

## Research

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# FAMILY FUNCTIONING AND EATING DISORDERS AMONG COLLEGE WOMEN: A MODEL OF PREDICTION

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*The overall relationship between family functioning, self-esteem, and perfectionism and eating disorder behaviors was examined in a sample of 437 college women. Results of the path analysis suggest significant direct and indirect effects. Implications for treatment and early intervention are discussed.*

The clinical and subclinical cases of anorexia and bulimia nervosa among female students represent major health concerns in college environments (Connolly & Corbett-Dick, 1990). Prevalence studies suggest that more than 30% of college students experience various degrees of eating disorder behaviors such as binge eating, purging, caloric restriction, and unhealthy weight loss (Drewnowski, Yee, Kurth, & Krahn, 1994; Joiner & Kashubeck, 1996). Furthermore, the differences between individuals with eating disorders that can be diagnosed using the *Diagnostic and Statistical Manual of Mental Disorders-4th edition (DSM-IV)* (American Psychiatric Association, 1994) and persons with milder forms of eating disorder behaviors (i.e., subclinical) are differences of degree and not kind (Scarano & Kalodner-Martin, 1994). In response to the prevalence of eating disorder behaviors on college campuses, new attention is being focused on risk factors that influence their development. Recent evidence points to family and personality factors as significant predictors of eating disorder symptoms (Button, Sonuga-Barke, Davies, & Thompson, 1996; Frederick & Grow, 1996). Specifically, researchers have linked problematic familial interaction to the emergence of eating problems among college women (Friedlander & Siegel, 1990; Kenny & Hart, 1992). From this understanding, the contribution and interaction of familial factors play important roles in the onset of eating disorder behaviors. Fur-

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ther examination is warranted to identify which familial conditions predict more pronounced cases of problematic eating behavior.

## TESTED MODEL

The model for this study proposes that family functioning, operationally defined as cohesion, adaptability, and satisfaction has (a) a direct effect on eating disorder behaviors and (b) an indirect effect on eating disorder behaviors mediated by self-esteem and perfectionism. The direct path theorizes that family functioning directly predicts eating disorders. This prediction explores the etiological significance of family factors in eating disorder development (Keel, Heatherton, Harnden, & Hornig, 1997). The indirect path hypothesizes that family functioning affects eating disorders, as mediated by self-esteem and perfectionism. This mediational path suggests that family environments may directly affect self-esteem and perfectionism, which in turn lead to the onset of eating disorders.

## Family Functioning

Many investigators have explored the family context in the development of eating disorders (Gillberg, Rastam, & Gillberg, 1994; Keel, et al., 1997; Reeves & Johnson, 1992). Family interactional styles that influence the initiation of eating disorders are described as ". . . enmeshed, intrusive, hostile, and negating of the child's emotional needs" (Strober & Humphrey, 1987, p. 655). The theoretical model for the current study, the Circumplex model (Olsen, Russell, & Sprenkle, 1983), describes healthy family functioning as "being independent from and connected to families" (p. 73) and having the ability to change throughout the life cycle. Similar to the findings of eating disorder research, the Circumplex model defines unhealthy styles of family functioning as enmeshed, disengaged, overinvolved, or rigid (Olsen et al., 1983).

Current evidence supports theoretical claims that family dysfunction reinforces eating disorder behaviors. College women have reported that family impairment and a diminished sense of individuation were related to bulimic and anorexic behaviors (Friedlander & Siegel, 1990). Weight preoccupation and bulimic behaviors have been linked with an absence of a positive, supportive, and emotionally connected parental relationship (Kenny & Hart, 1992). Finally, more general difficulties in the inability to express emotions, parental conflicts, and lack of empathy were notable among college women with eating disordered behavior (Brookings & Wilson, 1994; Reeves & Johnson, 1992). Results from these studies validate theoretical predictions that problematic family functioning is related to eating disorder behaviors.

## Self-Esteem

Self-esteem is considered a significant predictor of eating disordered behavior and a consequence of family functioning (Frederick & Grow, 1996).

Individuals from highly enmeshed families tend to have low self-esteem and use food to satisfy unfilled needs of autonomy (Minuchin, Rosman, & Baker, 1978). Results from one prospective study suggested that adolescent girls with low self-esteem were eight times more at risk of demonstrating eating disorders (Button et al., 1996). Furthermore, low self-esteem and concerns about family life were found to have increased with age. These results suggest that although self-esteem is a strong predictor of eating disorders, the family environment seems to be an important related variable.

