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ORIGINAL ARTICLE

Family Relations and Psychopathology: Examining Depressive and Bulimic Symptomatology

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Abstract Despite early theories suggesting that family dysfunction (FD) may cause disordered eating, FD has been linked with other disorders and is a non-specific risk factor for disordered eating. We examined one potential model of the way FD relates to disordered eating, drawing on research that identified depression as a risk factor for bulimia. We examined whether depression symptoms (DEPs) partially mediated the relationship between family cohesion (as a measure of FD) and bulimic symptoms (BNs) using a sample of 215 never-married college women under age 20. Perceptions that one's family was less cohesive (or more disengaged) was associated with increased DEPs and BNs. Moreover, DEPs partially mediated the influence of cohesion on BNs through a significant indirect effect. Both family systems in general and treatment of mood difficulties may be important considerations in the prevention of disordered eating, and prevention efforts that include family relationships should be experimentally explored.

Keywords Family cohesion · Bulimic symptoms · Depression

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Introduction

Researchers and clinicians alike have long looked to the family to understand the development of psychopathology. According to Webster and Palmer [1], Charcot, Lasègue, and Gull were among those individuals who, as early as the 1870s and 1880s, argued that the family played an important role in the epidemiology of psychopathology. The pattern of examining family patterns as a contributing etiological factor to psychopathology was also extended to eating disorders.

Research regarding the etiology of eating disorders has demonstrated the important influence of a number of variables (e.g., peers [2, 3], media images [4], body image disturbance [5, 6], genetics and hormones [7, 8], gender role socialization [9]). The role of family influence remains an important area of study for two important reasons. First, family patterns may be linked to multiple types of psychopathology in ways that are distinct from other risk factors like media consumption and internalization of the thin ideal. This raises questions about how family patterns may fit into the etiology of eating disorders when the risk seems non-specific. Second, families represent a set of individuals that typically have long-term influence over the development of individuals, given that the influence of families starts with birth (long before other social relationships form and before media consumption begins) and can continue into adulthood. As such, we sought to build on this research to specifically examine differences in cohesion as one characteristic of families that may play a role in the development of bulimia.

Theorists and Early Systematic Literature on Family Dynamics and Eating Disorders

During the 1970s, Bruch [10, 11], Minuchin and colleagues [12], and Selvini Palazzoli [13] were widely recognized for articulating a perspective that families play a critical role in the etiology of eating disorders. Because bulimia was not a diagnosable psychiatric condition at the time (for a review of the history of bulimia nervosa as a diagnosis, see [14]), these early theorists focused on anorexia. Although subsequent research on family factors and bulimia has revealed some unique family characteristics that we describe below, a review of the ideas of the theorists of the 1970s provides a context for the development of this line of research.

Bruch [10] identified excessive parental control and inability to allow children to develop independence as important family patterns common among individuals with anorexia. She suggested that anorexia may be a way in which the child attempts to assert his/her identity in spite of feeling ineffective and powerless [11]. That is, anorexia is a form of rejecting the intense conformity called for by the family system such that when the system prevents individuation, the identity becomes focused on mastery over one thing—the body. Minuchin et al. [12] espoused similar views but used a systems perspective to conceptualize anorexia. They identified a group of family-system characteristics that they believed typify the "psychosomatic" families of patients with anorexia, where pathological family interactions appear to evoke and sustain a child's symptoms. One such characteristic was enmeshment, a form of family interaction in which members are over-involved with one another. Selvini Palazzoli (see [13]) also used a systems perspective and described characteristics that she believed typified the families of her patients with anorexia. In her conceptualization, she emphasized that there were dysfunctional patterns of interaction within the parental couple. The patient (i.e., the child) was heavily involved in these dysfunctional patterns (i.e., forming an inappropriately close relationship with one parent to the exclusion of the other). The child's symptoms of anorexia often served to alter or maintain the dysfunctional pattern.

