muscularity concerns as dual pathways to body image dissatisfaction among early adolescent boys. Study 1 included 67 boys who reported on weight loss concerns, internalized muscular ideal, BMI, and body dissatisfaction during 7th grade and 1 year later. In Study 2, 87 7th and 8th grade boys were assessed in the fall and spring of a school year. The results confirmed that although both weight and muscularity concerns were related to body dissatisfaction, concern with weight loss more strongly detracted from a positive body image than did muscularity concern. The findings are discussed in terms of potential developmental variations in the relative contribution of weight and muscularity to body dissatisfaction among adolescent boys.

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Keywords: Body image; Adolescent boys; Weight; Muscularity; BMI

Introduction

The desire to develop muscularity has emerged as a central issue associated with male body image (McCreary & Sasse, 2000; Thompson & Cafri, 2007). The sociocultural pressure for the ideal muscular build has been increasingly evident in recent years in the greater attention given to muscularity in the media and lives of men (Leit, Gray, & Pope, 2001; Pope, Olivardia, Gruber, & Borowiecki, 1999). These sociocultural trends have seemingly had an impact on adolescent boys in that muscularity has been reported as a common concern (Hargreaves & Tiggemann, 2006) during the middle school and high school years and has been related to strategies to increase muscularity, such as body building, food supplements, and anabolic steroid use (Cafri et al., 2005; Drewnowski, Kurth, & Krahn, 1995; Ricciardelli & McCabe, 2003). Furthermore, the drive for muscularity has been related to lower self-esteem, heightened depression, body dissatisfaction, and body image disturbances among adolescent boys (Labre, 2002; McCreary & Sasse, 2000; Ricciardelli & McCabe, 2004; Smolak & Stein, 2006).

Although there is ample evidence that muscularity concerns have been important in the development of body image among males (Thompson & Cafri, 2007), there has also been evidence that weight loss concerns should be considered a central aspect of body image. Among adolescent boys, the experience of weight concerns has been related to dieting, eating disorders, and body dissatisfaction. Boys who have higher BMI
levels have been more likely to engage in strategies to lose weight during preadolescence (McCabe & Ricciardelli, 2005; Saling, Ricciardelli, & McCabe, 2005) and adolescence (Neumark-Sztainer, Story, Falkner, Beuhring, & Resnick, 1999). In a longitudinal study of boys ages 6–14, increases in weight significantly predicted heightened disordered eating in the third year of the study (Gardner, Stark, Friedman, & Jackson, 2000). Furthermore, boys who are heavier as indicated by higher BMI scores or perceive themselves to be too heavy have been found to have greater body dissatisfaction (Jones, Vigfusdottir, & Lee, 2004; Lund, Frisen, & Hwang, 2007; Paxton, Eisenberg, & Neumark-Sztainer, 2006; Ricciardelli, McCabe, Lillis, & Thomas, 2006).

It is important to note that BMI and concern with weight loss among adolescent boys can vary across ethnic, cultural and socioeconomic groups (Mellor, McCabe, Ricciardelli, & Ball, 2004; Neumark-Sztainer et al., 1999). Still weight-related concerns and behaviors have been found to be as prevalent among a range of cultural groups compared to White adolescent boys and men (Neumark-Sztainer, Croll et al., 2002; Ricciardelli, McCabe, Williams, & Thompson, 2007).

On a societal level, the increasing rates of childhood and adolescent obesity have also made weight a prominent social issue. Recent reports have revealed that the prevalence of overweight adolescents has tripled over the last 25 years (Dietz, 2004). Approximately 30% of 12–19-year-old boys have been identified as at-risk or overweight because their body mass index (BMI) levels were greater than the 85th percentile (Neumark-Sztainer, Story, Hannan, & Croll, 2002; Ogden, Flegal, Carroll, & Johnson, 2002). Rising rates of obesity have also called attention to the social challenges for obese children and adolescents. Obese children and adolescents have been more frequently socially isolated (Strauss & Pollack, 2003) and targets of teasing and bullying than normal weight students (Janssen, Craig, Boyce, & Pickett, 2004). Thus the accumulating evidence at the social, cultural and psychological levels has indicated that weight loss concerns should be considered a central component in the development of body image for boys.