Among college students, researchers have established a link between self-esteem and unhealthy eating behaviors. Specifically, college women who report lower levels of self-esteem exhibit higher levels of eating disorder symptomatology (Ricciardelli & Williams, 1997; Shisslak, Pazda, & Crago, 1990; Tiggemann, 1994). Other researchers have found that self-esteem may indirectly account for eating disorder behaviors through different mechanisms such as autonomy (Frederick & Grow, 1996), and peer, media, and family influences (Stice, 1994). Therefore, further empirical validation is needed to test the factors that relate self-esteem to eating disorder behaviors.

## **Perfectionism**

Perfectionism is associated with the psychological and cognitive dimensions of eating disorders and may be the prime motivation of unhealthy weight loss (Brownell, 1991). Most theoretical models consider perfectionism in the profiles of women susceptible to eating disorders (Vitousek & Manke, 1994). Common descriptors of perfectionism and eating disorders include unrealistic standards, fear of failure, shame, and strict self-evaluations (Hewitt & Flatt, 1991). Other researchers posit that perfectionism provides a reinforcement value for dieting and weight loss (Vitousek & Hollon, 1990). These authors view perfectionism as a "cognitive self-schemata," which is necessary for development of future eating disorders.

Although some empirical evidence points to a relationship between perfectionism and psychological characteristics of eating disorders (Brookings & Wilson, 1994), the role of perfectionism in eating disorder development remains unknown (Srinivasagam et al., 1995). In light of this evidence, further research seems warranted to examine the particular contribution of perfectionism to eating disorder behaviors.

## **Eating Disorders**

The incidence of eating disorders among college women is nearing epidemic levels (Thombs, Rosenberg, Mahoney, & Daniel, 1996). Of particular importance is the increase of college women who are at risk for developing eating disorders. Campus studies have reported that 38% of female students exhib-

ited subclinical levels of anorexic and bulimic behaviors (Joiner & Kashubeck, 1996) and 44% had chronically dieted (Drewnowski et al., 1994).

The high incidence of clinical and subclinical eating disorders in college-aged women warrants further efforts in risk factor research (Franko, 1998). Because risk factors include family, personality, and personality attributes, examining specific relationships will broaden the understanding of eating disorder development. Furthermore, researchers recommend the use of nonclinical samples to study the etiology of eating disorders (Brookings & Wilson, 1994; Leon, Fulkerson, Perry, & Early-Zald, 1995). Thus, the purpose of this study was to test a model for the prediction of eating disorders among a nonclinical sample of college women.

## METHOD

### Participants

The participants were 437 undergraduate women enrolled in a variety of academic courses at a mid-sized, southern university. Most of the sample were in their first or second year of college with a mean age of 20.23 ( $SD = 2.62$ ). Regarding ethnic diversity, the sample comprised 301 (69%) Caucasian, 126 (29%) African American, and 3 (0.5%) American Indian, 4 (0.8%) Asian, and 3 (0.7%) Hispanic participants.

### Instrumentation

The following instruments were used to measure family adaptability, family cohesion, self-esteem, perfectionism, and eating disorder behaviors.

*Family Adaptability and Cohesion Scales (FACES II).* FACES II (Olsen et al., 1992) is a 30-item Likert-type instrument used to assess family cohesion and family adaptability. A comparison of FACES II and the Dallas Self-Report Family Inventory (Hampton, Hulgus, & Beavers, 1991) established a concurrent validity for cohesion and adaptability of .93 and .79, respectively. Olsen et al. (1992) reported Cronbach's alphas of .87 (cohesion), .78 (adaptability), and .90 (total score).

*Family Satisfaction Scale (FSS).* The FSS (Olsen et al., 1992) is a Likert-format 14-item scale measuring the respondent's level of satisfaction and perception of adaptability and cohesion within the family. Olsen et al. (1992) reported Cronbach's alphas of .85 (cohesion), .84 (adaptability), and .92 (total score) with scale-reliability coefficients of .76, .67, and .75, respectively (Olsen et al., 1992). Cronbach's alpha for the total score was calculated for the current sample to be .92.

