

Maternal effects on daughters' eating pathology and body image

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Abstract

Effects of maternal eating behaviors and attitudes, maternal feedback to daughter about weight issues, mother–daughter relationship closeness, media influences, and mothers' perceptions of daughters shape on daughters' body image and eating pathology were examined using 91 pairs of mothers and college-aged daughters. Hierarchical multiple regressions using daughters' BMI as the first step were separately performed for daughters' body image and eating pathology. Variables predictive of daughters' body image included negative feedback from mother, mother's disapproval of daughter's figure, and mothers' eating behaviors and attitudes as perceived by daughters. A similar pattern was found for daughters' eating pathology scores with the addition of mothers' tendency to internalize media messages regarding thinness and beauty significantly adding to the prediction. Maternal influence through modeling may be best assessed by using the daughters' perceptions of their mothers because this corresponds to what the daughter was aware of in their mothers' eating attitudes and behaviors. Negative feedback from mothers about daughters' figures and eating patterns significantly increased daughters' difficulties in these areas. Mothers who showed a greater internalization of media messages about thinness were most likely to have daughters with eating pathologies.

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1. Introduction

A number of family factors have been hypothesized to influence maladaptive developmental pathways leading to poor body image and eating pathologies. Family dynamics, and in particular qualities in the mother–daughter relationship, have been frequently identified as playing a crucial role in the development of eating problems (e.g., Bruch, 1973). The empirical research examining such family/relationship issues is not as extensive as one might expect, but there is a growing body of research that focuses on one potential pathway of family influence — parental modeling — particularly maternal modeling. The primary focus of this research has been on the role that a mother's attitudes and behaviors about eating and her own body may play in her daughter's attitudes and behaviors. This modeling effect may be supplemented by the mother's attitude about her daughter's appearance and eating behaviors, and in some cases, direct attempts to influence the daughter's attitudes and behaviors. The following sections will

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summarize research findings that have examined several dimensions of the mother–daughter interaction as predictors of the daughters' eating pathology and body image.

1.1. Maternal modeling

Mothers may influence their daughters' eating behaviors, attitudes and body image by modeling their own attitudes and behaviors. Studies have usually assessed this potential modeling effect by evaluating the mothers' eating behaviors and attitudes and then correlating these to the behaviors and attitudes of daughters. Of course, these data are correlational and cannot clearly establish a causal connection (modeling). But, a first step in establishing a possible modeling effect would be to establish a relationship between mothers' and daughters' behaviors and attitudes. Results examining this relationship have been inconsistent. Supportive studies include [Pike and Rodin \(1991\)](#) who found that mothers of daughters (mean age 16) with greater eating problems also showed a higher level of these behaviors and attitudes than did mothers of daughters with low levels of eating problems. Mothers of daughters with eating issues also reported they first dieted at a younger age. Other studies have also found a significant mother–daughter relationships with fourth and fifth graders ([Ruther & Richman, 1993](#); [Smolak, Levine, & Schermer, 1999](#)) and with daughters who have developed eating disorders ([Steiger, Stotland, Trotter, & Ghadirian, 1996](#)).

Some studies have found significant relationships between maternal eating behaviors and their daughters' eating behaviors only for a subset of problem eating behaviors. For example, [Benedikt, Wertheim and Love \(1998\)](#) found that mothers' behaviors were predictive of their 10th and 11th grade daughters' behaviors only when rather extreme behaviors such as fasting and crash dieting were targeted. The nature of the personal relationship between mother and daughter may influence possible correlations in eating issues. For example, [Kichler and Crowther \(2001\)](#) found that maternal eating problems were related to daughters' eating problems only when mothers made numerous negative comments about the daughters' appearance and encouraged the daughter to diet. Age of the daughter may also affect this relationship with several studies finding a mother–daughter eating behavior relationship with post-pubertal daughters but not with daughters who had not reached puberty ([Sanftner, Crowther, Crawford, & Watts, 1996](#); [Usmiani & Daniluk, 1997](#)).

