Brief Report: Weight Dissatisfaction, Weight Status, and Weight Loss in Mexican-American Children

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Objective To assess the association between weight dissatisfaction, weight status, and weight loss in Mexican-American children participating in a weight management program. Methods Participants included 265 Mexican American children recruited for a school-based weight management program. All children completed baseline assessments and changes in standardized body mass index (zBMI) were monitored in at-risk for overweight and overweight children (i.e., >85th BMI percentile) who had been randomized to receive the weight loss intervention (n = 101). Results Participants classified as at-risk for overweight or overweight reported greater weight dissatisfaction than normal weight children. Lower weight dissatisfaction at baseline was associated with greater changes in zBMI at 6 months. Weight dissatisfaction did not change across the course of treatment. Conclusions Mexican-American children whose weight status is greater than normal have greater weight dissatisfaction. Children with greater weight dissatisfaction are less likely to lose weight in a weight management program and weight dissatisfaction remains stable over the course of treatment.

Key words Mexican American; overweight; treatment; weight dissatisfaction.

Research over the past few decades documents continual increases in prevalence of pediatric overweight (Ogden et al., 2006). Approximately 34% of children in the US are at-risk for overweight or overweight as defined by the Centers for Disease Control and Prevention (CDC) with the highest rates in ethnic minorities (Ogden et al., 2006). Because of the increasing prevalence and the detrimental physical and psychosocial health consequences (Dietz, 1998), intervention programs have gained increased attention. Despite progress, many programs are characterized by only small reductions in weight and high relapse rates (Epstein, Myers, Raynor, & Saelens, 1998). There is a need to better understand patient characteristics in an effort to tailor weight loss interventions to a child’s individual needs (Braet, 2006).

A number of psychosocial factors have been associated with overweight status in children. Overweight children are at increased risk of being discriminated against and experiencing social difficulties (Dietz, 1998), and health-related quality of life has been shown to decline as degree of overweight increases in both children (Zeller & Modi, 2006) and adolescents (Tyler, Johnston, Fullerton, & Foreyt, 2007). In addition, Robinson, Chang, Haydel, and Killen (2001) studied a multi-ethnic sample of 3rd grade children and found increases in weight concerns to be related to increases in degree of overweight across all ethnic groups. Together, these studies document negative psychosocial problems associated with increased weight in children.

There is little evidence, however, to show a relationship between social and emotional factors and weight loss. A recent review of factors associated with weight loss in adults suggested that overall psychological functioning (e.g., depression/mood) was not related to weight loss (Teixeira, Going, Sardinha, & Lohman, 2005). However, body image and body size satisfaction did impact weight loss. Individuals reporting the most displeasure with their body lose less weight (Teixeira et al., 2002, 2004; Traverso, Ravera, Lagattolla, Testa, & Adami, 2000). Although there is some evidence supporting an association between weight-related issues and treatment outcomes in adults, findings have yet to be generalized to children.
Epstein, Paluch, Saelens, Ernst, and Wilfley (2001) used the Kids’ Eating Disorder Survey (KEDS) to assess the extent of weight dissatisfaction in a sample of predominantly (97.8%) Caucasian children (ages 8–12) before beginning a weight management program. Two years after beginning the program, participants had lost weight but did not report changes in weight dissatisfaction. These limited data suggest that psychosocial variables are not likely to change across time for those in structured weight management programs.

Although ethnic minority youth have the highest rates of overweight (Ogden et al., 2006), few treatment efforts have been made with these populations (Summerbell et al., 2003). Additionally, weight concerns and body image dissatisfaction are prevalent in ethnic minority groups (Vander Wal & Thomas, 2004). Given the clear need for effective interventions, identifying factors that may impact treatment outcomes is warranted (Braet, 2006).

**Study Rationale**

This study examined weight dissatisfaction and its relation to weight status in Mexican-American children. The relation between weight dissatisfaction and weight loss was also assessed. Consistent with previous research (Robinson et al., 2001), Mexican-American children were expected to have increasing weight dissatisfaction with increasing weight. Analogous to the adult literature (i.e., Teixeira et al., 2005), we hypothesized that greater weight dissatisfaction would be associated with smaller reductions in weight during treatment. Further, consistent with findings by Epstein et al. (2001), weight dissatisfaction scores were expected to remain stable over the course of treatment.

