



HHS Public Access

Author manuscript

Body Image. Author manuscript; available in PMC 2017 March 01.

Published in final edited form as:

Body Image. 2016 March ; 16: 21–27. doi:10.1016/j.bodyim.2015.09.004.

In It Together: Mother Talk of Weight Concerns Moderates Negative Outcomes of Encouragement to Lose Weight on Daughter Body Dissatisfaction and Disordered Eating

Erin E. Hillard, Dawn M. Gondoli, Alexandra F. Corning, and Rebecca A. Morrissey
University of Notre Dame

Abstract

Mothers' influence on their daughters is important for understanding girls' disordered eating and body dissatisfaction. Direct maternal encouragement of daughters to lose weight is linked to daughters' development of bulimic symptoms, and additional findings indicate that daughters whose mothers merely talk about dieting and body dissatisfaction are more likely to be diagnosed with an eating disorder. The current study extends such research by examining the interactive contributions of maternal encouragement to lose weight and maternal dieting discussions to the prediction of early adolescent daughters' body dissatisfaction and disordered eating over the middle school period. Participants were 89 adolescent girls who were in the 6th grade at Time 1. Regression analyses were conducted to examine interactive effects of mother encouragement to diet and talk of weight concerns on daughter body dissatisfaction, drive for thinness, and dieting behavior. Results suggest an interactive effect in which mothers' dieting talk may act as a buffer against the negative effects of direct encouragement to lose weight.

Keywords

adolescent body image; mother-daughter relationship; encouragement to diet

Of particular interest in the area of parent influence on body image are relations between mother-daughter weight-related interactions and daughters' unhealthy body image behaviors. Associations between mother and daughter body-related variables suggest that mothers may serve as primary models of body regard and eating practices for their daughters (Cooley, Toray, Wang, & Valdez, 2008; Snoek, van Strien, Janssens, & Engels, 2009; Wertheim, Mee, & Paxton, 1999). More specifically, two mechanisms linking maternal behavior to daughter outcomes have been examined: mother direct encouragement of daughter to change weight or shape, and mother indirect encouragement of daughter weight loss through discussion of maternal weight concerns and maternal dieting behavior.

Correspondence: Erin E. Hillard, University of Notre Dame, Department of Psychology, 118 Haggard Hall, Notre Dame, IN 46556, (574) 631-6650, ehillard@nd.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

A number of studies have found support for both mechanisms of maternal influence. First, mother encouragement to lose weight has been linked in cross-sectional studies to eating-related problems among adolescent girls, including unhealthy restriction (e.g., Armstrong & Janicke, 2012) and body dissatisfaction (e.g., Francis & Birch, 2008). Maternal influence in this regard appears quite powerful; even subtle maternal encouragement, via mere mention of daughter weight, predicts young adolescent girls' greater dieting and lower body esteem (Smolak, Levine, & Schermer, 1999). Although longitudinal studies of maternal encouragement are rare, one effort revealed that a composite of mother and father encouragement to lose weight predicted increased body dissatisfaction among adolescent daughters one year later (Helfert & Warschburger, 2011). These particular longitudinal findings are important because they suggest effects of direct encouragement are lasting. However, they should be replicated with separate measures of mother and father encouragement and with expanded assessment of daughter body-related outcomes.

Mother indirect encouragement, via talk of personal weight concerns and overt dieting behavior, also has been linked to daughters' body concerns and restrictive eating (Benedikt, Wertheim, & Love, 1998; Levine, Smolak, Moodey, Shumann, & Hessen, 1994; Neumark-Sztainer et al., 2010; Wertheim, Mee, & Paxton, 1999). By sharing weight concerns and openly dieting, mothers may be teaching daughters how women should feel about their bodies and how to implement restrictive weight management. For example, Neumark-Sztainer and colleagues (2010) studied the effects of mother dieting-related behaviors on daughter restrictive eating in a cross-sectional study of overweight adolescent girls. Results of their analyses showed that maternal talk of weight concerns and dieting, as well as engagement in dieting behavior, predicted extreme weight control measures and binge eating among daughters, even after controlling for daughter BMI. Although such findings are compelling, it is important to note that studies indicating significant relations between indirect sources of encouragement and daughter outcomes have been cross-sectional (e.g., Benedikt et al., 1998; Levine et al., 1994; Neumark-Sztainer et al., 2010; Wertheim et al., 1999); longitudinal evidence for such associations is mixed, with some studies finding null associations over time (e.g., Snoek et al., 2009) and others finding at least some support (Linville, Stice, Gau, & O'neil, 2011). Given the inconsistencies in the literature, additional study of longitudinal associations between mothers' own weight- and body concerns and daughter outcomes is warranted.

Furthermore, potential interactions between maternal direct and indirect forms of encouragement have been largely neglected in previous analyses. In one exception, Cooley and colleagues (2008) examined associations between both forms of mother encouragement and body dissatisfaction and eating behaviors among college-age daughters. Analyses revealed an interaction between maternal criticism of daughter weight and expression of mothers' own weight concerns, such that maternal weight concerns were more strongly related to daughter body dissatisfaction when mothers simultaneously made negative comments about daughters' weight. The findings suggest that a mother's own concerns may become more powerful influences when paired with concern about a daughter's weight. In addition, such results raise the possibility that the combination of mother direct and indirect encouragement may foster greater body concern and unhealthy restriction among daughters than would either factor alone. However, findings concerning interaction between sources of

influence are preliminary at this point and require replication. Furthermore, given the importance of adolescence for the development of body dissatisfaction and unhealthy weight management (Bearman, Presnell, Martinez, & Stice, 2006; Bucchianeri, Arikian, Hannan, Eisenberg, & Neumark-Sztainer, 2013), such patterns should be explored in younger samples.