*Rosenberg Self-Esteem Scale (RSE).* The RSE (Rosenberg, 1965) is a 10-item self-report questionnaire assessing global self-esteem. Responses on a 5-point Likert-type scale range from *strongly disagree* to *strongly agree*. A Coefficient of Reproducibility of .92 and a Coefficient of Scalability of .72

(Rosenberg, 1965) have been reported. A Cronbach's alpha of .88 was calculated for the current sample.

*Neurotic Perfectionism Questionnaire (NPQ).* The NPQ (Mitzman, Slade, & Dewey, 1994) is a 37-item measure that assesses attitudes and experiences of neurotic perfectionism. The NPQ is a 5-point Likert-type scale (1 = *strongly disagree* to 5 = *strongly agree*) with higher scores representing neurotic perfectionism. The NPQ is recommended as a predictive and diagnostic measure to identify women at risk for developing eating disorders (Mitzman et al., 1994). Validation of the NPQ was established on clinical and nonclinical female samples with a reported internal consistency coefficient of .95 (Mitzman et al., 1994). A Cronbach's alpha of .93 was calculated for the current sample.

*Eating Disorders Inventory (EDI).* The EDI (Garner & Olmsted, 1984) is a 64-item, self-report measure of psychological and behavioral traits associated with anorexia nervosa and bulimia nervosa. The EDI is recommended as a screening device or outcome measure for eating disorders (Garner, 1991). The EDI is scored on a 6-point Likert-type scale (*never, rarely, sometimes, often, usually, or always*) with higher scores representing problematic behaviors.

*The seven-item, Drive For Thinness (DT) subscale.* The DT subscale deals specifically with eating-related attitudes and behaviors associated with anorexia nervosa and bulimia nervosa (Garner, 1991). The DT scale has been used to identify risk groups of eating disorders (Joiner, Heatherton, & Keel, 1997; Klemchuk, Hutchinson, & Frank, 1990). A 3-week, test-retest reliability coefficient of .92 (Wear & Pratz, 1987) and a Cronbach's alpha of .87 (Garner & Olmsted, 1984) have been reported. A Cronbach's alpha of .85 was calculated for this sample.

## Procedure

The questionnaires were administered in scheduled classes monitored by the senior researcher. The questionnaire took approximately 30 minutes to complete. Participation was voluntary and students received extra credit from their instructor for participation in the study.

## Data Analysis

Descriptive statistics (means and standard deviations) and intercorrelations were calculated. A path analysis was used to investigate the overall relationships between the study variables. The predictor (independent) variables included family cohesion, adaptability, satisfaction, self-esteem, and perfectionism. The criterion (dependent) variable included eating disorder behaviors. *R*-square ( $R^2$ ) scores and beta coefficients were used to examine the relationships between the predictor variables and eating disorder behaviors.

## RESULTS

### Descriptive Statistics

Mean scores, standard deviations, and correlations between the variables are presented in Tables 1 and 2. The measures of family functioning, self-esteem, and perfectionism were all significantly intercorrelated ( $p \leq .001$ ). The measures of family functioning were significantly positively correlated with self-esteem and significantly negatively correlated with perfectionism. Self-esteem was negatively related with perfectionism. Both mediating variables (self-esteem and perfectionism) were significantly correlated with eating disorder behaviors ( $p \leq .001$ ). Self-esteem had a negative relationship and perfectionism had a positive relationship with eating disorder behaviors.

### Path Analysis

The results of the path analysis are presented in Figure 1. The beta coefficients represent the direct effects of each predictor variable.  $R^2$  scores represent the amount of variance in eating disorders explained by the predictor variables. When all of the predictor variables were combined, results were significant ( $R^2 = .17$ ,  $F = 18.21$ ,  $p = \leq .01$ ). The predictor variables accounted for 17% of the variance of eating disorder behaviors. The strongest predictor of eating disorder behaviors was perfectionism ( $\beta = .32$ ). Family functioning accounted for 13% of the variance in self-esteem ( $R^2 = .13$ ,  $F = 21.90$ ,  $p = \leq .01$ ) and 17% of the variance in perfectionism ( $R^2 = .17$ ,  $F = 29.20$ ,  $p = \leq .01$ ). The strongest predictor of self-esteem was family cohesion ( $\beta = .23$ ), and the strongest predictor of perfectionism was family satisfaction ( $\beta = -.23$ ).