**Method**

**Participants**

Participants were 6th (88%) and 7th (12%) grade children (51% females) recruited for a school-based weight management program. A total of 265 children from a charter school in Houston, Texas, returned consents signed by their parents and assented to participate in the study. These children completed baseline assessments. Children ranged in age from 10 to 14 (M = 12.16, SD = 0.67), and all self-reported being Mexican American. Approximately 95% of students participated in the free or reduced school lunch program. Participants were classified as normal weight (42%), at-risk for overweight (18%), and overweight (40%) according to CDC guidelines (Kuczmarski et al., 2002).

A total of 101 at-risk for overweight or overweight children were randomly assigned to an intensive weight loss intervention. Their results were used to assess the relationship between weight dissatisfaction and weight loss.

**Intervention**

Children assigned to the intensive intervention participated in a 12 week (4–5 days/week) instructor/trainer led intervention and attended an additional 3 months of weekly booster sessions. Intervention classes were held during an afternoon class period (35–40 min) and consisted of nutrition training (1 day/week) and physical activity training (3–4 days/week). Behavior modification strategies (e.g., self monitoring, token economy system, etc.) were used to promote adoption of program principles. Parents were invited to attend monthly meetings that provided information and training consistent with the aims of the program. Overall, those randomized to receive the intensive intervention (n = 101) reduced standardized body mass index (zBMI) (M = −0.15; SD = 0.17). Details of the program are described in greater detail elsewhere (Johnston et al., 2007).

**Measures**

**Anthropometric**

Heights and weights were collected at baseline and 6 months by trained researchers. Participants were instructed to remove heavy clothing and footwear prior to measurement of height with a Seca stadiometer and weight with a Tanita digital scale. Measurements were taken twice except in circumstances with greater error (i.e., 0.5 cm or 0.3 kg, respectively, between first and second measurements), where a third measurement was obtained. Scores were averaged. The zBMI was computed according to age- and gender-specific normative data provided by the Centers for Disease Control and Prevention (Kuczmarski et al., 2002).

**Weight Dissatisfaction**

Weight dissatisfaction was assessed at baseline and 6 months with the KEDS (Childress, Jarrell, & Brewerton, 1993), which has demonstrated sufficient psychometric properties (e.g., α = .73; r = .83). The KEDS is a 14-item self-report measure that instructs children to respond with “yes, no, or not sure” to questions about weight dissatisfaction (e.g., “Have you ever thought that you looked fat to other people?”) and purging/restricting behaviors. The purging/restricting subscale was not examined. The items were scored according to instructions provided by one of the authors (Brewerton, 2001).
Higher scores on the weight dissatisfaction subscale indicated greater dissatisfaction with weight. Due to concerns regarding the psychometric properties of the binge eating and body silhouette items (i.e., items 11–14; Childress, Brewerton, Hodges, & Jarrell, 1993; specifically, lack of factor loading on either the weight dissatisfaction or purging/restricting subscales) these items were excluded from the weight dissatisfaction subscale score.

Statistical Analyses
All statistical analyses were conducted with SPSS (version 15.0.1; SPSS Inc., Chicago, IL, USA) software. T-tests were used to assess differences in weight dissatisfaction across grade and gender. A one-way analysis of variance (ANOVA) was conducted (n = 265) to evaluate group differences (i.e., normal, at-risk for overweight, and overweight) in weight dissatisfaction. To examine whether weight dissatisfaction predicted changes in zBMI, a hierarchical regression was performed with participants (n = 101) previously assigned to the treatment condition. In Step 1, child zBMI was entered as a statistical control. In Step 2, baseline weight dissatisfaction was entered to predict child change in zBMI from baseline to 6 months. A paired sample t-test was conducted to examine whether weight dissatisfaction decreased between baseline and 6 month follow-up.

Results
Preliminary Analyses
T-tests revealed no significant differences in baseline weight dissatisfaction (M = 5.15, SD = 3.40) across grade, t(263) = −1.14, p = .26, or gender, t(263) = −.77, p = .44.

Weight Dissatisfaction Across Weight Status
Results of the ANOVA revealed significant differences across weight categories for weight dissatisfaction, F(2,262) = 67.16, p < .001. As expected, post hoc analyses (i.e., Tukey’s LSD, p < .001) revealed that at-risk for overweight (M = 6.09, SD = 3.09) and overweight children (M = 7.12, SD = 2.35) reported greater weight dissatisfaction than normal weight children (M = 2.86, SD = 3.01). The at-risk for overweight and overweight children did not differ statistically in terms of weight dissatisfaction (p = .09).