Family Patterns and Bulimic Symptoms

Since the 1970s, researchers have extended the focus of family relations research to bulimia and have proposed additional theories regarding the link between family patterns and disordered eating [15, 16]. For example, Johnson and Connors [17] suggest that the role of the family in the etiology of bulimia may be that the family environment does not provide the requisite tools to cope with distressing affective experiences. Descriptive studies have yielded findings supporting the presence of a link between particular types of problematic family relationships and a range of disordered eating behaviors (including subclinical levels of eating disturbances). In a study of participants who did not meet full diagnostic criteria for an eating disorder, Conners [18] described several domains of family functioning that relate to disordered eating behaviors, including those associated with bulimia. In particular, he noted that family cohesion relates to Minuchin's enmeshed versus disengaged continuum. Family cohesion specifically involves the connection and closeness within the family without reference to enmeshment (such that cohesive families are close and connected rather than disengaged). Research suggests that greater family cohesion is associated with less frequent binges among individuals with eating disorders [19]. In non-clinical samples, girls who were not engaging in dieting reported greater perceived support from parents [20], and disengagement was associated with restrictive eating [21]. Although related to the enmeshment construct, research on cohesion (or lack thereof) and eating disorders may better mirror the findings related to the construct of disengagement (as described by Minuchin, [12]). In other words, measures of cohesion may assess closeness and supportive family environments without assessing the over-identification component of enmeshment.

The notion of cohesion serving as a continuum of family disengagement (where highly cohesive families are low on disengagement and families low in cohesion are extremely disengaged) may be particularly useful in understanding the nature of families of young women with bulimia. More recent theories emphasize that for individuals with bulimia, the family environment is often one where members are disengaged, neglectful, conflicted, and lacking in emotional expression [17]. Some of Minuchin's observations about families of individuals with anorexia may remain relevant in families of individuals with bulimia (high levels of control and lack of support for autonomy may be present) [17]. However, his notion of enmeshment and rigidity may be more relevant for anorexia, whereas the lack of emotional closeness and support that are characteristic of disengaged families may make lack of cohesion more relevant for bulimia. Indeed, high school girls with binging symptoms reported higher levels of family incohesion (i.e., a lack of cohesion within their families) than non-symptomatic girls, but girls with anorexia-like symptoms did not differ from non-symptomatic girls with regard to levels of family incohesion [22]. In addition, some theorists have suggested that a pseudo-autonomy may be present, wherein there exists the appearance of fewer rules with more prohibition against self-expression and less closeness [17]. In fact, individuals with bulimia tend to perceive their parents as more rejecting and disengaged than do women without eating disorders [23], and reduced levels of connection between mothers and daughters and greater desire for connection were

associated with more frequent binges and higher levels of eating concerns among women with bulimia in treatment [24]. Based upon this pattern of findings, some researchers have suggested that bulimia is more associated with disengaged families, whereas enmeshed family patterns may be particularly characteristic of individuals with anorexia [25, 26]. Thus, it may be particularly meaningful to examine lack of cohesion when exploring potential risk factors for bulimia.

The family system is believed to hold an important place in the etiology of disordered eating. Yet, the results from research exploring the relationship between family dynamics and disordered eating have not always yielded expected findings. For example, Bailey [25] found that family disengagement, but not enmeshment, was associated with disordered eating, and Attie and Brooks-Gunn [27] obtained null results when examining disengaged families. These studies in which the expected association between certain family characteristics and disordered eating was not obtained suggest that the relationship may be more complex (e.g., involving mediators, moderators, or other risk factors). As researchers consider more encompassing etiological models that combine multiple contributing factors (such that family dynamics are one of a constellation of risk factors included in the model), there is also a need to explore alternative models of the risk factors themselves. Some researchers have reconciled the mixed findings regarding the influence of family dysfunction on disordered eating by suggesting that dynamic family factors may have a more non-specific effect. They suggest that family dynamics relate to general psychopathology and thus are not specifically related to the development of eating disorders [e.g., 28, 29]. Such an approach is consistent with the literature exploring the link between family dysfunction and the development of other psychiatric disorders, including alcoholism [30], somatization disorders [12], and depression [29].

