Parent Conversations About Healthful Eating and Weight Associations With Adolescent Disordered Eating Behaviors

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IMPORTANCE The prevalence of weight-related problems in adolescents is high. Parents of adolescents may wonder whether talking about eating habits and weight is useful or detrimental.

OBJECTIVE To examine the associations between parent conversations about healthful eating and weight and adolescent disordered eating behaviors.

DESIGN Cross-sectional analysis using data from 2 linked multilevel population-based studies.

SETTING Anthropometric assessments and surveys completed at school by adolescents and surveys completed at home by parents in 2009-2010.

PARTICIPANTS Socioeconomically and racially/ethnically diverse sample (81% ethnic minority; 60% low income) of adolescents from Eating and Activity in Teens 2010 (EAT 2010) (n = 2793; mean age, 14.4 years) and parents from Project Families and Eating and Activity in Teens (Project F-EAT) (n = 3709; mean age, 42.3 years).

EXPOSURE Parent conversations about healthful eating and weight/size.

MAIN OUTCOMES AND MEASURES Adolescent dieting, unhealthy weight-control behaviors, and binge eating.

RESULTS Mothers and fathers who engaged in weight-related conversations had adolescents who were more likely to diet, use unhealthy weight-control behaviors, and engage in binge eating. Overweight or obese adolescents whose mothers engaged in conversations that were focused only on healthful eating behaviors were less likely to diet and use unhealthy weight-control behaviors. Additionally, subanalyses with adolescents with data from 2 parents showed that when both parents engaged in healthful eating conversations, their overweight or obese adolescent children were less likely to diet and use unhealthy weight-control behaviors.

CONCLUSIONS AND RELEVANCE Parent conversations focused on weight/size are associated with increased risk for adolescent disordered eating behaviors, whereas conversations focused on healthful eating are protective against disordered eating behaviors.

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Given the high prevalence of different types of weight-related problems in adolescents, including both obesity and eating disorders, parents may wonder whether talking with their adolescent child about eating habits and weight is useful or detrimental. Previous research has shown a significant association between family and parental weight teasing and more frequent use of disordered eating behaviors (eg, dieting, laxative use, fasting, binge eating) in adolescents, although not all associations have been consistent across studies. Additionally, parental encouragement of their adolescents to diet, parents may wonder if and how they should discuss topics related to healthful eating and weight, and whether conversations about eating and weight have the same negative effects on youth unhealthy weight-control behaviors (UWCBs) as weight teasing. Because adolescence is a time when more youths engage in disordered eating behaviors, it is important for parents to understand what types of conversations may be helpful or harmful in regard to disordered eating behaviors and how to have these conversations with their adolescents. Thus, this study aims to identify whether parents are having conversations about eating habits and weight with their adolescents, if these conversations are associated with adolescent disordered eating behaviors (ie, dieting, UWCBs, extreme UWCBs, binge eating), and whether associations differ by the content of the conversation (ie, focusing on healthful eating compared with discussing weight).

To date, research on parent weight-related conversations has focused primarily on parental encouragement for adolescent dieting. Parental encouragement of their adolescents to diet to control or lose weight has been associated with negative outcomes, including excessive worry about weight, dieting, binge eating, use of UWCBs, and higher body mass index (BMI; calculated as weight in kilograms divided by height in meters squared). Additionally, parental encouragement of their overweight adolescents to diet has been found to be associated with higher risks of depression, lower self-esteem, and being overweight after 5 years. Given the negative outcomes related to parent encouragement of their adolescents to diet, parents may wonder if and how they should discuss topics related to healthful eating and weight with their adolescents without increasing risk for disordered eating behaviors. Thus, there is a need for research that can examine different types of conversations, such as conversations that focus on healthful eating vs conversations that focus on weight/size or losing weight. This type of exploration will allow for identifying whether certain types of conversations have the potential to be helpful, rather than harmful, with regard to disordered eating behaviors in youth.

In addition, recent research has identified the importance of father involvement in prevention and treatment of youth disordered eating behaviors. For example, research has suggested that fathers’ weight dissatisfaction and fathers’ perception of daughter’s weight/size were associated with daughters’ dieting and weight dissatisfaction. Thus, it is important to examine the relationship between comments by mothers and fathers, separately and in combination, to gain a clearer picture of the home environment around weight-related conversations and adolescent disordered eating behaviors. Furthermore, it is important to look at how adolescents’ weight status might influence the way they experience conversations with their parents about healthful eating and weight. For example, research has shown significant associations between weight teasing and more disordered eating behaviors in obese adolescents. Thus, it is important to understand whether parents should approach weight-related conversations differently with adolescents who are normal weight vs overweight or obese, or avoid these conversations altogether.