In contrast, other researchers have failed to find any support for modeling effects because they failed to find a significant relationship between mother and daughter eating patterns ([Fulkerson, Mc Guire, Neumark-Sztainer, 2002](#); [Kanakis & Thelen, 1995](#)). In a longitudinal study of early adolescent girls (mean age=12.3) [Byely, Archibald, Graber, and Brooks-Gunn \(2000\)](#) found that mothers' dieting behaviors and body images were not predictive of the change in these variables in their daughters across a one year period.

In addition to the difficulty of establishing a modeling effect through use of correlational data, a basic requirement for modeling to occur is that the model must be observable to the potential imitator, it must be overt behavior. However, it is not clear that a mother with deep concerns about her own body image, and pathological eating attitudes and behaviors would necessarily reveal these to her daughter. Some mothers may overtly demonstrate their own attitudes and behaviors about thinness, dieting and appearance, while other mothers may not. For this reason, it may be a more revealing evaluation of the potential modeling effect to assess the daughter's perception of her mother's attitudes and behaviors rather than to directly assess the mother. This hypothesis is supported by [Baker, Whisman, and Brownell \(2000\)](#) who found that the daughters' perceptions of their parents were more predictive of their own eating issues than were the parents' self-reports.

1.2. Maternal perceptions of daughters

In addition to the mothers' demonstrated eating behaviors and attitudes, another examined variable has been the mothers' appraisals of their daughters. [Pike and Rodin \(1991\)](#) found that mothers of daughters with higher levels of eating pathology had more negative perceptions of their daughters' appearance. These mothers thought their daughters should lose more weight (controlling for BMI) and they rated their daughters as less attractive compared with daughters' self-ratings. Other studies have replicated this finding that negative maternal appraisal of daughters is associated with greater eating problems ([Moreno & Thelen, 1993](#)). Once again, there are also studies examining this relationship between negative maternal appraisal and eating problems in daughters which have failed to find significant effects ([Kanakis & Thelen, 1995](#)).

1.3. Maternal feedback to daughters

In a third area of research examining mother–daughter relationships and interactions, the focus has been on overt communications from mother to daughter regarding eating and weight issues. Direct negative communications and teasing from mothers to daughters and maternal encouragement to diet or restrict eating have been shown to be associated with increased weight and body shape concerns in daughters (Baker, Whisman, & Schermer, 2000; Gross & Nelson, 2000; Levine, Smolak, Moodey, Shuman, & Hessen, 1994; Moreno & Thelen, 1993; Schwartz, Phares, Tantleff-Dunn, & Thompson, 1999). The likelihood of mothers making such negative statements to their daughters may interact with the mothers' own eating problems. In their path model, Francis and Birch (2005) suggest that mothers' own weight and eating concerns affect their attempts to influence their daughters' weight and eating. There was no support for a modeling effect (no significant relationship between mothers and daughters across the whole sample) but mothers with personal eating and weight concerns were more likely to give negative feedback to their daughters. This negative feedback about eating and body shape, in turn, influenced the daughters' self-perception and led to more restrained eating behavior, even in 9 and 11 year olds. This type of negative feedback from mothers to daughters appears to be quite powerful. Several studies which compared the relative strength of maternal modeling and direct feedback and encouragement from mothers for daughters' weight loss, the direct feedback variable was more powerful than the mothers' own eating attitudes and behaviors (e.g., Baker et al., 2000; Benedikt et al., 1998; McKinley, 1999; Smolak, Levine, & Schermer, 1999).

1.4. Family relationships

Relationships within the family and family dynamics have frequently been theoretically suggested as playing a crucial role in the development of eating disorders (e.g., Bruch, 1973). An examination of the various dimensions of these family dynamics is beyond the scope of the current investigation, but one element of family interaction patterns which is included is the nature of the relationship between mother and daughter.

A number of studies have looked at the nature of the relationship between mother and daughter, independent of specific interactions about eating and weight concerns. The findings of these studies suggest that closeness and warmth in this relationship is a protective factor while a lack of closeness is a risk factor for eating pathology and weight concerns (Archibald, Graber, & Brooks-Gunn, 1999; Swarr & Richards, 1996; Wheeler, Wintre, & Polivy, 2003).