Even though weight and muscularity concerns have been identified as potentially distinct aspects of body dissatisfaction for boys, much of the literature has examined these factors separately so that their unique contributions to body dissatisfaction have not been adequately assessed. In order to overcome this limitation, a recent study conceptualized weight and muscularity concerns as dual pathways to body dissatisfaction among adolescent boys from middle school and high school (Jones & Crawford, 2005). The results indicated that weight loss concerns and muscularity were not related to each other and had separate, distinct relationships with body dissatisfaction. However, the dual-pathway model was evaluated with cross-sectional data so that the prospective contributions of both weight and muscularity concerns to body dissatisfaction were not documented.

The purpose of this research was to examine the longitudinal contributions of weight and muscularity concerns to body image dissatisfaction among early adolescent boys. The early adolescent period was selected for study because of its developmental significance for the emergence of body image issues among boys (Ricciardelli et al., 2006; Smolak & Stein, 2006).

The primary expectation of the current study was that weight and muscularity concerns would represent dual pathways making significant yet distinct contributions to body dissatisfaction. Based on previous support for the model, it was hypothesized that individuals who expressed greater concern with these aspects of their appearance would experience greater negative affect about their body image.

BMI was also included as a factor in the model. Although there has been evidence linking BMI and body dissatisfaction (Paxton et al., 2006; Ricciardelli et al., 2006; Saling et al., 2005), we expected the association in the dual pathways model to be indirect and accounted for by the contributions of weight and muscularity concerns to body dissatisfaction. This prediction is based on previous research in which BMI had distinct relationships with weight and muscularity concerns which in turn made independent contributions to body dissatisfaction (Jones & Crawford, 2005). This indirect pattern suggested that it was the individual concerns associated with BMI such as reflected in weight loss or muscularity that were the critical links to body dissatisfaction.

A positive relationship was expected between BMI and weight loss concerns. Previous research has generally indicated that among preadolescents and adolescent boys, higher BMI status has been related to greater dieting and body dissatisfaction in both cross-sectional (Jones, 2001; Jones et al., 2004; Newman, Sontag, & Salvato, 2006) and longitudinal studies (Paxton et al., 2006; Ricciardelli et al., 2006; Saling et al., 2005).

The hypothesized relationship between BMI and muscularity concerns was expected to be negative based
on previous research. Boys who considered muscularity to be important (Ricciardelli et al., 2006; Smolak, Levine, & Thompson, 2001) or were dissatisfied with their current levels of muscularity (Jones & Crawford, 2005; McCabe & Ricciardelli, 2005) have been more likely to have lower BMIs. It should be noted, however, there have been inconsistent findings in the relationship between BMI and muscularity concerns. Other studies of males ranging from the preadolescent through the college years have reported no relationship between BMI and several different measures of muscularity concerns (McCreary, Karvinen, & Davis, 2006; Ricciardelli et al., 2006; Saling et al., 2005; Smolak & Stein, 2006).

We evaluated the model on two independent, non-overlapping samples of early adolescent boys. In the first sample, boys were followed over a year from 7th to 8th grade. The second study included 7th- and 8th-grade boys and took place over a 6-month period during one academic year.

**Study 1**

**Method**

**Participants**

The longitudinal sample included 67 boys (mean age = 12.6 years) from two middle schools in a major metropolitan area of the Northwest. The 82 initial participants volunteered when they were in the 7th grade. Eighty-two percent of the original sample responded to the second assessment approximately 1 year later. There were no differences on any of the study variables between the boys in the longitudinal and attrition samples.

The students were from middle- to upper–middle-class backgrounds as inferred on the basis of school district characteristics and student-reported parental education levels (e.g., 75% of the fathers were reported to have a college degree). The sample was primarily European American (67%) and Asian American (20%).

**Measures**

**Weight loss concern.** The seven-item drive for thinness scale from the Eating Disorder Inventory (Garner, Olmstead, & Polivy, 1983) assessed concern with weight and motivation for dieting. Boys rated each item on a 6-point scale. Items included “I think a lot about wanting to be thinner,” and “I am terrified of gaining weight.” Because the first item in the original scale (“I eat sweets and carbohydrates without feeling nervous”) detracted considerably from the internal consistency, it was dropped from consideration. The remaining six items were summed and formed a scale with excellent internal reliability ($\alpha = .92$).