The research questions in this study will address the gaps in the literature. Specific questions include the following: (1) What types of conversations (ie, healthful eating conversations, weight conversations) are mothers and fathers having with their children? (2) How are parent conversations about eating and weight associated with adolescent disordered eating behaviors (ie, dieting, UWCBs, and binge eating)? and (3) Is the association between parent eating and weight conversations and adolescent disordered eating behaviors stronger for adolescents who have 2 parents engaging in these conversations in comparison with 1 parent engaging in these conversations?

Findings from this study will be helpful for health care providers, clinicians who work with parents of adolescents, and parents themselves in understanding how best to talk with adolescents about healthful eating and weight, without inadvertently increasing risk for disordered eating behaviors such as UWCBs and binge eating.

**Methods**

**Study Design and Population**

Data for this analysis were drawn from 2 coordinated, population-based studies. Eating and Activity in Teens 2010 (EAT 2010) was designed to examine dietary intake, physical activity, weight-control behaviors, weight status, and factors associated with these outcomes in adolescents. Project Families and Eating and Activity in Teens (Project F-EAT) was designed to examine factors within the family and home environment of potential relevance to these weight-related behaviors. All study procedures were approved by the University of Minnesota’s Institutional Review Board Human Subjects Committee.

For EAT 2010, surveys and anthropometric measures were completed by 2793 adolescents from 20 public middle schools and high schools in the Minneapolis/St Paul metropolitan area of Minnesota during the 2009-2010 academic year. The mean (SD) age of the study population was 14.4 (2.0) years, and adolescents were approximately equally divided by sex (46.8% boys, 53.2% girls). The racial/ethnic backgrounds of the participants were as follows: 18.9% white, 29.0% African American or black, 19.9% Asian American, 16.9% Hispanic, 3.7% Native American, and 11.6% mixed or other race/ethnicity. The socioeconomic status (SES) of participants included 29.4% low SES, 24.3% low middle SES, 33.3% middle SES, 6.4% upper middle SES, and 2.8% high SES.

For Project F-EAT, data were collected by surveying up to 2 parents or caregivers (n = 3709) of the adolescents in EAT...
Survey Development

The EAT 2010 student survey44 and Project F-EAT parent survey45 are self-report instruments that assess a range of factors of potential relevance to weight-related variables among adolescents and parents. Survey development was initially guided by a review of preexisting instruments and surveys in the field of adolescent obesity46,47 and a theoretical framework that integrates family systems theory,48 social cognitive theory,50 and an ecological perspective.51 Drafts of the surveys were pretested by 56 adolescents and 35 parents from diverse backgrounds for clarity, readability, and relevance and were reviewed by an interdisciplinary team of experts. After revisions, the survey was additionally pilot tested with a different sample of 129 middle school and high school students and 102 parents to examine the test-retest reliability of measures over a 1- to 2-week period. Reliability results were used to make final changes to the survey.

Measures

Exposure variables (ie, parent healthful eating conversations and weight conversations) and outcome variables (ie, adolescent dieting, UWCB, and binge eating) used in the analysis are described in the eTable and eReferences in the Supplement.

Statistical Analysis

Differences in the distribution of variables between types of parental weight talk were assessed using χ2 tests. Our main analysis consisted of 4 separate logistic regression models that specified dieting, UWCB, extreme UWCB, and binge eating as dependent variables. Type of parental conversations (ie, no talking or weight conversations, healthful eating only conversations, weight conversations) was included as the predictor of primary interest using indicator variables. Because of the strong a priori belief that the association of the type of parental weight talk and adolescent behavior would vary by parent and adolescent sex and parent adolescent weight status, we tested for interactions by adolescent weight status, parent sex, and child sex. There was little evidence of interaction by child sex (1 of 16 interaction terms was statistically significant), so adolescents of both sexes were included in the same analyses. There were numerous significant interactions by child weight status and parent sex; thus, we estimated each of our 4 logistic models separately by parent sex (male, female) and adolescent weight status (overweight, ≥85th percentile; nonoverweight, <85th percentile).52,42-43 Additionally, all models were adjusted for adolescent sex, adolescent race, parental education, and parental BMI.

To examine the simultaneous effect of both parents’ conversations about healthful eating and weight on child eating behaviors and weight, we estimated a final set of regression models that were limited to only those adolescents who had 2 parents respond (n = 1157). Types of parent conversations were included in separate logistic regression models, stratified by child overweight status. Following each logistic model, we computed the average predicted probability of the outcome at each level of parental weight talk as well as the difference between those probabilities. Post hoc analyses were used to examine differences of health outcomes between each combination of parental weight talk. All analyses were conducted using Stata version 12.1 statistical software (StataCorp LP).