Moreover, although unfavorable multiplicative effects of direct and indirect sources of influence are sensible, it is also possible that mothers discussing their own dieting and body concerns may lessen the impact of directly encouraging daughters to lose weight. That is, when a mother encourages her daughter to become slimmer but does not talk about her own dieting, the daughter may perceive encouragement alone as criticism, and may therefore develop greater body dissatisfaction. However, if a mother is also sharing her own weight concerns and struggles, the daughter may view maternal encouragement to lose weight as less personal, and may therefore be somewhat buffered from loss of body esteem. Mother dieting talk may serve as a form of social support when the daughter is being encouraged to lose weight (Stanton, Green, & Fries, 2007). Mother dieting talk may also occur in an environment in which mother and daughter are openly communicating and sharing vulnerabilities, and thus may lessen a daughter's negative feelings about her body specifically, especially if a mother is not projecting her feelings about her body onto her daughter (Ogden & Steward, 2000; Ogle & Damhorst, 2003).

In sum, although there is consistent evidence that direct maternal encouragement to lose weight is associated with daughters' body concern and unhealthy restriction, more study is needed on the potential impact of relatively indirect forms of maternal encouragement. Furthermore, few analyses of potential interactions between direct and indirect sources of maternal encouragement exist. In addition, most research in this area is cross-sectional, and longitudinal replication of findings is necessary.

In the present research, we examined the individual and combined effects of maternal encouragement to lose weight and communication of own weight concerns on young adolescent daughters' body- and eating-related outcomes. We hypothesized that mothers' direct encouragement to lose weight and communication of own weight concerns would predict daughters' greater body dissatisfaction, drive for thinness, and dieting over time. Furthermore, we examined whether mother encouragement of daughter weight loss, when combined with mother communication of own weight concerns (including unhappiness with current weight and dieting), was associated with daughter body dissatisfaction, drive for thinness, and dieting above and beyond the main effects of each predictor. A possibility is that the two sources of maternal influence combined result in greater body concern for daughters (Cooley et al., 2008). Alternatively, maternal discussion of own body concerns might buffer daughters from the negative effects of direct maternal encouragement to lose weight. The conceptual model for testing such interactions is illustrated in Figure 1.

Method

Participants

Data from adolescent girls were collected as part of a longitudinal study focused on parenting and child adjustment during the transition to adolescence. Approximately 2,500 initial contact letters briefly describing the study were mailed to the parents of girls and boys enrolled in 4th grade in schools in a medium-sized, Midwestern city and surrounding suburban and rural communities. Parents were informed that the purpose of the study was to better understand adjustment during the transition to adolescence; body image and eating issues were not mentioned as foci of the study. Parents were instructed to call the research office if interested. To control for prior parenting experience within families, children were eligible if they were the oldest child in the family. In addition, children from remarried families were not enrolled because of the added complexity of step-family structures.

The present analyses focused on the perceptions of 89 adolescent girls as they completed 6th and 8th grade. Although boys participated in the larger project, we did not include them in the present analyses because the measures of body dissatisfaction and dieting behaviors used in this study are not appropriate for boys (McCabe & Ricciardelli, 2005). In the first year of the study, 102 girls participated. However, due to attrition over the course of the study (e.g., relocation and refusal to continue participation), 89 girls' data were available for the present analyses. According to analysis of variance and chi-square procedures, the 89 participating girls did not differ significantly on any demographic variables during the first year of the study (e.g., ethnicity, race, family income) from the 13 girls who discontinued participation (all $ps > .05$). However, due to limited sample sizes, the lack of significant differences between those continuing versus discontinuing should be interpreted with caution.

The 6th- and 8th- grade time points were selected for conceptual and pragmatic reasons. Prior evidence indicates that body dissatisfaction and disordered eating increase during early adolescence and show greater variability during this time as compared with middle childhood (Rosenblum & Lewis, 1999; Smolak & Levine, 1996). Therefore, our focus on girls during the middle-school years was most appropriate. Furthermore, our analysis required the dependent variables to be measured repeatedly, and this condition was met by daughters' self-reports obtained during the 6th- and 8th- grade assessments.

At the 6th- grade assessment, the girls were ages 11–13 ($Mdn = 12.00$, $M = 11.61$, $SD = .54$). Most identified as European American (93.3%); fewer identified as African American (1.1%), Latina (2.2%), Native American (2.2%) or multiethnic (1.1%). The annual family household income ranged from \$10,000 to \$450,000 ($Mdn = \$71,000$, $M = \$90,920$, $SD = \$71,349$). Most of the participants' parents were married and living together (92%). The demographics of the obtained sample mirrored the demographic composition of the schools from which participants were recruited. The average BMI z -score for this sample was 19.22 ($SD = 4.18$; range: 13.80–36.40).

Procedure

Once annually, girls visited a university research laboratory to complete questionnaires. Height and weight also were assessed so that BMI could be calculated. Participants were

paid \$30 in the first year of the study, with an increase in this compensation by \$10 in each subsequent year. All study methods were approved by the university's Human Subjects Institutional Review Board.

Measures

Mother encouragement to diet—To assess girls' perceptions of mothers' encouragement to diet at the 6th-grade assessment, we summed two items from the Family History of Eating Survey (Moreno & Thelen, 1993): "How often has your mom discussed your weight with you?" and "How often has your mom told you that you need to lose weight?" Both items were rated from 0 (*never*) to 5 (*always*), with higher scores indicating greater encouragement of daughters to diet (Cronbach's $\alpha = .71$). In previous studies, these questions have differentiated adolescent girls with bulimia nervosa from a sample of normal adolescents (Moreno & Thelen, 1993), and similar questions have predicted adolescent girls' unhealthy weight control behaviors and diet frequency (Armstrong & Janicke, 2012).