**Muscularity concern.** A modified version of the Internalization scale of the Sociocultural Attitudes Towards Appearance Questionnaire developed by Heinberg, Thompson, and Stormer (1995) was used to assess the boys’ acceptance of media muscular images as the appearance ideal. Five items from the original scale were modified to generate a male version with a focus on muscularity (“Photographs of muscular men and boys make me wish that I were muscular.”). Responses were scored on a 5-point scale ranging from “Disagree Completely” to “Agree Completely.” Higher scores indicated the adoption of an internalized muscular ideal.

The scale items were similar to those recently developed for young boys and girls (Cusumano & Thompson, 2000; Smolak et al., 2001). Previous research has confirmed the unitary factor structure of the modified scale as well as adequate internal and test–retest reliabilities (Jones et al., 2004). The alpha for the current study was .86.

**Body dissatisfaction.** The body dissatisfaction sub-scale from the Eating Disorder Inventory (Garner et al., 1983) was used to measure body image dissatisfaction. Four of the original nine items designed for girls (two for hips and two for thighs) were altered for the boys to assess their satisfaction with chest and bicep size. The selection of these specific body parts for the boys was based empirically on factor loadings for evaluating male body esteem (Franzoi & Shields, 1984). Responses were scored on a 6-point scale (“Never” to “Always”) with higher scores indicating greater dissatisfaction with one’s body. Previous research has demonstrated that the modified scale has adequate internal consistency ($\alpha = .80$) and 1-year test–retest reliability ($r = .57$) (Jones, 2004). The internal consistency in the current study was also adequate ($\alpha = .81$).

**Weight and height.** From the students’ self-reported height and weight, a body mass index was computed using the formula, body mass index = kg/m$^2$.

Participants also indicated their ideal weight. The desire to lose or gain weight was determined by subtracting the current weight from the ideal weight. Positive values reflected a desire to gain weight whereas negative values indicated the desire to lose weight. From the discrepancy scores, three separate categories of ideal weight were constructed. The same-weight
category included boys for whom their current weight was within $\pm 1$ pound of their ideal weight. The gain weight category was based on discrepancy scores great than +1. The lose weight category included boys whose discrepancy score was greater than $-1$ pound.

**Procedures**

Students who provided both parental consent and student assent were included. The questionnaires were administered in the spring of 2 consecutive years either during a class or in another room at the school during regular school hours. Only a portion of the scales from the survey is reported here.

**Results**

The correlations among the primary study variables and the descriptive statistics are presented in Table 1. There were moderate correlations among the variables except for BMI which was negligibly correlated with the other variables. Still BMI ($M = 20.19$) was similar to the levels reported in other research on middle school boys ($M = 20.13$, Smolak et al., 2001; $M = 20.86$, Smolak & Stein, 2006). The discrepancy scores between ideal and current weight were available for 61 of the participants because of missing data. The final distribution indicated that 34% of the boys wanted to maintain their current weight whereas 38% wanted to lose weight and 28% wanted to gain weight.

Two separate simultaneous regression analyses evaluated the relationships between body dissatisfaction and T1 predictors. In the first analysis, we examined the concurrent relationships in order to compare the results with previous cross-sectional research. T1 body dissatisfaction was the dependent variable and the T1 measures of drive for thinness, internalized muscular ideal, and BMI were the predictor variables. All predictors were entered simultaneously. This model was significant, $F(3, 62) = 7.87, p < .001$ and accounted for 28% of the variance in T1 body dissatisfaction. In the second analysis, we evaluated the longitudinal relationships between T2 body dissatisfaction and the T1 measures. On the first step, when only T1 body dissatisfaction was entered as a predictor, the model accounted for 23% of the variance, $F(1, 64) = 19.44, p < .001$. In the next step, all the T1 measures were entered simultaneously and accounted for an additional 11% of the variance, $F(4, 61) = 7.71, p < .001, R^2 = .34$.