Results

Descriptive Analysis of Eating and Weight Conversations

Approximately 34% of mothers and 38% of fathers of nonoverweight adolescents were not engaging in any type of eating or weight conversations with their adolescents, compared with 20% of mothers and 23% of fathers of overweight adolescents (Table 1). About 28% of mothers and 23% of fathers of nonoverweight adolescents were having conversations with their adolescents that focused specifically on healthful eating (without talking about weight), whereas only 15% of mothers and 14% of fathers with overweight adolescents were having conversations that focused specifically on healthful eating. Approximately 33% of mothers and 32% of fathers of nonoverweight adolescents were having conversations with their adolescents about weight or the need to lose weight, compared with 60% of mothers and 59% of fathers with overweight adolescents.

Associations Between Healthful Eating and Weight Conversations by Parents and Adolescent Disordered Eating Behaviors

Conversations About Healthful Eating or Weight From 1 Parent

Overall, results indicated that parental conversations about healthful eating were associated with the lowest prevalence of disordered eating behaviors in adolescents, while parental conversations about weight were associated with the highest prevalence of disordered eating behaviors in adolescents.

Nonoverweight Adolescents

Among nonoverweight adolescents whose mothers engaged in healthful eating conversations compared with those whose mothers engaged in weight conversations, there was a significantly lower prevalence of
dieting (22.6% vs 35.3%, respectively), UWCBs (29.8% vs 38.9%, respectively), and extreme UWCBs (1.6% vs 5.9%, respectively). Further, the prevalence of binge eating was significantly lower among nonoverweight adolescents whose mothers engaged in no eating or weight conversations (4.3%) than among adolescents whose mothers engaged in weight conversations (7.6%) (Table 2). In addition, among nonoverweight adolescents who fathers engaged in weight conversations compared with those whose fathers did not engage in eating or weight conversations, there was a significantly higher prevalence of dieting (33.3% vs 21.8%, respectively), UWCBs (39.1% vs 30.1%, respectively), and extreme UWCBs (4.9% vs 1.7%, respectively) (Table 3). For all analyses, there were no statistically significant differences in the prevalence of these health behaviors between adolescents whose parents engaged in no conversations and those whose parents who engaged in healthful eating conversations.

**Overweight Adolescents** Among overweight adolescents whose mothers engaged in healthful eating conversations compared with those whose mothers did not engage in healthful eating conversations, there was a significantly lower prevalence of dieting (40.1% vs 53.4%, respectively) and UWCBs (40.6% vs 53.2%, respectively). Similarly, among adolescents whose mothers engaged in conversations about healthful eating vs those whose mothers engaged in weight conversations

### Table 1. Proportion of Parents Engaging in Eating or Weight Conversations by Child Sex and Weight Status

<table>
<thead>
<tr>
<th>Adolescents</th>
<th>No Eating or Weight Conversations</th>
<th>Healthful Eating Conversations Only</th>
<th>Weight Conversations</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. (%).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers’ conversations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonoverweight Girls</td>
<td>274 (35.0)</td>
<td>221 (28.2)</td>
<td>288 (36.8)</td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>209 (33.8)</td>
<td>205 (33.1)</td>
<td>205 (33.1)</td>
<td>.12</td>
</tr>
<tr>
<td>Overweight Girls</td>
<td>108 (25.6)</td>
<td>61 (14.5)</td>
<td>253 (60.0)</td>
<td>.07</td>
</tr>
<tr>
<td>Boys</td>
<td>75 (19.5)</td>
<td>71 (18.5)</td>
<td>238 (62.0)</td>
<td></td>
</tr>
<tr>
<td>Fathers’ conversations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonoverweight Girls</td>
<td>203 (44.4)</td>
<td>106 (23.2)</td>
<td>148 (32.4)</td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>151 (38.3)</td>
<td>112 (28.4)</td>
<td>131 (33.3)</td>
<td>.12</td>
</tr>
<tr>
<td>Overweight Girls</td>
<td>55 (27.0)</td>
<td>29 (14.2)</td>
<td>120 (58.8)</td>
<td>.63</td>
</tr>
<tr>
<td>Boys</td>
<td>50 (22.9)</td>
<td>33 (15.1)</td>
<td>135 (61.9)</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2. Adjusted Percentage of Health Behaviors and Their Association With Mothers’ Eating or Weight Conversations Among Nonoverweight and Overweight Adolescents