Weight Dissatisfaction and Weight Loss
Results of the hierarchical regression analysis indicated that baseline zBMI significantly predicted change in zBMI, R² = .11, F(1,99) = 12.60, p < .01. Similarly, the addition of baseline weight dissatisfaction accounted for additional variance, R² change = .04, F(1,98) = 5.05, p < .05. Regression statistics are summarized in Table 1.

Weight Dissatisfaction Among Mexican-American

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<thead>
<tr>
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<td>.03</td>
<td>.34**</td>
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<tr>
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<td>.03</td>
<td>.26**</td>
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<tr>
<td>Baseline weight dissatisfaction</td>
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<td>.01</td>
<td>−.22*</td>
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*p < .05; **p < .01.

Discussion
Childhood overweight studies have yet to examine the impact of weight dissatisfaction on weight loss though some evidence exists in the adult literature to suggest that weight-related psychosocial variables impact outcomes (Teixeira et al., 2005). Our study, specifically with Mexican-American children, replicated previous results demonstrating that increases in weight are associated with increases in weight dissatisfaction (Robinson et al., 2001). Additionally, we found that at-risk for overweight and overweight children did not differ in weight dissatisfaction. The study also demonstrated that greater weight dissatisfaction is associated with decreased weight reduction in treatment of pediatric overweight. Finally, consistent with previous research (Epstein et al., 2001) weight dissatisfaction appears to remain fairly stable over the course of treatment despite overall reductions in weight.

Our study focused on a specific psychosocial variable, weight dissatisfaction. The current study’s findings that children’s dissatisfaction with their weight is associated with poorer treatment outcomes along with findings that weight dissatisfaction remains stable even after weight loss suggests that intervention programs should consider specifically addressing weight dissatisfaction during the course of treatment. Because overweight children typically remain overweight even after treatment (Epstein et al., 1998), improving psychosocial functioning is especially important. Although this study is an initial step in better understanding the impact of weight-related issues on
weight loss, these results provide preliminary evidence that weight dissatisfaction may predict treatment success/failure in children.

It is unclear what mechanisms contribute to the relation between weight dissatisfaction and weight loss. One theory that may be useful for explaining these findings is the Yerkes–Dodson Law (Yerkes & Dodson, 1908), which suggests that moderate levels of arousal may enhance performance, whereas extreme levels of distress may negatively impact performance. Another potential explanation is that those extremely dissatisfied with their weight may expect unrealistic and prompt changes during treatment and experience even greater distress with lack of immediate and large results. Given that the more failures individuals experience with weight loss, the less likely they may be to participate in future weight management efforts, tailoring programs to ensure that as many participants as possible will be successful is crucial. Identifying factors associated with outcomes (either positive or negative) may increase success. These factors could be used to prescreen participants for weight management programs, providing an opportunity to address barriers to weight loss before beginning intervention. Factors that impact weight loss could also be addressed throughout treatment as they become relevant. Understanding and addressing social and personal issues may also encourage continued participation in treatment.

This study has several limitations. The data used were part of a larger study powered for weight loss (Johnston et al., 2007). Although the results provide evidence to suggest a role for weight dissatisfaction, a study powered to detect differences in weight loss based on weight dissatisfaction is needed to further clarify this relationship. Other factors related to weight dissatisfaction (e.g., distress, social difficulties, etc.) may be more explanatory and an in-depth study of multiple factors that impact weight loss efforts in children is needed. Exploration of additional weight-related issues should include concrete operational definitions as numerous terms likely representing a variety of constructs have been used throughout the literature (e.g., body dissatisfaction, image, size, shape, teasing, etc.) This study was conducted with 10 to 14-year old Mexican-American children and may not generalize to other ethnicities or age groups. Although overweight children of all ethnicities have been shown to have weight dissatisfaction, the impact of this variable on weight loss may differ among groups.

In summary, our results with Mexican-American youth are consistent with previous research indicating increasing weight concerns with increasing weight (Robinson et al., 2001) and tendency for weight dissatisfaction to remain unchanged across treatment (Epstein et al., 2001). Our study provided novel data indicating that increased distress with weight was associated with poorer outcomes in a weight loss intervention. Though additional studies are needed to confirm our findings, these results provide preliminary evidence about the potential impact that weight dissatisfaction may have on treatment outcomes in children. Given the paucity of data indicating successful weight loss in children, especially among Mexican-American children, additional studies are needed to further understanding of factors that may impact intervention efforts.

Acknowledgments

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Conflicts of interest: None declared.

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References