1.5. Culture and media

Although media effects are beyond the realm of the direct mother–daughter interactions that have been examined in this discussion and have not been included in any such mother–daughter study to our knowledge, media experiences are usually based in the home and may be significantly influenced by the home environment. The media has been identified as one of the most powerful sources conveying the “thin is beautiful” message. In particular, adolescents who internalize the media messages about thinness tend to have greater body dissatisfaction and are more prone to pathological eating attitudes (Keery, Shroff, Thompson, Wertheim & Smolak, 2004; Muris, Meesters, van de Blom, & Mayer, 2005). Mothers may in part be powerful communicators of the societal pressure to be thin and may play a role in interpreting media messages for their daughters. Mothers convey the importance associated with appearance, particularly body type, from the wider society. Mothers who have most clearly internalized the media messages may model this focus for their daughters, leading to greater issues for daughters.

1.6. Hypotheses

Mothers' eating attitudes and behaviors and body image will be positively related to daughters' eating attitudes and behaviors and body image, supporting a modeling effect. This positive relationship between mothers and daughters will be strongest when daughter's perception of the mother is used, rather than mothers' self-reports.

Mothers' negative evaluation of their daughters will be predictive of eating and body image issues. The level of direct feedback and encouragement to lose weight from the mother will be related to her daughter's eating attitudes, behaviors and body image.

Closeness of the relationship between mother and daughter will serve as a protective factor for developing eating and body image problems.

Mother's internalization of media messages will be related to daughter's internalization of media messages and to daughters' weight concerns and body image.

2. Method

2.1. Participants

Female college students and their mothers ($N=91$ pairs), completed a series of questionnaires about body image, weight history, eating attitudes and patterns, media influences, and family functioning. The students were recruited from psychology classes at a state university and were offered \$20 in gift certificates if both they and their mother completed the questionnaires. All measures were sent and returned via mail. Of the student participants who completed the questionnaires, a very high return rate of 90% was achieved from the mothers. The sample was almost exclusively Caucasian (96%) with daughters' mean age=21 ($SD=3.3$), and mothers' mean age=48 ($SD=5.0$). This was largely a normal college-aged group, with little or no pathology at a clinical level. Eating problems were assessed in a unitary manner with no attempt to categorize specific eating patterns in separate syndromes.

2.2. Maternal variables

2.2.1. Body image

The level of dissatisfaction with one's figure was assessed using the Body Image Silhouettes (Cooley & Toray, 2001a). This is a series of 11 silhouettes of figures, with midpoints available between figures, to provide a 21-point scale. The participant chooses the figure that most looks like her. The participant then chooses a figure that they would ideally like to have. Figure dissatisfaction was calculated by subtracting the self-ideal figure from the self-perceived actual figure. Mothers rated themselves on the scale, producing a Mother's Figure Dissatisfaction score. Mothers also rated their daughters producing a Mother's Figure Dissatisfaction with Daughter score. These data were never analyzed as a straight discrepancy score, because in each analysis of figure dissatisfaction, the BMI was entered as the first step in the hierarchical analysis. This controls for the BMI effects that heavier women would naturally have greater discrepancy scores because they fall farther from the range of acceptable figures in society. In essence, this analysis addresses the question of what level of dissatisfaction does this individual have in relation to other women with similar BMI's?

In this sample, there was a high correlation between the individual's Body Mass Index (BMI) based on self-reported height and weight and the figure chosen was most similar to the person. The mean r value across the 4 correlations was $r=.80$.

2.2.2. Eating attitudes and behaviors

Weight-related concerns and eating pathology were assessed with a Composite Eating Pathology scale (Klemchuk, Hutchinson, & Frank, 1990) derived from the Eating Disorders Inventory (EDI), and the Weight Concerns Scale (Killen et al., 1994).

The Composite Eating Pathology scale is an 18-item scale that included questions from the Drive for Thinness, Bulimia, and Lack of Interoceptive Awareness scales from the Eating Disorders Inventory. Klemchuk et al., (1990) found these questions to fall on a single factor when administering the EDI to large samples of college women. This instrument was chosen because it has utility in differentiating among non-clinical samples and offers a global assessment of eating problems or symptoms.