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Nonoverweight Adolescents (n = 1421)</th>
<th>Overweight Adolescents (n = 821)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet, %</td>
<td>21.3*</td>
<td>22.6*</td>
<td>35.3†</td>
</tr>
<tr>
<td>Difference (95% CI)</td>
<td>[Reference]</td>
<td>1.3 (−4.3 to 6.8)</td>
<td>14.0 (8.2 to 19.9)</td>
</tr>
<tr>
<td>UWCBs, %</td>
<td>30.7†</td>
<td>29.8*</td>
<td>38.9†</td>
</tr>
<tr>
<td>Difference (95% CI)</td>
<td>[Reference]</td>
<td>0.8 (−7.0 to 5.3)</td>
<td>8.2 (1.9 to 14.5)</td>
</tr>
<tr>
<td>Extreme UWCBs, %</td>
<td>2.5†</td>
<td>1.6*</td>
<td>5.9†</td>
</tr>
<tr>
<td>Difference (95% CI)</td>
<td>[Reference]</td>
<td>0.8 (−2.7 to 1.0)</td>
<td>3.5 (0.7 to 6.2)</td>
</tr>
<tr>
<td>Binge eating, %</td>
<td>4.3*</td>
<td>6.2†</td>
<td>7.6†</td>
</tr>
<tr>
<td>Difference (95% CI)</td>
<td>[Reference]</td>
<td>0.2 (−1.1 to 5.0)</td>
<td>3.4 (0.2 to 6.5)</td>
</tr>
<tr>
<td></td>
<td>9.2*</td>
<td>10.2*</td>
<td>13.3*</td>
</tr>
</tbody>
</table>

Abbreviation: UWCBs, unhealthy weight-control behaviors.

* All models adjusted for adolescent sex and race, parental education, and mother’s body mass index (calculated as weight in kilograms divided by height in meters squared). Sample is limited to adolescents with parent who lives with the adolescent at least 50% of the time. Percentages with different symbols (*, †, ‡) are statistically significantly different.

† These conversations included no conversations about healthy weight behaviors or unhealthy weight behaviors.

‡ These conversations included only conversations about healthful eating behaviors.

§ These conversations included comments about adolescent weight/size, mentioning that the adolescent weighed too much, or mentioning that he or she should eat differently to lose weight or keep from gaining weight, but they included no conversations about healthful eating.

86% of all activities are completed.
only, there was a significantly lower prevalence of dieting (40.1% vs 64.1%, respectively) and UWCBs (40.6% vs 64.2%, respectively) (Table 2). There was one significant association between fathers’ weight conversations and higher prevalence of dieting among overweight adolescents, compared with overweight adolescents whose fathers engaged in healthful eating conversations (63.7% vs 48.3%, respectively) (Table 3). For all analyses, there were no significant associations between parents’ healthful eating or weight conversations and adolescent binge-eating behaviors.

**Conversations About Healthful Eating or Weight From Both Parents**

Overall, results indicated that having either parent engage in healthful eating conversations was associated with less disordered eating in adolescents, especially for overweight adolescents; for nonoverweight adolescents only, having 1 parent engage in weight conversations was as problematic as having both parents engage in weight conversations. For example, among nonoverweight adolescents, there was a higher prevalence of dieting with weight conversations from 1 parent (35.2%) or both parents (37.1%) compared with those whose parents did not engage in weight conversations (15.6%). Similarly, weight conversations from 1 parent or from both parents were associated with significantly higher prevalence of dieting relative to parents who only engaged in healthful eating conversations only (35.2% and 37.1% vs 21.2%, respectively) (Table 4).

Additionally, among overweight adolescents with at least 1 parent who engaged in healthful eating conversations (but neither in weight conversations), there was a lower prevalence of UWCBs as compared with overweight adolescents with 2 parents who did not engage in conversations about healthful eating or weight (34.9% vs 60.5%, respectively) or who engaged in weight conversations (34.9% vs 67.0%, respectively) (Table 4). For all analyses, there were no significant associations between parental healthful eating or weight conversations and adolescent binge-eating behaviors.

**Discussion**

The main aims of this study were the following: (1) to identify the types of conversations (ie, healthful eating conversations, weight conversations) mothers and fathers have with their children, based on their child’s weight status; (2) to investigate the association between healthful eating or weight conversations from parents and adolescent dieting, UWCBs, and binge eating; and (3) to examine the association between parent eating and weight conversations and adolescent dieting, UWCBs, and binge eating when 2 parents engage in weight conversations vs when 1 parent engages in these conversations.