Depressive Symptoms and Family Cohesion

One disorder that has been linked to family dynamics and that may be relevant for disordered eating, particularly for bulimic symptoms, is depression. Individuals suffering from depression have reported levels of family dysfunction similar to those reported by individuals with eating disorders [23, 29]. In addition, perceived lack of cohesion related to degree of depressive symptoms among children in family therapy [31] and from non-clinical samples [e.g., 32]. Among adolescents, those with depression self-reported less affective responsiveness and involvement (both of which relate to cohesion [33]) in their families than those without depression [34]. However, depressed adolescents did not differ in level of behavioral control [34], suggesting that lack of cohesion may be more relevant as a risk factor for adolescent depression than family control behaviors. Among women transitioning to college, decreases in family cohesion prospectively related to increases in depressive symptoms [35]. In fact, the relationship between family cohesion and depressive symptoms has been found in longitudinal work as well, such that decreased perceived family cohesion predicted increased depressive symptoms 1 year later in study of adolescents [36]. As such, lack of family cohesion relates to both bulimic and depressive symptoms.

Depressive Symptoms and the Etiology of Bulimic Symptoms

Not only does research link lack of cohesion with development of depressive symptoms, but depression is also one psychiatric disorder that may be particularly relevant for understanding the etiology of bulimic symptoms. Depressive symptoms have been found to predict subsequent disordered eating [37, 38], and eating disorders are frequently comorbid with depression [39]. Indeed, depressive symptoms appear to increase with the start of college [35] and bulimia commonly develops during late adolescence [40], resulting in a similar age of peak onset.

Traditionally, there have been two views regarding the etiology of depression and eating disorders (for a review, see [41]). The long-standing view sees depression as secondary to calorie restriction in both anorexia and bulimia. That is, anorexia or bulimia is the primary diagnosis and the presence of the eating disorder produces the symptoms of depression [41, 42]. The second, more recent viewpoint asserts that eating disorders and subclinical disordered eating reflect chronic psychological disturbance and may result from depression [41, 43, 44]. This position views characteristic eating habits and weight phobia exhibited by individuals with eating disorders as secondary symptoms of depression [45]. In support of this view, longitudinal research reveals that depressive symptoms are predictive of subsequent development of any eating disorder among individuals with high levels of body dissatisfaction [6] and prospectively predictive of extreme weight loss behaviors (e.g., laxatives, vomiting) and binge eating among young women [5]. In addition, depressive symptoms were found to mediate the relationships between family criticism about size and binge eating and dieting concerns in a cross-sectional study [46].

Purpose and Hypotheses

Given the link found in past research between perceived family functioning and depression, perceptions of problematic family functioning may indirectly relate to the development of disordered eating behavior through

depressive symptomatology (in addition to the direct relationship between family functioning and disordered eating). In addition, family dynamics may remain relevant as factors contributing to dysfunctional coping among young adults [47]. Therefore, we sought to test whether depressive symptomatology might at least partially account for the relationship between perceived family cohesion and bulimic behavior in a non-clinical, college population. Based on research linking family dysfunction with the development of a variety of psychological concerns in clinical and non-clinical samples, we expected that one aspect of perceived family dysfunction (i.e., lack of family cohesion) would predict both depressive and bulimic symptomatology as measured by screening instruments. Because depression and bulimic symptoms are highly comorbid in college women, we also expected that depressive symptomatology would partially mediate the relationship between this type of family dysfunction and bulimic symptoms. Although one could propose that full mediation would be found, extant research linking family cohesion (which appears on a continuum) with healthy eating [48] and a lack of cohesion with overeating [49] leaves the possibility that lack of family cohesion may also directly relate to higher levels of bulimic symptoms among some adolescents. In other words, lack of cohesion may relate to eating behaviors themselves, making it possible that lack of cohesion plays an etiological role in bulimic symptoms that is partially, but not completely, explained by the development of depressive symptoms.

Method

Participants

We tested our hypothesis with 215 college women under the age of 20 who were recruited as part of a larger study. Participants had a mean age of 18.34 (*SD* 0.53) and predominantly self-identified as Caucasian (82.3%). They most frequently (70.2%) came from "intact" families in which their parents were still married and together. An additional 15.9% of participants came from families in which one or both parents had remarried at the time of the study (with the remaining participants from families where their parents were separated, divorced, or widowed). Few participants (6.5%) were currently living with their parents at the time of the study and all reported living with their parents at least through age 17. Although uncommon, 15.3% of the sample reported that they had previously been, or were currently, in family therapy.