The Weight Concerns Scale is a 5-item measure assessing the individual's concern and preoccupation with weight and body shape. Mother's weight history was assessed using questions about weight fluctuations, age at first diet, and the most pounds lost on any diet.

2.2.3. Media influences

Media influences were assessed using the Sociocultural Attitudes toward Appearance Questionnaire-Revised: Female Version (SATAQ) (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). This is a 21-item scale designed to assess the level of awareness and internalization of media-presented body images.

2.3. Daughter variables

The variables assessed for the daughters paralleled the measures described above for the mothers. Daughters were also asked questions about the pressure they felt from their mother to lose weight or remain thin and the closeness of their relationship with their mother.

2.3.1. Body image

Daughters also completed the Body Image Silhouettes (Cooley & Toray, 2001a). They rated themselves, their ideal self, and then they rated their mothers and the figure they think would be ideal for their mother. For self-ratings, only 2 of the 91 participants chose a figure that was larger than themselves as the ideal. This produced a Daughter's Figure Dissatisfaction with self, and Daughter's Figure Dissatisfaction with Mother. These latter scores did not prove informative and were dropped from further analyses.

2.3.2. Eating attitudes and behaviors

Weight-related concerns and eating pathology were assessed with a Composite Eating Pathology scale (Klemchuk et al., 1990) and the Weight Concerns Scale (Killen et al., 1994).

Daughters were also asked to answer the Weight Concerns Scale question for their perception of their mother. This became the data used to assess the daughters' perception of their mothers' eating attitudes and behaviors.

2.3.3. Feedback and relationship questions

Two of the variables of interest, the frequency of negative comments mothers made about the daughter's weight and the closeness of the daughter's relationship with her mother were answered with single items. For negative comments this was: "Has your mother ever made negative comments about your weight?" This question was answered on a 5-point scale, ranging from "never" to "very often". For closeness, the item was: "How would you rate your mother–daughter relationship?" This question was answered on a 5-point scale, ranging from "very warm and close" to "very distant".

2.3.4. Media influences

Media influences were assessed using the Sociocultural Attitudes toward Appearance Questionnaire-Revised: Female Version (SATAQ) (Thompson et al., 1999).

3. Results

The first stage of analysis was to examine the correlations between mother and daughter data that are presented in Table 1. The strongest correlations were between the level of figure dissatisfaction mothers had with their daughter's figure and the Daughter's Figure Dissatisfaction with self ($r=.78$) and with the daughter's BMI ($r=.80$). The

Table 1
Correlations between mothers' and daughters' measures

| Maternal variables | Daughter variables | | | | | |
|---|------------------------|--------|-----------------|-----------------------|-----------------|-----------------|
| | Figure dissatisfaction | BMI | Eating symptoms | SATAQ Internalization | SATAQ Awareness | Weight concerns |
| Figure dissatisfaction | .05 | .25* | .28* | .36** | .30** | .26* |
| Figure dissatisfaction with daughter | .78*** | .80*** | .39*** | .22 | .26* | .46** |
| BMI | .08 | .25* | .00 | .08 | .20 | -.05 |
| Eating symptoms | .28* | -.15 | .28* | .25* | .21 | .29* |
| SATAQ Internalization | .04 | .02 | .28** | .36** | .23* | .23* |
| SATAQ Awareness | .26* | .17 | .13 | .22* | .30** | .15 |
| Weight concerns | .12 | .05 | .16 | .27* | .19 | .26* |
| Daughters' perception of mothers' weight concerns | .29** | .16 | .39** | .21* | .22* | .39** |

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

correlations between mother characteristics and the parallel characteristics in daughters were usually significant, but were moderate in size, in most cases accounting for 15% or less of the variance in daughters' scores.