Results indicated that both mothers and fathers were having frequent conversations about healthful eating and weight with their overweight adolescents. In addition, results suggested that conversations were associated with helpful or harmful behavior, depending on the type of conversation (eg, healthful eating vs weight). Conversations about weight (eg, weight or size, mentioning that the child weighs too much or should eat differently to lose weight or keep from gaining weight) were associated with increased risk for disordered eating behaviors in adolescents. Conversations that were solely about healthful eating were inversely associated with dieting and disordered eating behaviors in adolescents as compared with having no conversations about weight or having weight conversations only. These findings suggest that parents should avoid conversations that focus on weight or los-
ing weight and instead engage in conversations that focus on 
healthful eating, without reference to weight issues. This 
approach may be particularly important for parents of 
overweight or obese adolescents.

This study builds on recent research focusing on fathers 
and their role in adolescent eating disorders treatment\textsuperscript{19,37,41-43} 
and finds that adolescents whose fathers engaged in weight 
conversations were significantly more likely to engage in di 
eting and UWCBs than adolescents whose fathers did not. Thus, 
It may be important to educate fathers to avoid any form of 
weight-related conversations with their adolescents.

Results from this study corroborate findings from previ 
sous research showing associations between conversations about 
weight and losing weight (ie, by mothers and higher levels of disordered eating behaviors in adolescents\textsuperscript{11,16,36,37} 
and extend previous research by identifying that weight conver 
sations by either parent are associated with more disordered 
eating behaviors. Another new finding in the study is that cer 
tain types of conversations, such as conversations about health 
ful eating in adolescents, may be helpful in reducing dieting and 
UWCBs in adolescents, particularly for overweight and obese 
children. These results may be useful in educating parents that 
talking about healthful eating instead of focusing on shape/ 
size or losing weight is potentially helpful in avoiding disor 
dered eating behaviors in adolescents.

Several strengths and limitations should be taken into ac 
count when interpreting the study’s findings. Strengths of this 
study include the use of a large, diverse, population-based 
sample; the high response rate of participating parents; ad 
justments for possible third-variable confounding of results 
including healthful eating by at least 1 parent.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Overweight (n=387)</th>
<th>Nonoverweight (n=770)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Healthy Eating Only (n=240)</td>
<td>Healthy Eating Only (n=240)</td>
</tr>
<tr>
<td>Difference (95% CI)</td>
<td>Difference (95% CI)</td>
<td></td>
</tr>
<tr>
<td>Diet, %</td>
<td>Reference</td>
<td>Difference (95% CI)</td>
</tr>
<tr>
<td>15.6*</td>
<td>21.2*</td>
<td>(−2.3 to 13.6)</td>
</tr>
<tr>
<td>UWCBs, %</td>
<td>26.5*</td>
<td>27.1*</td>
</tr>
<tr>
<td>Extreme UWCBs, %</td>
<td>1.9†</td>
<td>1.3*</td>
</tr>
<tr>
<td>Binge eating, %</td>
<td>Reference</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Abbreviation: UWCBs, unhealthy weight-control behaviors.

*All models are adjusted for adolescent sex and race, parental education, and both parents’ body mass index (calculated as weight in kilograms divided by 
height in meters squared). Sample is limited to adolescents with 2 parents in 
the sample who live with the adolescent at least 50% of the time. Percentages 
with different symbols (*, †, ‡) are statistically significantly different.

These conversations included only conversations about healthy eating behaviors or unhealthy weight behaviors by both parents.

The study limits our ability to determine causality or tempora 

Conclusions

Results from this study may be helpful for health care provid 
ers who work with parents of adolescents and for parents them 
selves. Health care providers and clinicians should educate par 
tents of adolescents that weight conversations are associated with 
disordered eating behaviors in adolescents, while conversa 
tions about healthful eating may be helpful to their adoles 
cents in regard to dieting and disordered eating behaviors, par 
ticularly for overweight or obese children. Similarly, prevention 
interventions should help parents engage in healthful eating 
conversations rather than weight conversations with their ado 
lescents. Finally, for parents who may wonder whether talking 
with their adolescent child about eating habits and weight is use 
ful or detrimental, results from this study indicate that they may 
want to focus on discussing and promoting healthful eating be 
haviors rather than discussing weight and size, regardless of 
whether their child is nonoverweight or overweight.
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Drafting of the manuscript: Berge and Bucchianeri. Critical revision of the manuscript for important intellectual content: All authors. Statistical analysis: Berge and MacLehose. Obtained funding: Neumark-Sztainer. Administrative, technical, and material support: Loth, Bucchianeri, and Neumark-Sztainer. Study supervision: Loth and Neumark-Sztainer.

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REFERENCES