Measures

Family Cohesion

The Family Adaptability and Cohesion Scales-II (FACES-II [50]) is a 30-item self-report measure that requires respondents to indicate the extent to which they agree with statements related to the flexibility and cohesiveness of their family of origin using a 5-point Likert-type scale. We used the Cohesion subscale from the FACES-II, which measures how well the family connects with one another as an index of perceived family functioning (e.g., "Family members are supportive of each other during difficult times" and "Family members avoid each other at home"). The Cohesion scale does not assess the extreme levels of over-involvement associated with enmeshment [50]; therefore, higher scores on this scale indicate that the respondent feels more connected to and supported within their family. The Cohesion scale has adequate psychometric properties [50]. Specifically, internal consistency reliabilities for the normative sample were reported to be 0.87, 0.78, and 0.90 for the FACES-II Cohesion subscale [50]. Significant positive relationships between the FACES-II Cohesion subscale and other measures of family cohesion, warmth, and affiliation support the validity of the measure [51].

Bulimic Symptomology

We used the 34-item Bulimia Test-Revised (BULIT-R [52]) to measure disordered eating. The BULIT-R measures symptoms associated with a clinical diagnosis of bulimia nervosa with a focus on the frequency with which the individual engages in related behaviors (e.g., "Do you feel you have control over the amount of food you consume?" and "How often do you intentionally vomit after eating?"). The BULIT-R uses a 5-point Likert-type scale, with higher scores indicating more frequent bulimic behaviors. Scores at or above 65 have been used to identify individuals suffering from disordered eating symptoms [53]. The BULIT-R has strong internal consistency ($\alpha \geq 0.92$) and 6-week and 2-month test–retest reliabilities were strong ($r = .83$ and $r = .95$, respectively) [52, 54]. Similarly, the validity of the BULIT-R is supported by strong correlations between BULIT-R scores and measures of binge eating and purging [54], and the measure has good sensitivity and selectivity for identifying individuals with bulimia [55].

Depression Symptomology

To measure difficulties with depressed mood, we used the 20-item Center for Epidemiologic Studies-Depressed Mood Scale (CES-D) [56]. The CES-D assesses the extent to which the respondent experienced affective symptoms

associated with depression within the past 2 weeks (e.g., "I felt that I could not shake off the blues, even with help from my family or friends" and "I thought my life had been a failure"). The CES-D is constructed along a 4-point, Likert-type scale, with higher scores indicating greater distress. A score of 20 or greater is indicative of substantial difficulties with depressed mood that may meet the criteria for a depressive spectrum diagnosis. Scores of 16 or greater are often used as cutoffs in research with college students to indicate the presence of depressed mood [57]. Internal consistency was good ($\alpha > 0.84$ for the general population and $\alpha = 0.90$ for a patient sample) and test–retest reliability for a 2- to 8-week interval was 0.57 [56]. Moderate to strong correlations between CES-D scores and clinician ratings support the validity of the measure [56].

Procedures and Analytic Strategy

As part of a larger study, potential participants were recruited from introductory psychology courses at a large southwestern university after obtaining approval from the Institutional Review Board. After participants received information about the study, they signed an informed consent document. Next, participants completed a packet containing a demographic information sheet and several questionnaires. Measures were partially counterbalanced to control for order effects, and statistical checks did not reveal problems with order effects. For the present study, participants completed questionnaires that assessed perceived cohesion as an indicator of family functioning, depressive symptomatology, and bulimic behavior. Upon completing the measures, participants placed the forms in an envelope and returned them to the researcher. Researchers provided participants with a debriefing form providing information about the study purpose, as well as reading resources. Participants received course credit in exchange for their participation.

