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Disordered eating in college women: Associations with the mother-daughter relationship

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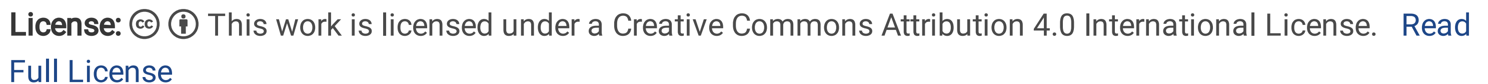

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Abstract

Purpose

Extensive work in the field has found multiple risk factors of disordered eating among women; however, there is limited research surrounding the mother-daughter relationship. Thus, the purpose of this study was to explore how the mother-daughter relationship may be either protective or detrimental to the development of disordered eating in college-aged women.

Methods

A diverse sample of college-aged women (N = 528; mean age 20.15 ± 1.3SD years; 38.6% White) completed an online survey with reliable and valid instruments that assessed disordered eating behaviors (dependent variable) with the following independent variables: aspects of the mother-daughter relationship (maternal regard and responsibility), emphasis on maternal weight and weight control, parent weight talk, eating disorder history, and body mass index. To determine predictors of disordered eating behaviors, four separate multiple linear regression models were conducted.

Results

The multiple linear regression model predicting disordered eating behaviors revealed that the overall the model accounted for 36.3%% of the variance ($F(7,520) = 43.93$, $p < 0.001$). Maternal responsibility, appearance weight control, parent weight talk, and emphasis on maternal weight were the only independent variables significantly ($p < 0.05$) associated with disordered eating behaviors in the model. That is, conversations surrounding weight and appearance, negative weight talk from mothers, and increased feelings of responsibility for mother's happiness was associated with increased disordered eating behaviors.

Conclusions

Findings illustrate the important role mothers have in shaping their daughters eating attitudes and behaviors. Future disordered eating prevention programs and interventions may want to consider developing strategies in helping to improve mother-daughter relationships.

Introduction

Current estimates indicate that approximately 10–20% of college-aged women suffer from some form of an eating disorder [1], with higher prevalence rates in those suffering from undiagnosed subclinical symptoms such as excessive exercising, body dissatisfaction, calorie restriction, and misuse of laxatives or diuretics [1–3]. Some widely recognized risk factors for the development of disordered eating and clinical diagnoses of eating disorders include biological (e.g. family history of eating disorder), social (e.g., weight teasing and stigma), and psychological (e.g., perfectionism, body image dissatisfaction) factors [4]. However, recent

work suggests the mother-daughter relationship, a social factor, may be a risk factor for disordered eating because of the influence mothers may have in shaping their daughter's attitudes and weight-related behaviors [5, 6].

The emphasis mothers place on weight through dieting, comments regarding weight, and encouragement for their daughter to diet are factors that have been found to be significantly associated with weight-related behaviors in daughters [5]. In addition, girls are significantly more likely to have disordered eating symptoms if they perceive their mother to have a high level of concern regarding her own weight; this same relationship was seen among girls whose mothers spoke negatively about their weight or eating patterns [7]. Further, emphasis on maternal weight has been found to be predictive of college women's reports of both dieting and bulimic behaviors [8].

A unique bond exists between mothers and daughters that results in the tendency for daughters to endorse similar attitudes, beliefs, and behaviors as their mothers [9], particularly in regard to weight [10]. Compared to paternal influence, maternal weight-talk and dieting is more likely to be associated with weight-related behaviors and body dissatisfaction in girls [11]; thus, illustrating that although other family members may play a role, maternal behaviors seem to have a particularly strong influence on their daughters' development of body dissatisfaction and disordered eating behaviors.

The development of disordered eating is thought to be learned, to some extent, through a daughter's modeling of maternal behaviors [7, 12] either directly or indirectly [10, 13, 14]. Indeed, mothers whose daughters have symptoms of an eating disorder are significantly more likely to have an eating disorder themselves, compared to mothers of daughters who show no symptoms of an eating disorder [7, 15]. However, research also suggests that the development of weight concerns in daughters may be a result of more than just modeling maternal behavior. In fact, it could be the essence of the relationship that is more influential [16]. This distinction highlights how a combination of maternal factors, along with aspects of the mother-daughter relationship, may influence development of disordered eating among girls later in life.