Hierarchical multiple regression analysis was used to examine the hypotheses for the two major dependent variables, the daughters' levels of figure dissatisfaction and the daughters' level of eating symptoms. The figure dissatisfaction or body image construct was operationalized as the score on the Body Image Silhouettes. The eating symptoms construct was operationalized as the daughters' score on the Composite Eating Pathology scale. For both of these regressions the same series of steps was used in entering the independent variables. One of the challenges of such an analysis was in dealing with a relatively small sample size. This limited the number of variables which could be reasonably used in the regression (Tabachnick & Fidell, 1996). Outside of the first step, the order of entry of the variables was set to correspond to the order of the hypotheses for this study. The evaluation of the significance of each variable was based on the change in the R^2 value which was dependent on the order the variables were entered but each variable was also examined for significance when included in the complete model, with all variables entered. This latter statistic was not related to variable entry order.

In the first step, the daughters' BMI levels were entered, to control for the effects of the daughters' weight status. In the second step, characteristics of the mothers' approach to eating and their own level of figure dissatisfaction were entered (Mother's Composite Eating Pathology scale, Weight Concerns Scale and Mother's Figure Dissatisfaction score). This represented a potential model for the daughters. The next variable set included the daughter's perception of the mother's eating issues and provided information about the relative strength of the self-reported maternal attitudes and behaviors and the perceptions the daughters had about their mothers' eating issues. The next data set included the variables reflecting mothers' negative attitudes and behaviors about their daughters' eating issues and body shape (mothers' dissatisfaction with daughters' figure and the daughters' report of receiving negative comments from mothers). The fifth data set involved the daughters' reports of closeness in their relationships with their mothers. The next variable set included the mothers' acceptance and internalization of media images of thinness as beauty (Sociocultural Attitudes toward Appearance Questionnaire). This evaluated mothers' awareness and acceptance (internalization) of media standards. Although there were many possible interaction terms to examine, the model already contained as many variables as the sample size could support, so the decision was to include only an interaction that had previously been found to be significant. This was the interaction between the mothers' eating issues and the level of negative weight and body shape comments that mothers made to their daughters (Kichler & Crowther, 2001).

Data presented in Table 2 reports the analysis with the Daughter's Figure Dissatisfaction as the dependent variable. In this table, the R^2 change at each step of the hierarchical analysis is reported along with the Beta weights for each variable in the complete model predicting the daughters' level of figure dissatisfaction. The significance of the change in R^2 value with the addition of each of the data sets in the hierarchical regression will be examined first. As can be seen, the daughters' BMI made a large contribution to the explained variance. Significant R^2 changes were associated with the data sets containing mothers' self-reports of eating problems and figure dissatisfaction, the daughters' perceptions of their mothers' weight concerns and the set including the Mother's Figure Dissatisfaction with Daughter and negative comments made to daughters about their eating and weight. The last data set entered, which was

Table 2
Prediction of Daughter's Figure Dissatisfaction

| Variable set | R^2 change | β in final model |
|--|--------------|------------------------|
| Daughters' BMI | .522*** | .327* |
| Mothers' weight concerns | | -.042 |
| Mother's Composite Eating Pathology | .051* | .217 |
| Mother's Figure Dissatisfaction | | .013 |
| Daughters' perceptions of mothers' weight concerns | .032* | .190* |
| Mother's Figure Dissatisfaction with Daughter | | .003 |
| Mothers' negative comments | .126*** | .843** |
| Daughters' closeness to mother | .000 | -.008 |
| Mothers' SATAQ Internalization | | -.071 |
| Mothers' SATAQ Awareness | .003 | .057 |
| Mothers' eating pathology \times negative comments to daughter | .025* | .793* |

Note. Total R^2 for model = .760***.

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

Table 3
Prediction of daughters' eating pathology scores

| Variable set | R^2 change | β in final model |
|--|--------------|------------------------|
| Daughters' BMI | .167*** | .209 |
| Mothers' weight concerns | | .146 |
| Mother's Composite Eating Pathology | .083 | .204 |
| Mother's Figure Dissatisfaction | | .001 |
| Daughters' perceptions of mothers' weight concerns | .090** | .304** |
| Mother's Figure Dissatisfaction with Daughter | .061* | .043 |
| Mothers' negative comments | | .295** |
| Daughters' closeness to mother | .001 | .049 |
| Mothers' SATAQ Internalization | | .254* |
| Mothers' SATAQ Awareness | .053 | .162 |

Note. Total R^2 for model = .455***.