Mother talk of personal weight concerns—Girls' perceptions of maternal talk of personal weight concerns at the 6th-grade assessment were measured by summing two items from the Family History of Eating Survey (Moreno & Thelen, 1993; see also Blodgett Salafia & Gondoli, 2011). The items were: "How often has your mom talked about her own dieting?" and "How often has your mom said that she needs to lose weight?" Each item was rated from 0 (*never*) to 5 (*always*), with higher scores indicating greater discussion of mother weight concerns (Cronbach's $\alpha = .86$). In previous studies, similar questions have predicted disordered eating behaviors in adolescent girls (Neumark-Sztainer et al., 2010).

Body dissatisfaction—Girls' body dissatisfaction was assessed in 6th and 8th grades with the 8-item Body Dissatisfaction subscale of the Eating Disorder Inventory (EDI; Garner, Olmstead, & Polivy, 1983). Each item (e.g., "I think that my stomach is too big") was rated from 0 (*never*) to 5 (*always*), with higher scores indicating greater body dissatisfaction (Cronbach's $\alpha = .94$ in both 6th and 8th grades). The Body Dissatisfaction subscale of the EDI has been shown to correlate with scores on the Bulimia subscale of the EDI and thin-ideal internalization scores in a sample of adolescent girls (Shroff & Thompson, 2006).

Drive for thinness—Girls' psychological commitment to thinness was assessed in 6th and 8th grades with the 8-item Drive for Thinness subscale of the EDI (Garner et al., 1983). This subscale taps preoccupation with weight and fear of weight gain. Each item (e.g., "I am terrified of gaining weight") was rated from 0 (*never*) to 5 (*always*), with higher scores indicating greater drive for thinness. The Drive for Thinness subscale of the EDI has been shown to correlate with measures of thin-ideal internalization and body dissatisfaction in a sample of adolescent girls (Shroff & Thompson, 2006). In the current study, Cronbach's alpha was .85 and .93 in 6th and 8th grades, respectively.

Dieting behavior—Girls' dieting behavior was measured at the 6th- and 8th-grade assessments with the 7-item Dieting Behaviors Scale (Blodgett Salafia, Gondoli, Corning, McEnery & Grundy, 2007). Each item (e.g., "How often have you skipped meals to lose

weight?”) was rated from 0 (*never*) to 5 (*always*), with higher scores indicating greater dieting. Cronbach’s alpha was .90 and .92 in 6th and 8th grades, respectively.

Body mass index—Body mass index (BMI) for each participant was calculated from the height and weight measurements collected in 6th grade. The measurements were conducted by female members of the research team in a private office in the laboratory. Weight was assessed with a high-quality, portable digital scale, and height was assessed with a tape measure. To minimize potential discomfort, and to avoid sensitizing participants to issues of weight and body image, weight and height were assessed only once during the visit. To calculate the BMI *z*-score for each participant, we used the Centers for Disease Control and Prevention (CDC) on-line calculator (<http://www.cdc.gov/healthyweight/assessing/bmi/>).

Data Analysis Plan

Three separate regression analyses were conducted to determine individual and interactive effects of encouragement to diet and mother talk of personal weight concerns on body dissatisfaction, drive for thinness, and dieting behavior after controlling for levels of the dependent variable at Time 1. Prior to the analyses, mother encouragement to diet and mother talk of personal weight concerns were mean-centered (Cohen, Cohen, West, & Aiken, 2003). An interaction term was created by multiplying the uncentered variables. For each dependent variable, a hierarchical regression analysis was conducted in which the dependent variable at Time 1 and daughter BMI *z*-score were entered at Step 1. At Step 2, mean-centered mother encouragement to diet and mean-centered mother talk of personal weight concerns were entered, and the product of the uncentered variables (i.e., mother encouragement to diet and mother talk of personal weight concerns) was entered at Step 3. In the case of a significant interaction, follow-up simple slopes analyses were conducted (Aiken, & West, 1991). For these analyses, mother talk of personal weight concerns was treated as the moderator, and the degree of relation was assessed at one standard deviation above and below mean levels of mother talk of personal weight concerns (i.e., $-1SD$ represented low mother talk of personal weight concerns and $+1SD$ represented high mother talk of personal weight concerns).

Results

Preliminary Analyses

Means and standard deviations for each of the predictor variables (i.e., mother’s encouragement to lose weight, mother’s diet talk) and outcome variables (i.e., daughter’s body dissatisfaction, daughter drive for thinness, and dieting behavior), along with correlations between all variables are displayed in Table 1. The three outcome variables were significantly correlated. However, given that they are defined as separate, yet related, constructs in the literature, they were analyzed separately. Furthermore, the outcome variables were correlated across 6th and 8th grades, as expected (see Table 1).

Body Dissatisfaction

A hierarchical multiple regression analysis was conducted using daughter body dissatisfaction as the dependent variable (see Table 2). After controlling for BMI and prior

body dissatisfaction, mother prior encouragement to diet and talk of personal weight concerns entered at Step 2 did not account for significant variance in body dissatisfaction in 8th grade (see Table 2). Step 3 of the analysis indicated that the interaction between mother encouragement to diet and mother talk of personal weight concerns did not account for additional variation in body dissatisfaction in 8th grade.

Drive for Thinness

A second regression analysis was conducted with daughter drive for thinness in 8th grade as the dependent variable (see Table 2). After controlling for BMI and drive for thinness in 6th grade, mother prior encouragement and talk of weight-related concerns at Step 2 did not explain a significant amount of variance in 8th-grade drive for thinness. At Step 3, however, the interaction between mother encouragement to diet and mother talk of personal weight concerns significantly predicted 8th-grade drive for thinness (see Figure 2). Although greater mother encouragement to diet was predictive of greater drive for thinness, greater frequency of mother talk of personal weight concerns is associated with lower levels of drive for thinness, suggesting a buffering effect.