A review of the standardized coefficients in Table 2 indicated that weight loss concern as measured by drive for thinness was the stronger contributor to body dissatisfaction at both T1 and T2. Boys who endorsed weight loss concerns had significantly higher levels of body dissatisfaction at both assessments. In the longitudinal model, it was evident that weight loss concern continued to be a significant predictor of T2 body dissatisfaction even after controlling for T1 body dissatisfaction. However, in the multivariate models,

<table>
<thead>
<tr>
<th>Variables</th>
<th>Study 1 $n = 67$</th>
<th>Study 2 $n = 87$</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1 body dissatisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1 drive for thinness</td>
<td>.36***</td>
<td>.25*</td>
</tr>
<tr>
<td>T1 internalized muscular ideal</td>
<td>.22*</td>
<td>–</td>
</tr>
<tr>
<td>T1 drive for muscularityb</td>
<td>–</td>
<td>.19*</td>
</tr>
<tr>
<td>T1 BMI</td>
<td>.16</td>
<td>.29**</td>
</tr>
<tr>
<td>Total $R^2$</td>
<td>.28</td>
<td>.26</td>
</tr>
<tr>
<td>T2 body dissatisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1 body dissatisfaction</td>
<td>.48***</td>
<td>.66***</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.23</td>
<td>.43</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1 body dissatisfaction</td>
<td>.31*</td>
<td>.58***</td>
</tr>
<tr>
<td>T1 drive for thinness</td>
<td>.29*</td>
<td>.15</td>
</tr>
<tr>
<td>T1 internalized muscular ideal</td>
<td>.15</td>
<td>–</td>
</tr>
<tr>
<td>T1 drive for muscularityb</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>T1 BMI</td>
<td>.03</td>
<td>.03</td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td>.11</td>
<td>.03</td>
</tr>
<tr>
<td>Total $R^2$</td>
<td>.34</td>
<td>.46</td>
</tr>
</tbody>
</table>

* $p < .07$.  
** $p < .05$.  
*** $p < .01$.  
**** $p < .001$.  

a Measure used only in Study 1.  
b Measure used only in Study 2.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Study 1: correlations and descriptive statistics for study variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1. T1 drive for thinness</td>
<td>–</td>
</tr>
<tr>
<td>2. T1 internalized muscular ideal</td>
<td>.35</td>
</tr>
<tr>
<td>3. T1 body mass index</td>
<td>.20</td>
</tr>
<tr>
<td>4. T1 body dissatisfaction</td>
<td>.47</td>
</tr>
<tr>
<td>5. T2 body dissatisfaction</td>
<td>.48</td>
</tr>
<tr>
<td>Mean</td>
<td>10.62</td>
</tr>
<tr>
<td>SD</td>
<td>5.03</td>
</tr>
</tbody>
</table>

Note. Correlations greater than .21, $p < .05$.  

boys’ internalized muscular ideal and BMI were not significant predictors either concurrently or longitudinally.

In order to better understand the body image issues connected to weight loss concerns, we evaluated the mean differences between the ideal weight categories in a series of one-way ANOVAs. The \( p \) level was set at \( < .006 \) based on Bonferroni’s correction to control for Type I error. Follow-up comparisons between the three groups were made using Tukey’s procedure. The means and statistical results are presented in Table 3.

The mean discrepancy between the ideal weight and current weight indicated that boys in the lose weight category wanted to decrease their weight by about the same amount that the boys in the gain category desired to add to their bodies (12 pounds vs. 11 pounds, respectively). These different ideal weights appeared to be connected to BMI in that the boys with the highest BMI levels wanted to lose weight and boys with the lowest BMI levels wanted to gain weight. The boys in the same-weight group had BMI levels midway between the other two groups. Interestingly, although the boys who wanted to gain weight had the highest commitment to the muscular ideal, the differences between the groups were not significant.

Discussion

The results of Study 1 indicate that the clarity of the dual-pathway model evident in cross-sectional research is less apparent in the longitudinal analysis. In previous cross-sectional research on middle school and high school boys (Jones & Crawford, 2005), both muscularity and weight concerns contributed equally to body dissatisfaction. In the current cross-sectional and longitudinal models, however, only weight loss concerns and not muscular ideals were more strongly related to body dissatisfaction for the middle school boys. Furthermore, weight loss concerns continued to have a significant direct relationship with T2 body dissatisfaction even after controlling for T1 body dissatisfaction. The centrality of weight loss was also evident in the analysis of the ideal weight categories. There was a consistent pattern of higher drive for thinness, BMI, and body dissatisfaction for the boys who wanted to lose weight. These results suggest that for early adolescent boys, weight issues have a more negative association with body dissatisfaction than do muscularity concerns.