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

comprised of the interaction between Mother's Composite Eating Pathology scale and the level of negative communication from mothers to daughters also leads to a significant R^2 change. The total R^2 value for the total model was .760.

Examining the final model which included all of the variables allowed for conclusions about the significance of the unique contribution of each variable (Beta weights) while controlling for all other variables in the model. Significant Beta weights were associated with daughters' BMI ($p < .005$), the daughters' perceptions of the mothers' weight concerns ($p < .05$), daughters' reports of negative weight comments from their mothers ($p < .01$), Mother's Figure Dissatisfaction with Daughter ($p < .001$) and the interaction between Mother's Composite Eating Pathology scale and the level of negative communication from mothers to daughters ($p < .02$). This interaction was accounted for by the mothers' level of eating pathology being significantly related to the daughters' level of figure dissatisfaction, only when the mother had given negative comments to the daughter about her weight and figure. In the absence of negative comments, maternal eating behaviors and attitudes were not related to daughters' levels of body image and eating problems.

Hierarchical multiple regression analysis was also used to examine the eating pathology scores of the daughters. The variables were then entered in the same order as described above for figure dissatisfaction. The exception to this, in what is reported here, is that interaction between mothers' eating problems (Mother's Composite Eating Pathology scale) and negative communication from mothers to daughters was not significant and it is not reported in Table 3.

Data presented in Table 3 reports the R^2 change at each step of this hierarchical analysis along with the Beta weights for each variable in the complete model. As can be seen, the daughters' BMI made a significant contribution to the explained variance, the other data sets which added significantly to the R^2 value were the daughters' perceptions of their mothers' weight concerns, and the set including the mothers' dissatisfaction with their daughters' figures and negative comments from mothers about their daughters. The total R^2 value for the model was .454.

An examination of the final model including all variables, revealed significant Beta weights were associated with the daughters' perceptions of their mothers' weight concerns ($p < .01$), daughters' reports of negative weight comments from their mothers ($p < .01$), and the mothers' score on the SATAQ Internalization scale ($p < .03$).

4. Discussion

Mothers' self-reported levels of eating symptoms and figure dissatisfaction were significantly related to their daughters' levels of these same variables. This would support a possible modeling effect although such correlational data fails to provide evidence for a direct causal connection. This relationship was relatively small when it was measured by correlations between mother and daughter self-reports. The mother–daughter correlations were considerably stronger when mother self-reports were replaced by the daughters' perceptions of her mother's concerns about weight. Modeling requires overt, observable behavior. Mothers may vary considerably to the extent that they demonstrate their attitudes and behaviors or share them with their daughters. If these relationships reflect a modeling effect, it would be expected that daughters' perceptions may be more powerful predictors than mothers' self-reports. Self-report assessments of mothers' behaviors and attitudes fail to tap into the extent to which mothers demonstrate or

share these with their daughters. So, the daughter's perception of her mother may be a more accurate assessment of what was overtly modeled by the mother, or at least, the model perceived by the daughter. Daughters' perceptions of mothers were better predictors of daughter characteristics than were mothers' self-reports. This held true for both the daughters' eating symptoms and their level of figure dissatisfaction and replicate the findings of Baker et al. (2000).

A possible source of bias which could influence the daughters' perceptions of their mothers is the daughters' own issues with weight and body image. Daughters with more eating and body image issues may perceive their mothers as sharing more of these same issues. However, the fairly large correlation between mothers' weight concerns and the daughters' perception of these concerns ($r = .51$) suggests that daughters' perceptions were reasonably accurate, and not solely the product of bias.