Follow-up simple slope analyses were conducted to further interpret the interaction. As levels of encouragement increased, girls who reported low levels of mother talk of personal weight concerns (i.e., $-1SD$) showed an increase in drive for thinness, $t(84) = 2.46, p < .05$. For girls who reported high levels of mother talk of personal weight concerns (i.e., $+1SD$), no such increase in drive for thinness was found, $t(84) = 0.77, p = .44$. When mother encouragement to diet was low, low levels of mother talk of personal weight concerns were related to the lowest reported drive for thinness. However, at high levels of mother encouragement to diet, low mother talk of personal weight concerns was associated with the highest reported levels of drive for thinness (see Figure 2). The steepest increases in drive for thinness were found when mother encouragement to diet was high and mother personal talk of weight concerns was low, suggesting that mother encouragement to diet was most strongly related to daughter drive for thinness when mother talk of personal weight concerns was low.

Dieting Behavior

A final regression analysis was conducted on daughters' dieting behavior in 8th grade (see Table 2). After controlling for BMI and dieting behavior in 6th grade, entering mother prior encouragement and talk of weight-related concerns at Step 2 did not explain a significant amount of variance in dieting behavior. Entering the interaction between mother encouragement to diet and mother talk of personal weight concerns at Step 3 predicted a significant increase in variance explained in 8th-grade dieting behavior. As shown in Figure 3, the interaction follows the pattern of the previous analysis. That is, when mother encouragement to diet was high, dieting behavior was decreased if mothers also were discussing their weight-related concerns with their daughters.

A simple slopes analysis was conducted to further interpret the interaction between mother encouragement to diet and mother talk of personal weight concerns on dieting behavior. When frequency of mother talk of personal weight concerns was low, dieting behavior

increased as mother encouragement to diet increased, $t(84) = 4.16, p < .001$. Dieting behavior did not increase as mother encouragement to diet increased when mother talk of personal weight concerns was high, $t(84) = 1.46, p = .15$. Similar to drive for thinness, when mother encouragement to diet was low, low mother talk of personal weight concerns was associated with the lowest levels of dieting behavior, but as mother encouragement to diet increased, low mother talk of personal weight concerns was associated with greater increases in dieting behavior (see Figure 3). This suggests the relationship between mother encouragement to diet and daughter dieting behavior was strongest for girls who reported lower levels of mother talk of personal weight concerns.

Discussion

The aim of the present study was to examine the independent and combined effects of mother encouragement of daughters to diet and talk of own weight-related concerns on daughter body dissatisfaction and weight-related concerns. Analyses revealed an interaction suggesting that effects of maternal encouragement to diet were buffered by mothers' talk of personal weight concerns. When both mother encouragement to diet and mother talk of personal weight concerns were high, daughters reported reduced drive for thinness and dieting behaviors compared to when mother encouragement to diet was high and mother talk of personal weight concerns was low. A unique contribution of this study is that we assessed such combined effects in a sample of early adolescent girls; previous studies have investigated the effects of similar maternal behaviors on the weight concerns of college-age women (Cooley et al., 2008). Furthermore, investigating the combined effect of such maternal behaviors during the middle school period may be especially important, as early adolescence is a time when body dissatisfaction and weight-related concerns increase (Bucchianeri, Arikian, Hannana, Eisenberg, & Neumark-Sztainer, 2013; Rosenblum & Lewis, 1999). Further, unlike similar studies investigating the effects of maternal behavior on daughters with high body satisfaction, we were interested in studying a range of levels of body satisfaction (Kelly et al., 2005).

Prior research can support the hypothesis that mother encouragement to diet and talk of personal weight concerns combined would lead to greater body dissatisfaction and restrictive dieting among daughters (Cooley et al., 2008). However, given evidence that mother-daughter bonding may buffer the development of girls' body dissatisfaction (Archibald, Graber, & Brooks-Gunn, 1999; Kichler & Crowther, 2001), our findings may not be that unexpected. Archibald et al. (1999) examined bidirectional relations between parent-adolescent relationships and dieting and found poor relationship quality predicted increased adolescent dieting over a one-year period. Similar studies have shown daughter perceptions of family connectedness predict their higher body satisfaction (Crespo, Kielpikowski, Jose, & Pryor, 2010). Although such studies have not examined the extent to which mother talk of personal weight concerns, including own dieting, could be occurring within close familial relationships, it is possible that such talk could be a feature of mother-daughter bonding. In terms of the current study's results, this could mean that in a context in which mothers encourage their daughters to diet, if mothers also acknowledge their own weight concerns, daughters may be less inclined to feel the spotlight is being cast on solely their weight. Too, mothers' sharing own concerns while encouraging dieting may create a

feeling of togetherness or emotional cohesion, which may help decrease negative feelings that arise when mother encouragement to diet occurs alone. Our interpretations are of course preliminary, and further research should explore the mechanisms through which such combined factors have effects on daughters' body- and weight-related outcomes.

It also could be that our findings were influenced by the measures of mothers' talk of personal weight concerns. Such talk was assessed with two brief questions concerning weight and dieting. It is possible these two items were, in some cases, tapping discussion of healthy eating behaviors related to minimizing unhealthy foods while maximizing proper nutrition. Kelly and colleagues (2005) found that adolescent girls with high body satisfaction perceived that their mothers were engaging in healthy eating (versus dieting to lose weight). There was also an emphasis within these dyads on getting fit rather than becoming thin. This suggests that the type of "dieting talk" in which mothers engage matters. Dieting or weight talk that involves discussing proper nutrition and healthy exercise levels may result in lower body dissatisfaction when the mother is simultaneously encouraging her daughter to lose weight. In our sample, it could be that some mothers were in fact discussing healthy eating and appropriate weight management behavior. Future research focused on how young adolescents perceive patterns of eating as dieting could be fruitful in the development of more informative measures. However, it is important to keep in mind that in the current study, the same buffering effect of mother talk of personal weight concerns was not found for daughters' body dissatisfaction, as would be expected if the results of the current study were simply a replication of Kelly et al.'s (2005) findings. Furthermore, the buffering effect of mother talk of personal weight concerns was found only when daughters simultaneously reported high levels of mother encouragement to diet, suggesting that mothers were not necessarily stressing healthy dieting over dieting to lose weight.