The results of the direct, indirect, and total effects of the predictor variables are presented in Table 3. Based on total effects, the three strongest predictors in descending order were perfectionism, family cohesion, and

TABLE 1

Means and Standard Deviations of Variables Associated With Eating Disorder Behaviors

Variable	<i>M</i>	<i>SD</i>
Family Cohesion	58.21	11.01
Family Adaptability	45.08	8.22
Family Satisfaction	49.44	11.05
Self-Esteem	31.95	5.84
Perfectionism	102.47	21.74
Eating Disorder Behaviors	5.71	5.92

TABLE 2

## Zero-Order Correlations Among the Independent and Dependent Variables

Variable	1	2	3	4	5	6
1. COHES	—					
2. ADAPT	.71*	—				
3. SATIS	.75*	.71*	—			
4. ESTEEM	.35*	.29*	.32*	—		
5. PERF	-.36*	-.36*	-.39*	-.62*	—	
6. EATING	-.01	-.04	-.05	-.32*	.37*	—

Note. COHES = Family Cohesion; ADAPT = Adaptability; SATIS = Satisfaction; ESTEEM = Self-Esteem; PERF = Perfectionism; EATING = Eating Pathology.

\* $p \leq .001$ .

self-esteem. Also note that family adaptability and family satisfaction influenced eating disorder behaviors primarily through an indirect relationship, mediated by perfectionism. Family adaptability and family satisfaction had nonsignificant direct effects on eating disorder behaviors.

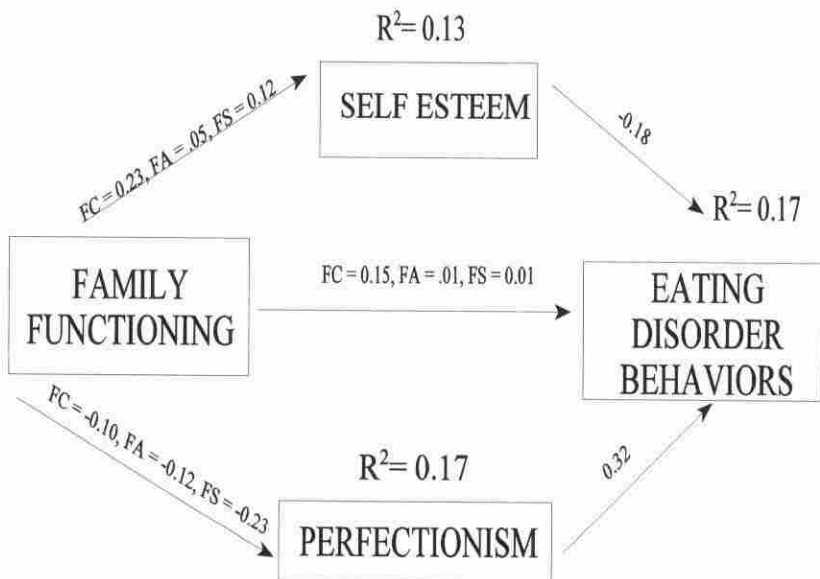


FIGURE 1

## Results of Path Analysis



**TABLE 3****Direct, Indirect, and Total Effects of the Predictor Variables on Eating Disorder Behaviors**

Variable	Direct Effect	Indirect Effect	Total Effect
Family Cohesion	.15	.07	.22
Family Adaptability	.01	.13	.14
Family Satisfaction	.01	.10	.11
Self-Esteem	.18	.00	.18
Perfectionism	.32	.00	.32

**DISCUSSION**

Results of this study provide support for the theory that family functioning influences eating disorder behaviors in a sample of college women. Although perfectionism and self-esteem had the strongest direct effects, family functioning, most notably family cohesion, also influenced eating disorder behaviors.

Specifically, family cohesion had a significant direct effect on eating disorder behaviors ( $\beta = .15$ ) in the model. This finding supports the theorized path that family functioning directly contributes to eating disorder behaviors. Furthermore, family cohesion was positively related to eating disorder behaviors. This result is inconsistent with the findings of previous researchers who found that higher levels of family cohesion were associated with lower levels of eating disorder behaviors (Brookings & Wilson, 1994; Leon, Fulkerson, Perry, & Dube, 1994; Steiger, Puentes-Neuman, & Leung, 1991). Additional inquiry is needed to examine this finding further.