We computed descriptive statistics to determine the portion of the sample with more severe levels of bulimic and depressive symptoms. In addition, we used bivariate correlations to test the relationships between family cohesion and bulimic and depressive symptomology. We tested our hypothesis of mediation using tests of indirect effects. Partial mediation is said to have occurred when there is a significant indirect effect and the direct effect, while reduced, remains significant. We also used the Sobel test and bootstrapping techniques, which are more rigorous than the classic approach, to test for the presence of the indirect effect [58]. Specifically, this approach statistically tests for the presence of an indirect effect and makes use of confidence intervals. We can have more confidence that an indirect effect exists when the confidence interval does not include the value of 0.0 [58].

Results

Descriptive Statistics

Table 1 contains the descriptive statistics for the sample. Olson et al. [50] provide classification categories to describe the degree of family cohesiveness or connectedness of based upon the FACES-II Cohesion scores. Sample participants most often perceived their families as falling within the connected category (40.0%); 21.0% of the participants provided responses that placed their families in the disengaged category; 18.1%, in the separated category (falling between disengaged and connected); and 21.0%, in the very connected category. Of note, 37.3% of the sample scored at or above 16 on the CES-D, a cutoff commonly used in college populations to indicate substantial difficulties with depressed mood that warrant further clinical attention [e.g., 57], and 25.0% scored at or above the more conservative cutoff of 20, suggesting that depressive affect symptoms were problematic for a significant subset of the sample. Participants endorsed a range of items indicating difficulties with disordered eating, and 22.9% met the cutoff of 65 recommended for use in non-clinical college samples [e.g., 53] for detection of disordered eating.

Depression as a Mediator Between Family Functioning and Disordered Eating

Table 1 contains bivariate correlations between the measures of family cohesion, bulimic symptoms, and depressive symptomatology. The relationships between family dynamics and measures of psychopathology were significant and in the expected direction such that increased family dysfunction (decreased perceived family cohesion)

Table 1 Means, standard deviations, bivariate correlations, and Cronbach alphas for the FACES-II cohesion subscale, BULIT-R, and CES-D

Scale	*M* (*SD*)	Cronbach alpha	Bivariate correlations	
			BULIT-R	CES-D
Cohesion scale	59.46 (12.19)	0.92	−0.35**	−0.41**
BULIT-R	52.37 (17.26)	0.93	–	0.44**
CES-D	14.79 (9.95)	0.90		–

The Cohesion Scale of FACES-II (Family Adaptability and Cohesiveness Scales-II) represents the extent of family functioning with lower scores indicative of greater family dysfunction; the BULIT-R is the Bulimia Test-Revised; the CES-D is the Center for Epidemiological Studies-Depression scale

*$p < .05$; **$p < .01$

was associated with greater levels of self-reported bulimic behavior and depression symptoms. In addition, as expected, the self-reported difficulty with bulimic behavior was positively correlated with self-reported depression symptoms.

Using the Hayes's [58] macro with 5000 bootstrap samples, we tested our hypothesis that depressive symptoms would partially mediate the relationship between perceived family cohesion and bulimic symptoms. The Sobel test produced a value of −3.93 ($p < .001$), and the 95% confidence interval (−0.34 to −0.09) did not include a value of 0, indicating the presence of a significant indirect effect of low perceived family cohesion on bulimic symptoms through depressive symptoms. At the same time, the 95% confidence interval for the direct effect of perceived family cohesion on bulimic symptoms (−0.44 to −0.08) also did not include a value of 0, indicating that the effect was not fully accounted for by the indirect effect (for a review of partial vs. full mediation, see [59]). Figure 1 illustrates the relationships in the partial mediation model.

In order to determine the amount of variance in bulimic behavior predicted by family dysfunction and depression symptoms, as well as the portion of the relationship between family dysfunction and bulimic behavior that was mediated by depression symptoms, we conducted a multiple regression containing both family dysfunction and depressed mood as predictors of bulimic symptomatology. Linear regression analysis revealed that the model predicting bulimic behavior (i.e., BULIT-R scores) with the predictor (i.e., perceived family cohesion) and the mediator (i.e., depressive symptoms) was significant ($R = .47$, $F(2, 199) = 28.84$, $p < .001$) and accounted for 22.50% of the variance in BULIT-R scores. In addition, based on the correlations, bulimic behaviors and perceived family dysfunction shared approximately 12.25% variance, but perceived family dysfunction only accounted for approximately 4.41% of the variance in bulimic behaviors when accounting for depressed mood (in Fig. 1, the adjusted beta for this relationship is presented in parentheses). This means that there was a reduction of approximately 64% in the variance shared when looking at the unique relationship between perceived family dysfunction and bulimic behavior.