It is important to highlight that although we found a buffering effect of mother talk of personal weight concerns on daughter variables when mother encouragement to diet was high, our results do not suggest that mother talk of personal weight concerns is beneficial to adolescent girls. The best outcomes in both drive for thinness and dieting behavior were found when both mother encouragement and mother talk of personal weight concerns were low. Therefore, although the effects of mother encouragement to diet were lessened for girls who reported greater frequency of mother talk of personal weight concerns, mother talk of personal weight concerns on its own was not beneficial.

One possible limitation of the current findings is the lack of mother reports of their encouragement to diet and talk of own weight concerns. However, although mother reports would provide an additional perspective, our focus was on examining daughter perceptions. Furthermore, maternal reports may be weaker predictors of daughter body dissatisfaction and eating patterns compared to daughter self-reports (Cooley et al., 2008). Nevertheless, researchers could examine the present variables with both mother and daughter reports, in order to elucidate similarities and discrepancies. Although understanding parental behavior as perceived by daughters is important, understanding the parent perspective is likely to be useful in the development of family-based prevention of disordered eating (Corning et al., 2010). Furthermore, in the current study, mother encouragement to diet and mother talk of personal weight concerns each were measured with two items drawn from the Family

History of Eating Survey (Moreno & Thelen, 1993; for similar approaches, see Armstrong & Janicke, 2012; Blodgett Salafia & Gondoli, 2011; McCabe & Ricciardelli, 2005). Perhaps measurement would have been improved with multi-item assessments of the maternal variables. Future research should be conducted to determine whether the addition of more items is beneficial to construct measurement or, on the contrary, results in unnecessary item redundancy.

In addition, it is possible that other variables in the family context may be important to understanding the effects of mother direct and indirect encouragement on daughter body concerns and dieting. Previous research has shown a positive relation between mother BMI and mothers' preoccupation with daughters' weight (Francis & Birch, 2005). However, in Francis and Birch's study, mothers' BMI did not fully explain the relation between mothers' concerns about daughters' weight and daughters' own weight concerns; this suggests that controlling for mothers' BMI would not change the results of the current study. Nevertheless, for completeness, maternal BMI could be included in future analyses of mother-daughter weight-related interactions and concerns. Furthermore, future analyses could include examination of paternal behaviors. Fathers may be influential in shaping daughters' body image (Blodgett Salafia & Gondoli, 2011), especially in relation to more extreme dieting and disordered eating behavior (Vincent & McCabe, 2000). Consideration of father behaviors may provide a more complete picture of family-level influences on daughters' body image and eating behaviors.

It also should be noted that our sample presents some limitations to generalizability. The participants were predominantly European American and middle-class. Furthermore, most participants resided in two-parent families. Replications should be conducted in more diverse samples.

Limitations notwithstanding, the current study has important implications for the effects of the family context on daughters' body- and eating-related issues. In particular, given the seriousness of the negative outcomes associated with drive for thinness and early dieting behaviors (Haines & Neumark-Sztainer, 2006), fully understanding appropriate ways for parents to talk about healthy eating habits with children and adolescents is imperative (Corning et al., 2010). Though our findings are preliminary, they suggest that helping mothers find appropriate ways to approach their adolescent daughters' body-related concerns may be an important element in prevention and intervention programs to reduce eating-disorder risk (Corning et al., 2010).

Acknowledgements

This research was supported by grants awarded to Dawn M. Gondoli from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (1R03HD041955-01; 5R03HD041955-02), the University of Notre Dame Graduate School, and the University of Notre Dame College of Arts and Letters.

References

Aiken, L.S.; West, S.G. *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage; 1991.