The discrepancy across studies could be due in part to differences in the age ranges. The initial cross-sectional model (Jones & Crawford, 2005) included boys from middle school and high school. The support for the dual pathways could have reflected the greater salience of muscularity concerns especially among the older boys. In addition, the variation in outcomes may reflect the measurement of muscularity concerns. The current study used the endorsement of internalized muscular ideals to represent the level of muscularity concern whereas the previous research assessed muscularity concern with the attitudinal aspects of the drive for muscularity (McCready & Sasse, 2000). Even though research has demonstrated a linkage between internalized muscular ideal measure and boys’ body dissatisfaction (Jones, 2004; Smolak et al., 2001), it could be that the distinction between adopting media ideals and the more direct self-appraisal evident in the drive for muscularity could have affected the relationships in the multidimensional model.

Therefore, in an effort to replicate and extend the findings from Study 1, a different sample of early adolescent boys was recruited to evaluate the dual-pathway model. In addition, Study 2 included an alternative assessment of the motivation to achieve a...
muscular build (McCreary & Sasse, 2000) for conceptual replication.

**Study 2**

**Method**

**Participants**

A non-overlapping sample of middle school boys was recruited from two middle schools in a major suburban school district in the Northwest. The longitudinal participants included 51 7th grade boys (mean age = 12.5 years) and 36 8th grade boys (mean age = 13.4 years). The 87 students represented 73% of the original sample (n = 119) who responded to the second assessment. There were no differences between the longitudinal and attrition samples in the study variables.

The sample was primarily European American (50%), and Asian American (25%) based on self-reported race/ethnicity. The students were from lower-middle- to middle-class backgrounds based on school district characteristics and student-reported parental education levels (e.g., 53% of the fathers were reported to have a college degree).

**Measures**

The measures were the same as in Study 1 with one exception: a modified version of the drive for muscularity scale was used instead of the internalized muscular ideal. All alpha coefficients for this sample were adequate (drive for thinness, \( \alpha = .89 \); T1 body dissatisfaction, \( \alpha = .79 \); T2 body dissatisfaction, \( \alpha = .83 \)).

**Drive for muscularity.** The desire to gain muscle mass was evaluated by the 4 items from the drive for muscularity scale (McCreary & Sasse, 2000) that focused on the general motivation for muscularity. The items were “I wish I were more muscular,” “I think I would feel more confident if I had more muscle mass,” “I think that I would look better if I gained 10 pounds in bulk,” and “I think I would feel stronger if I gained a little more muscle mass.” All four items loaded on the first factor that emerged in an analysis of the drive for muscularity scale (McCreary, Sasse, Saucier, & Dorsch, 2004). The three other items that defined the muscularity-oriented factor in the validation study referred to evaluations of particular body parts and were not included because of their similarity to the body dissatisfaction scale.

Previous research with the modified scale has reported adequate internal consistency (Jones & Crawford, 2005). Responses to the 4 items were scored on a 5-point scale (“1” = Disagree Completely; “5” = Agree Completely) and summed across items (\( \alpha = .90 \)).

**Procedures**

The students responded to a survey in the fall and again 6 months later in the spring of an academic year. Students who provided both parental consent and student assent were included. The questionnaire was administered during school hours in a room provided in the school. Only a portion of the scales from the survey is reported here.

**Results**

Table 4 presents the correlations among the study variables and the descriptive statistics for Study 2. The mean values for the measures were slightly higher though still comparable to Study 1. The correlations tended to be moderate among the study variables and similar in pattern to Study 1 with two exceptions. Although the near-zero correlation between BMI and the measure of muscularity concerns was the same as in Study 1, BMI was more strongly related to body dissatisfaction in Study 2 than in Study 1. Furthermore, the cross-time stability of body dissatisfaction was greater in Study 2, perhaps reflecting the shorter time interval between assessments than in Study 1.

Simultaneous regression analyses again evaluated the concurrent and longitudinal relationships between body dissatisfaction and T1 measures of drive for thinness, drive for muscularity, and BMI. The initial analysis included the concurrent relationships between the T1 predictors and T1 body dissatisfaction as the dependent variable. The concurrent model was significant, \( F(3, 83) = 9.48, p < .001 \) and accounted for 26% of the variance. The standardized coefficients presented in Table 2 revealed that in this sample, boys who reported greater weight loss concerns and boys...
who had higher BMIs were more likely to express greater T1 body dissatisfaction. Drive for muscularity was a marginally significant \( p < .06 \) predictor of T1 body dissatisfaction.