When addressing the mother-daughter dyad in conjunction with disordered eating, it is necessary to examine the daughter's perception of both positive and negative experiences within the relationship. Longitudinal analysis has found that conflicts within the relationship are predictive of increased dieting and lower body satisfaction over the course of one year [17]. When comparing anorexic women to a control group, daughters who were anorexic were more likely to report feeling like a parent to their mother as a result of limited boundaries within the relationship [18]. Additionally, teenage girls had a greater tendency toward restrictive dieting and body dissatisfaction if their mothers reported a low belief in their own autonomy [16]. Alternatively, a daughter's perception of high family connectedness has been associated with higher body satisfaction [19]. These findings demonstrate that although negative experiences within the mother-daughter relationship may be detrimental to the daughter's development of disordered eating, positive experiences could be protective.

Extensive work in the field has found a variety of risk factors for disordered eating among women [4], particularly the relationship daughters have with their mothers [10]. However, there is limited research assessing how specific aspects of the mother-daughter relationship, as perceived by the adult daughter, may

contribute to the adult daughter's development of disordered eating behaviors. Thus, the purpose this study was to expand upon the literature in exploring how both favorable and unfavorable feelings regarding the mother-daughter relationship may be either protective or detrimental to the daughter's development of disordered eating behaviors. Based on previous research, it was hypothesized that greater emphasis on maternal weight, in conjunction with a daughter's feelings of low regard and high responsibility for her mother, would be significantly associated with disordered eating behaviors in college-aged women.

Methods

This cross-sectional research study was approved by the Institutional Review Board at the authors' institution. All subjects provided consent to participate in the online survey for this study.

Sample

Subjects for this study were undergraduate women between the ages of 18-24 years old, enrolled at a university located in the northeast of the United States. Women were recruited via email and class announcements (during Fall 2019) from a variety of introductory classes. As an incentive to participate, subjects in select courses were given extra credit for completing the online survey for this study. The online survey was administered via Qualtrics.

Measures

The anonymous online survey included demographic and health-related questions such as self-reported age, gender, ethnicity, height, weight, and whether participants received prior diagnosis or treatment for an eating disorder. These questions were followed by reliable and valid instruments, as described in more detail below. It should be noted that questions were structured to be inclusive of those who were not raised by their biological parents. For example, a question set about mothers would be prefaced with the following statement: "Please note that 'mother' refers to any female guardian figure." Additionally, all items on the survey, except for the demographic and health-related questions, were asked on a 5-point scale with responses of never, rarely, sometimes, usually, and always, and computed for average scale scores for each instrument.

Disordered Eating Symptoms

Disordered eating symptoms were measured using the 26-item Eating Attitudes Test (EAT-26) [20]. Although items are typically rated on a 6-point scale, the response categories were altered to a 5-point scale in order to maintain consistency among all items. This modification prevented scoring the instrument for clinical purposes; however, it made the survey user friendly for the subjects who participated [8]. Mean scores were calculated for each subscale (dieting, bulimia and food preoccupation, and oral control) and total score for the questionnaire with higher mean scores indicating greater disordered eating behaviors.

The Mother-Daughter Relationship

Two factors, *regard* (5 items) and *responsibility* (8 items), from the Parent Adult-Child Relationship Questionnaire (PACQ) was used to assess the adult daughter's perception of the relationship she has with her mother [21]. In short, the "regard" factor relates to the positive emotions that are typically associated with attachment or care. Alternatively, the "responsibility" factor corresponds to negative emotions associated with the adult-child's feelings of being responsible for their mother's happiness. Items were averaged with higher scores indicating greater maternal regard and responsibility.

Weight and Appearance Related Conversations

Two of the seven subscales, *emphasis on maternal weight* (3 items) and *appearance weight control* (6 items), from the Childhood Family Mealtime Questionnaire (CFMQ) were used to assess conversations and behaviors surrounding appearance and weight loss in the household [22]. The questions were formatted retrospectively to gain a better understanding of the family environment when the participant was most likely living with her caregivers. Items were averaged on each scale with higher scale scores indicating greater emphasis on maternal weight and appearance weight control.

The final set of questions in the online survey were adapted from a theater-based obesity prevention program [23]. In contrast to the CFMQ, this set of questions was framed to examine family weight-related behaviors within six months prior to taking the survey. The Parent Weight Talk Scale included 7 items such as "In the last 6 months, how often have your parents: encouraged you to diet or lose weight, gone on a diet, talked about wanting to lose weight, or made comments about other people's weight." Items were averaged with higher mean scores indicating greater parent weight talk in the last six months.