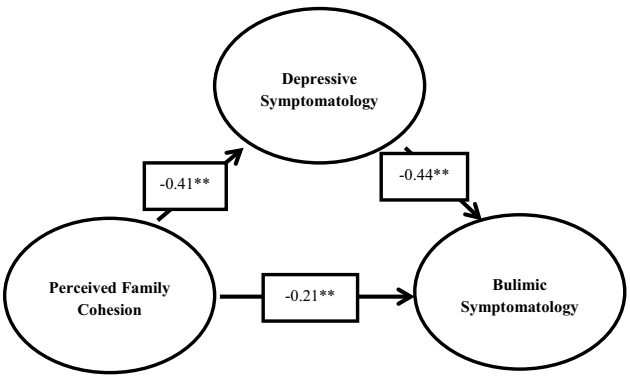

Fig. 1 Partial mediation model for depressive and bulimic symptomatology. *Numbers* represent path coefficients representing partial mediation. $^{**}p < .001$

Discussion

In the present study, we examined the idea that family dysfunction may be a non-specific psychological risk factor, thus placing the research linking family dysfunction with bulimic behavior within the larger body of research on family dynamics. Consistent with prior research, we found that perceiving one's family as less cohesive, or close and supportive, was associated with more difficulties with depressive and bulimic symptoms within a non-clinical college sample. This study builds upon past research that links disengagement with disordered eating symptoms associated with a diagnosis of bulimia (such as binging and purging) and depressed mood [e.g., 25, 31]. Although Minuchin et al. [12] focused more on overly-involved family relationships and anorexia, the present study focused upon family cohesion or the perceived degree of connectedness and support within the family environment without examining other constructs found in Minuchin et al.'s families (e.g., rigidity, overprotectiveness). As such, examining a perceived lack of family cohesion aligns with Minuchin et al.'s notion of disengaged families. In the present study, individuals who perceived their families as lacking in cohesiveness were also more likely to have increased self-reported bulimic behaviors and depressive symptoms.

In addition to the link between family relations and multiple psychological difficulties, this study introduced an approach for future research that includes other potential variables as mediators in the relationship between family dysfunction and disordered eating. The findings are consistent with previous research on the comorbidity between depression and eating disorders (in this case, in a non-clinical college sample). The results of the present study suggested that depression partially mediated the relationship between family dysfunction and bulimic behavior. Family dysfunction was not only directly related to bulimic symptoms but also related to these symptoms through depression. In other words, levels of depressive symptoms accounted for part of the relationship between perceived levels of family closeness and bulimic symptoms. Depression, therefore, may serve as a risk factor for the development of disordered eating even when family dysfunction initially operates on mood.

Limitations

Although we integrated two lines of research in a manner consistent with theory, our findings must be interpreted in light of important limitations. Most notably, our study is correlational and cross-sectional, making causal interpretations inappropriate. In addition to the limitations regarding inference of causality, it is possible that the presence of bulimic or depressive symptoms alter the way family members relate. For example, individuals with disordered eating may prefer to eat in secret (i.e., disengage) and thus change how they interact with their families [11]. In addition, having a depressed mood may lead an individual to evaluate relationships more negatively, seeing relationships as less connected. Moreover, withdrawal and isolation are common behavioral symptoms of depression among adolescents [60, 61], and such symptoms likely lead to greater disconnection from family members. The potential for family closeness to influence and to be influenced by personal psychopathology must be kept in mind when interpreting our findings. We recommend replication with a longitudinal design to address these important limitations.