The next set of analyses assessed the longitudinal prediction of T2 body dissatisfaction. In the first step, T1 body dissatisfaction accounted for 43% of the variance, \( F(1, 85) = 66.62, p < .001 \). For the second step, the full model was evaluated with all the T1 predictors entered simultaneously. The test of the longitudinal model was significant, \( F(4, 82) = 17.72, p < .001 \), and accounted for an additional 3% of the variance, Total \( R^2 = .46 \). The pattern of results presented in Table 2 indicated that, unlike Study 1, weight loss concerns did not continue to be a significant predictor of T2 body dissatisfaction when T1 body dissatisfaction was included in the model.

We once again explored the pattern of deviations between ideal and current weight groups. Compared to Study 1, fewer boys wanted to maintain their current weight (30%) or wanted to lose weight (30%), but more boys wanted to gain weight (40%). The one-way ANOVAs and means presented in Table 5 indicated that the boys in Study 2 wanted to lose more weight and gain more weight (approximately \( \pm 17 \) pounds) than the boys in Study 1 (approximately \( \pm 12 \) pounds). This difference may be due in part to the slightly higher BMI levels in Study 2. Still the pattern of differences between the ideal weight groups was fairly similar across the two studies. A review of the mean levels revealed that like the boys in Study 1, the boys in Study 2 who wanted to lose weight also had significantly higher BMI and drive for thinness levels compared to the other two groups. The differences for T1 body dissatisfaction were in the expected direction but only marginally significant.

### Conclusions

The primary goal of this research was to evaluate weight loss and muscularity concerns as dual pathways to body dissatisfaction. Although previous research has focused primarily on muscularity as the central feature of body image development for boys, this research adds to the literature by evaluating both weight and muscularity concerns as longitudinal predictors of body dissatisfaction over either 6 months or a year. One of the primary messages of this research is that during the early adolescent years, boys are concerned about weight and this concern with weight loss detracts more strongly from a positive body image than does concern with muscularity.

In Study 1, weight loss concerns continued to have a direct effect on T2 body dissatisfaction and thus had an independent impact on the prediction of body dissatisfaction. However, this relationship was not confirmed in the Study 2 longitudinal model where weight loss concern was not a significant predictor of T2 body dissatisfaction after controlling for T1 body dissatisfaction.

These variations could be related to sample and measurement differences in the two studies. For example, more boys in Study 1 indicated that they wanted to lose weight than in Study 2 and thus the importance of weight issues might have been stronger. This pattern may reflect the trend for dieting and exercise behaviors to be associated with higher SES backgrounds (Neumark-Sztainer, Story et al., 2002). Also the different time intervals for Studies 1 and 2 (1-year and 6-months, respectively) could have affected the results. Not surprisingly, the stability of body dissatisfaction was greater in Study 2 than over the 1-year interval for Study 1 and appears to have accounted for the majority of the variance in T2 body dissatisfac-

### Table 5

Study 2: mean differences for T1 study variables across ideal weight categories

<table>
<thead>
<tr>
<th>T1 variables</th>
<th>Lose weight ( n = 26 )</th>
<th>Same weight ( n = 26 )</th>
<th>Gain weight ( n = 34 )</th>
<th>( F ) Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( M )</td>
<td>( SD )</td>
<td>( M )</td>
<td>( SD )</td>
</tr>
<tr>
<td>Ideal weight–current weight</td>
<td>(-17.00^a )</td>
<td>21.54</td>
<td>(-.04^b )</td>
<td>.34</td>
</tr>
<tr>
<td>BMI</td>
<td>23.92^a</td>
<td>5.27</td>
<td>19.74^b</td>
<td>2.75</td>
</tr>
<tr>
<td>Drive for thinness</td>
<td>12.56^a</td>
<td>5.16</td>
<td>8.08^b</td>
<td>4.94</td>
</tr>
<tr>
<td>Drive for muscularity</td>
<td>9.92</td>
<td>4.83</td>
<td>9.27</td>
<td>5.72</td>
</tr>
<tr>
<td>Body dissatisfaction</td>
<td>25.12^a</td>
<td>8.50</td>
<td>19.38^b</td>
<td>8.64</td>
</tr>
</tbody>
</table>

Note. Row means with different superscripts are significantly different based on Tukey post hoc tests, \( p < .006 \). Effects sizes are in parentheses.