Daughters who felt pressured and criticized by their mothers around eating and body image issues were much more prone to report eating problems and figure dissatisfaction. This agrees with findings from a number of other researchers (e.g., Baker et al., 2000; Gross & Nelson, 2000; Levine et al., 1994; Moreno & Thelen, 1993). In their path model, Francis and Birch (2005) suggest that mothers who have significant eating and body image concerns themselves may be more likely to give their daughter negative feedback in these areas. The current data did not support this hypothesis, partial correlations controlling for mothers' eating symptoms and figure dissatisfaction found that the negative feedback from mother variable was a significant predictor of both daughter eating problems ($r = .41$) and figure dissatisfaction ($r = .44$). Of course, Francis and Birch used a considerably younger sample of daughters (aged 5 to 11) than in the current sample.

Direct negative feedback from mothers about weight issues was a powerful predictor of both figure dissatisfaction and eating symptoms in daughters. Although the current results only focused on negative feedback from mothers, these data coincide with other research which has addressed the significant role that teasing may play in establishing and maintaining eating pathology (Keery et al., 2005). Receiving negative messages about one's body and or eating patterns may lead to an internalization of these messages, or at least a sensitization to the issues involved.

There may be certain conditions that cause mothers' own eating behaviors, attitudes and body image and direct feedback from mothers to be particularly powerful. Building on the interaction identified by Kichler and Crowther (2001) between maternal eating symptoms and negative feedback to the daughter, we replicated this interaction effect for the Daughter's Figure Dissatisfaction. Mothers with more eating symptoms and greater dissatisfaction with their daughters' figures had daughters with greater figure dissatisfaction but this relationship was found only when mothers gave negative feedback to their daughters about their figure and eating. In the absence of this feedback, mothers' disapproval of daughters and mothers' own eating issues were not related to daughters' level of figure dissatisfaction. One possible explanation is that mothers who are willing to make negative comments to daughters may be more overt in their own behaviors and attitudes, and through these comments may illustrate their own beliefs and attitudes. In the absence of this negative feedback to daughters, the mothers' own issues with eating and body image may be less apparent and less likely to be internalized by the daughters. This interaction which predicted figure dissatisfaction in daughters, did not, however, significantly predict the daughters' eating symptoms.

One hypothesis that did not receive any empirical support was that having a close relationship with her mother could serve as a protective factor in the daughter's eating symptoms and body image. The operational definition of closeness in the mother–daughter relationship was a single item. This may have failed to adequately assess the richness of this variable.

Finally, an assessment of the awareness and internalization of media messages found a moderate relationship between mothers and their daughters. The regression predicting the level of daughters' eating symptoms found that a mother's internalization of media messages about body image and thinness played a role in her daughter's eating symptoms. Mothers may be conveyors of societal values, serving as a window into society at large. Mothers who are more accepting of societal values (by internalizing them) may be more likely to expose daughters to these influences, and may be more supportive of the influences. It is also possible that these mothers are more overt in modeling their own attitudes and behaviors.

Several significant limitations of the current data should be noted. These data were not longitudinal, so causal connections are primarily suggestive, without clear empirical support. The age of the participants could also be a limitation. By age 21, the mean in this study, eating symptoms have very likely already developed and may be fairly stable (Cooley & Toray, 2001b). Maternal effects may be more actively involved in the development of eating and body image issues much earlier in adolescence. Ideally, a longitudinal study would follow the development of eating symptoms and maternal effects longitudinally from age 8 or 9 through adolescence (Francis & Birch, 2005). The

sample used in this study was fairly homogeneous and did not contain participants with symptoms severe enough to be diagnosed as eating disordered. And, finally, these data did not distinguish between subtypes of eating pathologies such as anorexic or bulimic behaviors, but rather looked at overall levels of eating symptoms.

The role of family factors in developing maladaptive eating attitudes, behaviors, and body images in young women may be a productive one to pursue in future longitudinal studies. This study suggests that mothers may influence their developing daughters through their own modeled behaviors and attitudes, through their critical feedback to the daughters, and through the mothers' internalization of media images of thinness and beauty. If these hypothesized risk factors are supported by longitudinal studies, there are important implications for prevention programs. The targets for primary prevention programs focused on pre-adolescent girls may be on the mothers of these girls.

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