Another limitation of our study is the small amount of variance in bulimic symptomatology explained by lack of family cohesion. This means that a number of other variables, including other family-related variables, are likely also to be important risk factors in the etiology of bulimia. In addition, our sample consisted of college students who were older adolescents and primarily lived away from home. It seems reasonable to expect that the effects of lack of cohesion within the family on the development of bulimic symptoms to be stronger for those more immersed (physically) in the family environment. Similarly, because longitudinal research suggests that parental influence decreases with age [62] and that family cohesion is higher for younger adolescents [63], lack of family cohesion may be more contraindicated for well-being and more strongly related to bulimic and depressive symptoms among young adolescents than it was for the adolescents in our sample.

Finally, the study sample is a limitation. We examined the perceptions of a single family member. Other family members' perspectives may not align with those of the individuals who have higher levels of depression and bulimic symptoms. Our sample is also limited in terms of ethnic composition, and our participants were college students, rather than individuals seeking psychological help for personal or family concerns.

Clinical Implications and Future Research

Though the current study examined young college women, these findings can inform future research. Previous researchers have speculated about family dynamics serving as a non-specific risk factor for psychopathology, and our study integrated research linking perceived family dysfunction with two forms of psychological difficulties. Future studies may examine the potential for other psychological concerns that predate the development of disordered eating to account for part of the association between family relationship variables and disordered eating. For example, anxiety disorders are commonly comorbid with eating disorders e.g., [64]. In addition, the onset of anxiety disorders like generalized anxiety disorder, obsessive–compulsive disorder, and social phobia have been found to predate the onset of eating disorders among individuals with eating disorders [64]. Research is needed to determine whether anxiety represents another pathway by which dysfunctional family dynamics could relate to the development of bulimic symptomatology. It may be that a portion of the relationship between lack of cohesion and bulimic symptoms not explained by depression symptoms in the current study would be explained by anxiety symptoms. Prior research has demonstrated that dysfunctional family dynamics relate to both depression and anxiety [65]. Examination of whether anxiety symptoms also serve as a mediator between family dynamics and the development of bulimic symptoms may help further clarify how problematic family relationships relate to risk for development of bulimia. If anxiety reflects another pathway, this would further bolster our understanding of how the family environment, which has been found to be relevant in a range of disorders, relates to the development of bulimia specifically. Use of longitudinal research would be particularly helpful in testing such a model in order to establish the presence of ordinal relationships among family cohesion, bulimic symptoms, and anxiety and depressive symptomatology.

Although beyond the scope of our study, the finding of partial mediation also raises the possibility that lack of cohesion may have a small effect on the etiology of bulimic symptoms that is distinct from other forms of psychopathology. In particular, because prior research links higher levels of family cohesiveness with healthy eating and less overeating in youth [48, 49], it seems possible that lack of family support also contributes to the development of bulimic concerns through eating-based risk factors. When adolescent girls/women lack emotional closeness, they may use food and unhealthy eating as a soothing and coping mechanism. Specifically, neurochemical reactions to high fat and high sugar foods can trigger pleasure responses that promote unhealthy eating and binges. Future research should explore whether childhood patterns of unhealthy eating account for the portion of the relationship between lack of cohesion in the family and bulimic symptoms not mediated by depressive and other psychiatric symptoms.

The present study supports the notion that family dysfunction may be a non-specific risk factor for psychopathology. If family dysfunction is indeed a non-specific risk factor for various psychological difficulties, then general prevention efforts aimed at identifying and intervening with individuals who have problematic family relationships might be particularly useful. That is, identifying individuals who are from families with more problematic dynamics may enable us to focus prevention efforts on those more at risk. Prevention researchers have found better effects for prevention programs that focused on individuals who are at higher risk of developing psychopathology [66]. These researchers have suggested that prevention efforts should be more targeted towards those at risk. Based on the findings from the current study, identifying and providing interventions specifically for individuals from families that are lacking in cohesion may fit this call for targeted prevention.