- Archibald B, Graber J, Brooks-Gunn J. Associations among parent-adolescent relationships, pubertal growth, dieting, and body image in young adolescent girls: A short-term longitudinal study. *Journal of Research on Adolescence*. 1999; 9:395–415.
- Armstrong B, Janicke DM. Differentiating the effects of maternal and peer encouragement to diet on child weight control attitudes and behaviors. *Appetite*. 2012; 59:723–729. [PubMed: 22885728]
- Bearman SK, Presnell K, Martinez E, Stice E. The skinny on body dissatisfaction: A longitudinal study of adolescent girls and boys. *Journal of Youth and Adolescence*. 2006; 35:229–241.
- Benedikt R, Wertheim EH, Love A. Eating attitudes and weight-loss attempts in female adolescents and their mothers. *Journal of Youth and Adolescence*. 1998; 27:43–57.
- Blodgett Salafia EH, Gondoli DM. A 4-year longitudinal investigation of the processes by which parents and peers influence the development of early adolescent girls' bulimic symptoms. *The Journal of Early Adolescence*. 2011; 21:390–414.
- Blodgett Salafia EH, Gondoli DM, Corning AF, McEnery AM, Grundy AM. Psychological distress as a mediator of the relation between perceived maternal parenting and normative maladaptive eating among adolescent girls. *Journal of Counseling Psychology*. 2007; 54:434–446.
- Bucchianeri MM, Arikian AJ, Hannan PJ, Eisenberg ME, Neumark-Sztainer D. Body dissatisfaction from adolescence to young adulthood: Findings from a 10-year longitudinal study. *Body Image*. 2013; 10:1–7. [PubMed: 23084464]
- Cohen, J.; Cohen, P.; West, SG.; Aiken, LS. *Applied multiple regression/correlation analysis for the behavioral sciences*. 3rd ed.. Hillsdale, NJ: Erlbaum; 2003.
- Cooley E, Toray T, Wange MC, Valdez NN. Maternal effects on daughters' eating pathology and body image. *Eating Behaviors*. 2008; 9:52–61. [PubMed: 18167323]
- Corning AF, Gondoli DM, Bucchianeri MM, Blodgett Salafia EH. Preventing the development of body issues in adolescent girls through intervention with their mothers. *Body Image: An International Journal of Research*. 2010; 7:289–295.
- Crespo C, Kielpikowski M, Jose PE, Pryor J. Relationships between family connectedness and body satisfaction: A longitudinal study of adolescent boys and girls. *Journal of Youth and Adolescence*. 2010; 39:1392–1401. [PubMed: 20938726]
- Francis LA, Birch LL. Maternal influences on daughters' restrained eating behavior. *Health Psychology*. 2005; 24:548–554. [PubMed: 16287400]
- Garner DM, Olmstead MP, Polivy J. Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*. 1983; 2:15–34. doi:10.1002/1098-108X(198321)2:23.0.CO;2-6.
- Helfert S, Warschburger P. A prospective study on the impact of peer and parental pressure on body dissatisfaction in adolescent girls and boys. *Body Image*. 2011; 8:101–109. [PubMed: 21354379]
- Haworth-Hoepfner S. The critical shapes of body image: The role of culture and family in the production of eating disorders. *Journal of Marriage and Family*. 2000; 62:212–227.
- Kelly AM, Wall M, Eisenberg ME, Story M, Neumark-Sztainer D. Adolescent girls with high body satisfaction: Who are they and what can they teach us? *Journal of Adolescent Health*. 2005; 37:391–396. [PubMed: 16227124]
- Kichler JC, Crowther JH. The effects of maternal modeling and negative familial communication on women's eating attitudes and body image. *Behavior Therapy*. 2001; 32:443–457.
- Levine MP, Smolak L, Moodey AF, Shuman MD, Hessen LD. Normative developmental challenges and dieting and eating disturbances in middle school girls. *International Journal of Eating Disorders*. 1994; 15:11–20. doi:10.1002/1098-108X(199401)15:1<11::AID-EAT2260150103>3.0.CO;2-Q. [PubMed: 8124323]
- Linville D, Stice E, Gau J, O'Neil M. Predictive effects of mother and peer influences on increases in adolescent eating disorder risk factors and symptoms: A 3-year longitudinal study. *The International Journal of Eating Disorders*. 2011; 44:745–751. [PubMed: 21344465]
- Moreno A, Thelen MH. Parental factors related to bulimia nervosa. *Addictive Behaviors*. 1993; 18:681–689. [PubMed: 8178706]
- Neumark-Sztainer D, Bauer KW, Friend S, Hannan PJ, Story M, Berge JM. Family weight talk and dieting: How much do they matter for body dissatisfaction and disorder eating behaviors in adolescent girls? *Journal of Adolescent Health*. 2010; 47:270–276. [PubMed: 20708566]

- Ogden J, Steward J. The role of the mother–daughter relationship in explaining weight concern. *International Journal of Eating Disorders*. 2000; 28:78–83. doi:10.1002/(SICI)1098-108X(200007)28:1<78::AID-EAT9>3.0.CO;2-N. [PubMed: 10800016]
- Ogle JP, Damhorst ML. Mothers and daughters: Interpersonal approaches to body and dieting. *Journal of Family Issues*. 2003; 24:448–487.
- Rosenblum G, Lewis M. The relations among body image, physical attractiveness and body mass in adolescence. *Child Development*. 1999; 70:50–64. [PubMed: 10191514]
- Shroff H, Thompson JK. Peer influences, body-image dissatisfaction, eating dysfunction and self-esteem in adolescent girls. *Journal of Health Psychology*. 2006; 11:533–551. [PubMed: 16769734]
- Smolak, L.; Levine, M. Adolescent transitions and eating problems. In: Smolak, L.; Levine, M.; Striegel-Moore, R., editors. *The developmental psychopathology of eating disorders: Implications for research, prevention, and treatment*. Mahwah, NJ: Erlbaum; 1996. p. 207-233.
- Smolak L, Levine M, Schermer F. Parental input and weight concerns among elementary school children. *International Journal of Eating Disorders*. 1999; 25:339–343. doi:10.1002/(SICI)1098-108X(199904)25:3<263::AID-EAT3>3.0.CO;2-V. [PubMed: 10192000]
- Snoek HM, van Strien T, Janssens JMAM, Engels RCME. Longitudinal relationships between fathers', mothers', and adolescents' restrained eating. *Appetite*. 2009; 52:461–468. [PubMed: 19135489]
- Stanton CA, Green SL, Fries EA. Diet-specific social support among rural adolescents. *Journal of Nutrition Education and Behavior*. 2007; 39:214–218. [PubMed: 17606247]
- Vincent MA, McCabe MP. Gender differences among adolescents in family, and peer influences on body dissatisfaction, weight loss, and binge eating behaviors. *Journal of Youth and Adolescence*. 2000; 29:205–221.
- Wertheim EH, Martin G, Prior M, Sanson A, Smart D. Parent influences in the transmission of eating and weight related values and behaviors. *Eating Disorders*. 2002; 10:321–334. [PubMed: 16864275]
- Wertheim EH, Mee V, Paxton SJ. Relationships among girls' eating behaviors and their parents' weight-related attitudes and behaviors. *Sex Roles*. 1999; 41:169–187.

Highlights

- We examine effects of mother diet encouragement on adolescent daughter body image.
- We examine the interaction of mother encouragement and talk of personal weight concerns.
- Mother talk of personal weight concerns buffers effect of encouragement on drive for thinness.
- Mother talk of personal weight concerns buffers effect of encouragement on dieting behavior.