\(^{+} p = .03.\)

\(^{**} p = .006.\)

\(^{***} p < .001.\)
tion. Still the bivariate correlations demonstrate (Table 3) that weight concern was more strongly related to T2 body dissatisfaction than was muscularity concern.

Overall, it is clear that body dissatisfaction is a fairly stable aspect of self-evaluation among middle school boys and that weight concerns are a prominent aspect. The more consistent contribution of weight concerns is an unexpected outcome and should not be considered just a reflection of body size since the effects of BMI were controlled in the analyses. Neither is the result a function of the measure of muscularity concerns since the same pattern emerges in two samples with different assessments of muscularity concerns. It is also unlikely that the prominence of weight loss concerns in the model is due to the measurement of body dissatisfaction since both weight and muscularity features are equally represented in the modified version of the body dissatisfaction scale. Rather these results provide evidence on the importance of weight loss concerns as part of the developmental emergence of body dissatisfaction among early adolescent boys.

The importance of weight concerns for boys’ body dissatisfaction could certainly be due to the increasing societal attention given to weight as a public health concern and the greater prevalence of obesity among adolescents. Indeed, the average percentage of boys (around 34%) who indicated that they wanted to lose weight was higher in the current samples than in the previously reported level for adolescent males (around 22%; Middleman, Vazquez, & Durant, 1998). From this perspective, the prominence of weight loss concerns among adolescents could reflect the emerging social reality of obesity in the lives of males as well as females and an increasing emphasis on weight issues within the media.

Although the pattern of results suggests that a single path model might better reflect body image issues for early adolescent boys, developmental considerations should be paramount in the conceptualization of pathways to body dissatisfaction. Rather than focusing on a single pathway, research should be focusing on the developmental variations in the relative contribution of weight and muscularity to body dissatisfaction among boys. Weight issues are evident during childhood and adolescence (Ricciardelli et al., 2006) and may represent an early contributor to the development of body image among boys. For boys, the concern with muscularity may come later in that there may be an “entry lag” into the idealized appearance culture surrounding muscularity (Jones, 2004). If the concern for muscularity increases later in development, it could take on greater prominence as a contributor to body dissatisfaction as boys mature. Future research should follow older adolescents from high school into the college years in order to trace the developmental patterns and to evaluate the relative contributions of weight and muscularity concerns to body dissatisfaction.

The hypothesized relationships for BMI were supported in the connections between body mass and weight loss concerns. In both studies, the bivariate correlations indicated that boys with the higher BMIs endorsed more weight loss concerns. Furthermore, the boys who wanted to lose weight to achieve their ideal weight had the highest drive for thinness and BMI levels.

The expected negative relationship between BMI and muscularity concerns was not confirmed. The near-zero relationships between BMI and two different indicators of muscularity concerns adds to the growing body of literature that has reported an absence of relationship between BMI and various muscularity measures (McCreary et al., 2006; Ricciardelli et al., 2006; Smolak & Stein, 2006). This pattern of findings indicates that it is not, as hypothesized, the smaller boys with lower BMIs who are primarily concerned with gaining muscularity. As such, the result suggests a greater complexity in the motivations and interests in muscularity that are not connected in a singular way to BMI, at least during early adolescence.

Although this research provides support for the importance of weight in the development of body dissatisfaction, there are limitations that future research should address. First, this research examines body dissatisfaction only among early adolescent boys. The potential for developmental changes in the relative strength of weight and muscularity concerns is highly plausible and needs to be confirmed with a more extended age range of boys in different developmental periods and contexts. Second, the applicability of the model for more diverse ethnic/racial groups needs to be evaluated. Although recent research on an ethnically diverse sample of adolescent boys found no significant ethnic group differences in body dissatisfaction (Nishina, Ammon, Bellmore, & Graham, 2006), weight-related concerns and behaviors have been found to be as prevalent or more extreme across diverse groups than among White adolescent boys (Neumark-Sztainer, Croll et al., 2002). However, the relative contributions of weight and muscularity to body dissatisfaction have yet to be examined for diverse ethnic/racial groups.

Overall, this study contributes to the literature on body dissatisfaction among adolescent boys by provid-
ing prospective support for the importance of distinguishing between and assessing both weight and muscularity concerns. The cautionary implication of this research is that a singular focus on muscularity could distort the importance of this one aspect of body image and confirm stereotypic expectations without adequately exploring and understanding other important factors such as weight loss concerns for the body image development of early adolescent boys.

References