Researchers should examine whether positive outcomes, both immediate and long-term, from eating disorder or depression prevention efforts for adolescent girls are enhanced when increasing family support is added as a component. For example, primary prevention programs might bring families together for prevention programming. Such programming could include content commonly found during individual prevention programming with girls and young women (e.g., focus on building self-esteem and positive body image). Taking a family approach, in which programs require attendance of parents and children, would create an environment where the family spends time focused on promoting the psychological well-being of the child. For example, the parents and child together may focus on building the self-esteem and promoting positive body image of the child. Researchers should compare the effectiveness of such an approach to that of similar prevention efforts that only involve the child.

The findings from the current study suggest that it may be useful to experimentally test whether adding another component more explicitly designed to increase cohesiveness between parents and daughters (or all family members) augments the effectiveness of the prevention program. In fact, other researchers have called for use of prevention programs that involve helping parents and daughters communicate in ways that are consistent with daughter's developmental stage [67]. Such programs might focus on communication around feelings (e.g., expressing sentiments of caring, being vulnerable emotionally), communication approaches (e.g., use of "I statements"), content (e.g., balancing corrective feedback with praise, shared interests that enhance the ability to connect), and frequency. The inclusion of prevention interventions that address general risk factors may have benefits that extend beyond prevention of the particular psychological difficulty that is the primary focus of the prevention efforts, providing additional benefits beyond those of more symptom specific prevention techniques (e.g., media literacy). As such, research is needed to develop new ways to efficaciously enhance family cohesiveness as a part of prevention programming. That is, our findings suggest that prevention programs which focus on enhancing family cohesiveness have the potential to help address multiple psychological risk factors and disturbances simultaneously.

These findings have important implications for individuals and families seeking mental health treatment. Most importantly, perceived family cohesion and depressed mood accounted for over 20% of the variance in bulimic behavior. This suggests that family environment and mood variables may be associated with the development of bulimic symptoms in some individuals seeking treatment, but others seeking treatment will likely not experience these difficulties. As such, it is important to avoid assuming that family characteristics have caused the development of bulimic behavior, or disordered eating more broadly, in any particular individual. At the same time, providers should screen for problems with depression among individuals presenting for treatment for bulimic symptoms with problematic family dynamics, since both may require treatment among individuals from families with low levels of cohesion. In addition, individuals from families with low levels of support and closeness who struggle with depression may be particularly at risk for developing difficulties with symptoms associated with bulimia. Therefore, the exploration of a range of psychological difficulties may reveal other issues appropriate for treatment that were not part of the original reasons for seeking therapy.

Beyond implications regarding the presence of multiple psychological concerns, the study results also raise important considerations for treatment. For example, it is possible that untreated depression may limit the effectiveness of interventions targeted towards disordered eating. In fact, our findings are consistent with the idea that interpersonal and family systems approaches may be particularly appropriate for some clients, as low family cohesion was related to both the depressive and bulimic symptoms. In other words, if lack of support and low levels of closeness in the family are part of the genesis of depressive and bulimic symptoms in an individual, interventions that address relationships or the family system may be particularly helpful in treating both sets of symptoms. Interpersonal therapy, which addresses relational issues (or interpersonal problems) as a key part of treatment (see [68]), is considered to be an effective treatment for both bulimia (for a review, see [69]) and depression [70]. Similarly, family-based approaches that involve families in treatment have been found to be effective with adolescents struggling with bulimia (for a review, see [71]) and depression [72]. Obviously, no single factor causes the development

of disordered eating or difficulties with depression, and a treatment approach may need to address multiple risk factors. Based upon the results of this study, clinicians are encouraged to expand the way they think about the influence that family dynamics have on bulimic symptoms.

Summary

Our study suggests that family dysfunction, in the form of low cohesion, relates to both symptoms of depression and bulimic behavior in older adolescent females. In addition, our study builds upon prior research linking family dysfunction to the development of various psychiatric concerns including both depressive and bulimic symptoms by integrating more recent research on the role of depression in the etiology of bulimia. Our results are consistent with the idea that depression symptoms may be one way that problematic family dynamics relate to bulimic symptomatology. Specifically, lack of cohesion may contribute to both depressive and bulimic symptoms. In addition, for some older adolescent females with bulimic symptoms, the depressive symptoms could account for the relationship between lack of family cohesion and bulimic symptoms.

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