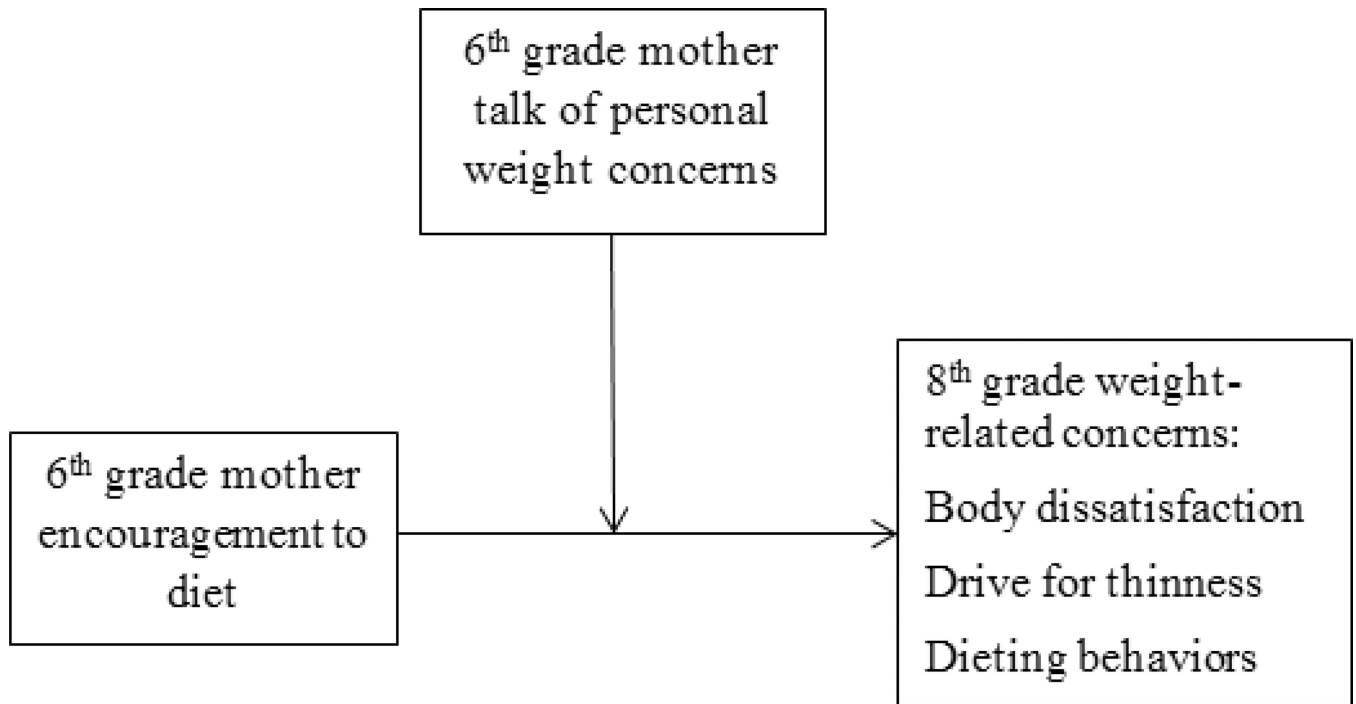


Figure 1.
A conceptual framework for the current analyses.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

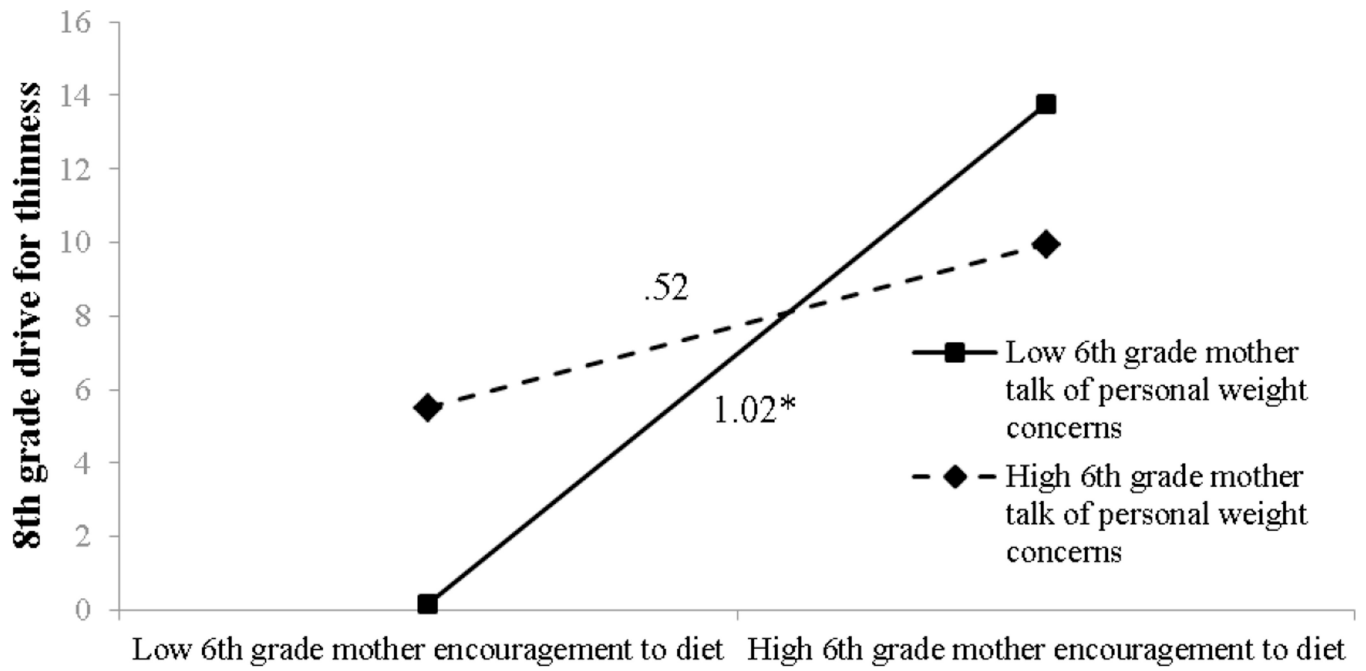


Figure 2.
 The interaction between mother encouragement to diet and mother talk of personal weight concern in 6th grade on daughter drive for thinness in 8th grade.
 * $p < .05$