Results also confirmed the predicted mediating effects of self-esteem and perfectionism on eating disorder behaviors. Specifically, the indirect effects of family adaptability and family satisfaction (mediated by self-esteem and perfectionism) were stronger than the direct effects of these predictor variables. Consistent with theory (Minuchin et al., 1978) and research (Brookings & Wilson, 1994; Frederick & Grow, 1996), results from the mediational paths suggest that dysfunctional family environments manifest conditions of low self-esteem and perfectionism which, in turn, lead to eating disorder behaviors. In addition, perceived family dissatisfaction has previously been associated with eating disorder behaviors (Leon et al., 1994). Also, the amount of variance not accounted for by these predictors suggests that the development of eating disorder behaviors is a complex and multifaceted process, and that continued inquiry is needed.

Although the Circumplex model seems useful in identifying particular styles of family functioning relevant to eating disorder behaviors, there are limitations in the current study. The cross-sectional design prevents inferences regarding a developmental relationship between the variables. Also, all data



are based on self-report only. Finally, the dependent variable measure examines both anorexia and bulimia. Additional research is warranted to determine whether this model holds true for anorexia and bulimia when examined separately.

## IMPLICATIONS FOR COLLEGE COUNSELORS

The increasing prevalence of eating disorder behaviors among college women presents diagnostic and therapeutic challenges to college counselors. The identification and treatment of eating disorders are made more difficult by the many factors that foster their development (Stice, 1994). The model in this study examined the impact of family functioning, self-esteem, and perfectionism on eating disorder behaviors. The findings demonstrate the importance of family factors in the treatment and prevention of eating disorder behaviors.

The incorporation of the Circumplex model's family constructs in the treatment of eating disorders can help in the initial assessment and therapeutic planning phases of counseling. An exploration of family communication styles and overall family satisfaction can provide insights into current belief systems and behaviors for clients with eating disorders (Marx, 1991). Furthermore, the degree to which family functioning influences the client's level of self-esteem and perfectionistic tendencies (both behavioral and cognitive) may be assessed and targeted for intervention. Therefore, an examination of family interactional styles provides relevant information to the client's sense of self, methods of decision making, adaptability to stress, coping skills, and academic pressures (Hesse-Biber & Marino, 1991; Reeves & Johnson, 1992).

College students with eating disorders tend to experience problems with low self-esteem, high expectations of achievement, and making the transition from home life (Frederick & Grow, 1996; Friedlander & Siegel, 1990; Hesse-Biber & Marino, 1991). Specifically, individuals with eating disorder behaviors are described as being emotionally dependent on their families (Friedlander & Siegel, 1990). Therefore, family messages seem central to the client's level of self-esteem and perfectionist tendencies. Because family functioning, low self-esteem, and high levels of perfectionism are linked to eating disorder behaviors, identifying the connection between these factors could enhance the therapeutic process and provide clinical insights into current eating disorder behaviors.

Perhaps the most beneficial aspect of providing a model of prediction is its contribution to prevention and early intervention. The promotion of eating disorder prevention and early intervention on college campuses is gaining attention from researchers and clinicians (Franko, 1998; Leon et al., 1995). The current model outlines key risk factors associated with the development of eating disorder behaviors. Prevention packages can be used to design programs that educate college women on the factors that influence eating disorder development such as family functioning, self-esteem, and perfec-

tionism. Specifically, early intervention methods target subclinical levels of eating disorders. Given that eating problems and subsequent treatment difficulties are widespread, educational presentations on college campuses are vital to early detection of eating disorder behaviors. The findings of this study provide useful information for prevention research and contribute to the understanding of the complex relationships between family factors, intrapersonal variables, and eating disorder behaviors.

## CONCLUSION

The model in this study examined possible theoretical links between risk factors and the development of eating disorder behaviors. Results suggest that a relationship exists between family functioning, self-esteem, perfectionism, and eating disorder behaviors. With the rise of eating disorder behaviors on college campuses, counselors are likely to see an increase in the number of students with eating problems. In response, counselors should consider treatment modalities that assess the effects of family interactional styles and personal constructs on eating disorder behaviors.

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