Data Analysis

Survey data from Qualtrics was exported into a Microsoft Excel document (version 2020, Microsoft Corp., Redmond, WA) and reviewed for adequacy. Subjects who did not meet the age criteria were excluded, as were subjects who failed to answer questions from any of the four measures. Body Mass Index (BMI) was calculated based on self-reported heights and weights and then categorized into weight status groups as recommended by the Centers for Disease Control and Prevention [24]. Additionally, the scoring of scales was conducted in Microsoft Excel. Following preliminary analysis in Microsoft Excel, the data was exported into the Statistical Package for the Social Sciences (version 26, IBM Corp., Armonk, NY) for further analysis. Descriptive statistics were performed for all variables. Lastly, four separate multiple regression analyses were performed to determine predictors of unhealthy dieting, bulimic behaviors, oral control, and disordered eating behaviors. The independent variables included in each of the models were as follows: Mother Regard, Mother Responsibility, Emphasis on Maternal Weight, Appearance Weight Control, Parent Weight Talk, BMI, and History of an Eating Disorder Diagnosis or Treatment. The dependent variables in each model were the subscales and total scale score from the EAT-26 instrument. To assess for multicollinearity of independent variables in the regression models, Pearson correlation analysis and variance inflation factors were examined. Standardized and unstandardized beta coefficients, standard errors, adjusted R-squared, and 95% confidence intervals were reported in each of the four models. Significant level was set at $p < 0.05$.

Results

Of the 590 women who responded to the survey, only 528 (89.5%) had complete responses and were part of the final data analytical sample. The characteristics of the study population are shown in Table 1. The study sample was diverse in ethnicity with most being White (38.6%) or Asian (31.6%) followed by Hispanic/Latino (14.6%) and Black/African American (14.2%). Almost two-thirds (63.4%) of participants were categorized as normal weight status. Few participants (5.7%) reported a history of being diagnosed with or treated for an eating disorder.

Table 1
Characteristics of the Study Population

Characteristic	N (%) or Mean ± SD
Ethnicity	**N (Percent)**
American/Alaskan Native	2 (0.4%)
Asian	167 (31.6%)
Black/African American	75 (14.2%)
Hispanic/Latino	77 (14.6%)
White	204 (38.6%)
Unreported	3 (0.6%)
Age (n = 526)*	20.15 ± 1.3
BMI (n = 528)	23.51 ± 4.4
Weight Status	
Underweight (BMI < 18.5)	40 (7.6%)
Normal Weight (BMI 18.5–24.9)	335 (63.4%)
Overweight (BMI 25-29.9)	110 (20.8%)
Obese (BMI ≥ 30)	43 (8.1%)
History of Eating Disorder Diagnosis or Treatment	30 (5.7%)
*Two participants did not self-report their age	

Independent variables in the four regression models that were assessed for multicollinearity through Pearson correlation analysis and variance inflation factors revealed no multicollinearity was evident. The seven independent variables in the multiple regression model predicting unhealthy dieting behaviors (Table 2), overall accounted for 35.8% of the variance ($F(7, 520) = 42.93$, $p < 0.001$). Maternal responsibility, appearance weight control, parent weight talk, BMI, and a history of an eating disorder diagnosis or treatment were independent variables significantly ($p < 0.05$) associated with unhealthy dieting behaviors in the model. Thus, girls whose families prioritized weight and appearance and encouraged their daughters to diet, and felt they were responsible for their mother's happiness and wellbeing, were more likely to endorse

unhealthy dieting behaviors even after controlling for BMI and history of having an eating disorder diagnosis or treatment in the model.

Table 2
Multiple Linear Regression Examining Predictors of Unhealthy Dieting Behaviors

Independent Variables	B[a]	ß[b]	SE	95% CI	p-value
Maternal Regard	0.04	0.05	0.03	(-0.02, 0.10)	0.124
Maternal Responsibility	0.08	0.09	0.04	(0.01. 0.15)	0.018
Appearance Weight Control	0.30	0.36	0.04	(0.22, 0.38)	< 0.001
Parent Weight Talk	0.12	0.14	0.04	(0.03, 0.21)	0.006
Emphasis on Maternal Weight	0.05	0.05	0.04	(-0.03, 0.12)	0.237
Body Mass Index	0.02	0.10	0.01	(0.01, 0.03)	0.008
History of an Eating Disorder Diagnosis or Treatment	0.59	0.17	0.13	(0.34, 0.85)	< 0.001
Adjusted R^2 = 0.358					
Note: SE = Standard Error, CI = Confidence Interval; Adjusted for body mass index					
a Unstandardized Coefficients					
b Standardized Coefficients					

The seven independent variables in the multiple regression model predicting bulimia and food preoccupation (Table 3), overall accounted for 34.4% of the variance ($F(7, 520) = 40.47$, $p < 0.001$). However, only appearance weight control, parent weight talk, and history of an eating disorder diagnosis or treatment were independent variables significantly ($p < 0.05$) associated with bulimic behaviors and food preoccupation in the model. In other words, girls whose families spoke about, encouraged, or participated in dieting and weight loss behaviors, were more likely to endorse binge and purge behaviors or exhibit an intense interest in food or food consumption above and beyond other variables in the model.