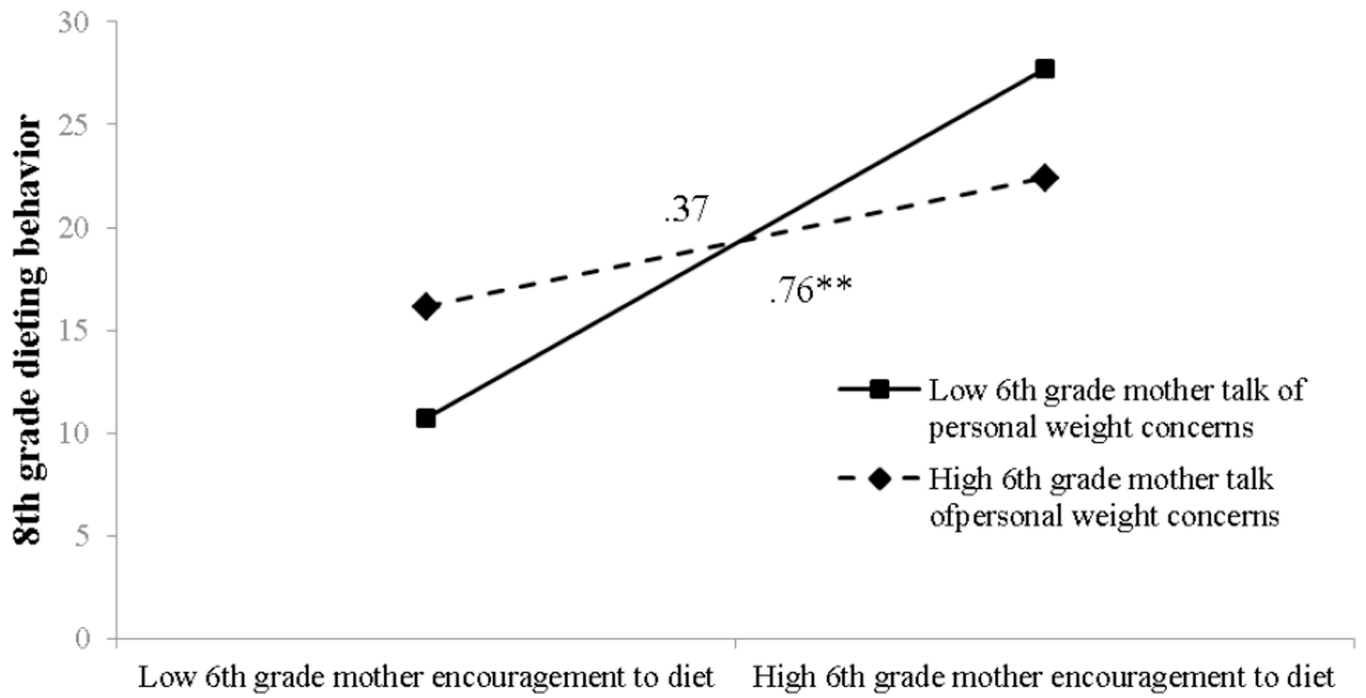


Figure 3. The interaction between mother encouragement to diet and mother talk of personal weight concern in 6th grade on daughter dieting behavior in 8th grade. ** $p < .01$

Table 1

Descriptive Data and Correlations of the Study Variables ($N = 89$).

	1	2	3	4	5	6	7	8	9
1. BMI z (6 th grade)	--								
2. Mother encouragement (6 th grade)	.56**	--							
3. Mother talk of personal weight concerns (6 th grade)	.37**	.46**	--						
4. Body dissatisfaction (6 th grade)	.57**	.67**	.20	--					
5. Drive for thinness (6 th grade)	.51**	.54**	.25*	.74**	--				
6. Dieting behavior (6 th grade)	.51**	.58**	.30**	.59**	.73**	--			
7. Body dissatisfaction (8 th grade)	.52**	.57**	.36**	.66**	.58**	.48**	--		
8. Drive for thinness (8 th grade)	.39**	.43**	.24*	.59**	.67**	.60**	.80**	--	
9. Dieting behavior (8 th grade)	.56**	.58**	.31**	.68**	.68**	.74**	.78**	.84**	--
	<i>M</i>	19.22	3.44	11.11	8.35	5.62	15.68	11.12	9.58
	<i>SD</i>	4.18	2.14	2.79	10.24	7.54	7.22	11.37	9.50
	<i>Range</i>	13.80–36.40	0–10	0–10	0–43	0–28	0–32	0–45	0–35
									0–30

* $p < .05$,

** $p < .01$

Table 2

Results of hierarchical regression analyses predicting 8th-grade daughter body dissatisfaction, drive for thinness, and dieting behavior from 6th-grade mother encouragement to diet, mother talk of personal weight concerns, and the encouragement by talk interaction.

Predictors	8 th grade body dissatisfaction					8 th grade drive for thinness					8 th grade dieting behavior				
	F	R ²	β	Cohen's f^2	sp^2	F	R ²	β	Cohen's f^2	sp^2	F	R ²	β	Cohen's f^2	sp^2
<i>Step 1</i>	36.46***	.46		.85		34.94***	.45		.82		59.60***	.58		1.38	
BMI z			.17	.02				.13	.01				.31***	.05	
DV at 6 th grade			.45***	.09				.57***	.20				.51***	.16	
<i>Step 2</i>	2.95 [†]	.04		.08		.42	.01		.02		1.32	.01		.02	
Mother encouragement to diet			.251	.01				.48**	.04				.66***	.09	
Mother talk of personal weight concerns			.25*	.03				.28*	.01				.31**	.04	
<i>Step 3</i>	1.17	.01		.02		10.03**	.06		.13		25.33***	.10		.32	
Encouragement to diet × Talk of personal weight concerns			-.23	.06				-.64**	.06				-.81***	.10	

* $p < .05$,
 ** $p < .01$,
 *** $p < .001$,
[†] $p = .06$