Table 3
Multiple Linear Regression Examining Predictors of Bulimic and Food Preoccupation

Independent Variables	B[a]	ß[b]	SE	95% CI	p-value
Maternal Regard	0.00	0.01	0.03	(-0.06. 0.07)	0.888
Maternal Responsibility	0.06	0.07	0.03	(0.00, 0.13)	0.055
Appearance Weight Control	0.19	0.25	0.04	(0.11, 0.26)	< 0.001
Parent Weight Talk	0.18	0.22	0.04	(0.10, 0.26)	< 0.001
Emphasis on Maternal Weight	0.06	0.08	0.04	(-0.01, 0.14)	0.083
Body Mass Index	0.00	0.02	0.01	(-0.01, 0.02)	0.586
History of an Eating Disorder Diagnosis or Treatment	0.82	0.25	0.12	(0.58, 1.06)	< 0.001
Adjusted R^2 = 0.344					
Note: SE = Standard Error, CI = Confidence Interval; Adjusted for body mass index					
a Unstandardized Coefficients					
b Standardized Coefficients					

The seven independent variables in the multiple regression model predicting oral control (Table 4), overall accounted for 14.6% of the variance ($F(7, 520) = 13.83$, $p < 0.001$). Only appearance weight control and emphasis on maternal weight were independent variables that were significantly ($p < 0.05$) associated with oral control behaviors in the model. That is, emphasis on appearance and weight in the family and negative weight talk from mothers was associated with a girl’s sense of control regarding the consumption of food even after controlling for BMI and history of an eating disorder diagnosis or treatment.

Table 4
Multiple Linear Regression Examining Predictors of Oral Control

Independent Variables	B[a]	ß[b]	SE	95% CI	p-value
Maternal Regard	0.02	0.03	0.03	(-0.04, 0.08)	0.495
Maternal Responsibility	0.06	0.07	0.03	(-0.01, 0.12)	0.090
Appearance Weight Control	0.17	0.26	0.04	(0.10, 0.25)	< 0.001
Parent Weight Talk	-0.03	-0.04	0.04	(-0.11, 0.05)	0.522
Emphasis on Maternal Weight	0.08	0.12	0.04	(0.01, 0.16)	0.021
Body Mass Index	-0.04	-0.29	0.01	(-0.06, -0.03)	< 0.001
History of an Eating Disorder Diagnosis or Treatment	0.34	0.12	0.12	(0.10, 0.58)	0.005
Adjusted R^2 = 0.146					
Note: SE = Standard Error, CI = Confidence Interval; Adjusted for body mass index					
a Unstandardized Coefficients					
b Standardized Coefficients					

The seven independent variables in the multiple regression model predicting disordered eating behavior (Table 5), overall accounted for 36.3%% of the variance ($F(7,520) = 43.93$, $p < 0.001$). Maternal responsibility, appearance weight control, parent weight talk, and emphasis on maternal weight were the only independent variables significantly ($p < 0.05$) associated with disordered eating behavior in the model. Thus, conversations surrounding weight and appearance in the household, negative weight talk from mothers, and increased feelings of responsibility for their mother's happiness and wellbeing was associated with increased disordered eating behaviors.

Table 5
Multiple Linear Regression Examining Predictors of Disordered Eating Behavior

Independent Variables	B[a]	ß[b]	SE	95% CI	p-value
Maternal Regard	0.03	0.04	0.03	(-0.02, 0.08)	0.295
Maternal Responsibility	0.07	0.10	0.03	(0.02, 0.12)	0.010
Appearance Weight Control	0.24	0.37	0.03	(0.18, 0.30)	< 0.001
Parent Weight Talk	0.10	0.14	0.04	(0.03, 0.16)	0.006
Emphasis on Maternal Weight	0.06	0.09	0.03	(0.00, 0.12)	0.049
Body Mass Index	0.00	-0.01	0.01	(-0.01, 0.01)	0.830
History of an Eating Disorder Diagnosis or Treatment	0.58	0.20	0.10	(0.38, 0.78)	< 0.001
Adjusted R^2 = 0.363					
Note: SE = Standard Error, CI = Confidence Interval; Adjusted for body mass index					
a Unstandardized Coefficients					
b Standardized Coefficients					

Discussion

Overall, findings suggest that emphasis on maternal weight is associated with disordered eating behaviors in college-aged women. In other words, women who reported that their mothers dieted or regularly worried about their own weight growing up were more likely to exhibit similar behaviors themselves later in life as a young adult. These results are consistent with previous research [5, 7, 8] and align with our hypothesis that emphasis on maternal weight contributes to the development of disordered eating behaviors in daughters.

Similar to maternal emphasis on weight, the current study suggests that family emphasis on dieting, weight, and appearance is associated with disordered eating in girls. As stated previously, the appearance weight control and parent weight talk measures were utilized to assess conversations in the household regarding dieting and weight loss during different stages of the participant's life. Although the two measures examined behaviors of both parents, rather than just mothers, they served to gauge the period in life that conversations surrounding weight appear to be most critical. There did not appear to be much difference, as both measures were significantly associated with disordered eating in most of the regression models, except for oral control, where parent weight talk was not statistically significant. This is consistent with prior work which found that emphasis on dieting and weight among families was associated with disordered eating behaviors in young women [22].

Previous research has found that maternal weight-talk and dieting is more likely to be associated with weight-related behaviors in daughters when compared to paternal characteristics [7, 25, 11]. This is likely because both mothers and daughters experience the same societal pressures to achieve the thin ideal [26,

15]. As a result, it has been hypothesized in the literature that daughters may look to, and model, their mothers' behaviors and attitudes as a coping method [27, 26, 28]. Although the parent weight talk and appearance weight control measures assessed behaviors of both parents in our study, we believe that maternal attitudes and behaviors were more influential in their daughter's development of disordered eating due to findings from previous studies [7, 25, 11].

Results from this study indicate that maternal regard is not associated with disordered eating behaviors in college-aged women. This finding was expected as previous research has shown that daughters are less likely to experience body image concerns when they have a safe and connected relationship with their mother [29–31]. This is likely due to the increased sense of wellbeing that a daughter might experience as a result of the relationship, which has been associated with a positive effect on both self-esteem and body-image [32, 33].

Consistent with our hypothesis, maternal responsibility was associated with disordered eating behaviors in college-aged women. That is, women who felt as though they were responsible for their mother's happiness and wellbeing growing up were more likely to utilize unhealthy dieting and weight-control methods as a young adult. This finding is supported by results from previous studies where girls were more likely to have disordered eating behaviors if they felt either like a parent to their mother or their mother lacked her own autonomy [16, 18]. One explanation for the relationship between maternal responsibility and disordered eating is that daughter's may feel they are not in control of the negative relationship they have with their mother, so they resort to dieting to gain a sense of control [34]. Although maternal responsibility was not associated with bulimia and oral control, it was associated with the dieting as well as overall disordered eating behaviors. These findings suggest that a daughter's sense of responsibility for her mother is detrimental to her development of disordered eating, particularly if her mother participates in these behaviors herself.

It is important to note study limitations and strengths. This was a convenience sample of women recruited from one U.S. university, so findings cannot be generalized to all college-aged women. However, it was a large sample of diverse college-aged women, thereby giving power to the study findings. Another limitation is that some of the questionnaires used in our study may not have been comprehensive enough in answering our research questions. For example, the CFMQ and "Parent Weight Talk" questionnaires analyzed both maternal and paternal attitudes surrounding weight and appearance, however the purpose of this study was to analyze maternal behavior exclusively. Additionally, the "Parent Weight Talk" measure is intended for use on children and has yet to be validated in college-aged students. Future work should consider more robust measures that is prospective in study design to aid in determining casual inferences.

What is already known on this subject

Previous research has found a variety of biological, psychological, and social factors to be associated with a women's risk of developing disordered eating behaviors. Recently, it has been suggested that maternal influence on her daughter's attitudes and weight-related behaviors may contribute to these risk factors.

What we now know as a result of this study

This study sheds light on how the adult daughter's perception of the relationship she has with her mother may be either protective or detrimental to her development of disordered eating behaviors.

Conclusion

The results from this study partially support our hypothesis in that emphasis on maternal weight, coupled with a daughter's report of responsibility for her mother, is associated with disordered eating behaviors in college-aged women. These findings illustrate the important role that the mother-daughter relationship plays in the development of disordered eating behaviors in girls. If these risk factors are supported by results from longitudinal studies, there are strong implications for the advancement of disordered eating prevention programs. Focus should shift from increasing body satisfaction in girls to improving the relationship that mothers have with not only food and their bodies but also with their daughters.

Declarations

Conflicts of Interest:

The authors have no conflicts of interest to declare.

Availability of data and material:

Data may be made available upon request.

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