

An Examination of Psychosocial Correlates of Disordered Eating among Undergraduate Women¹

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Multivariate analyses were used to compare key eating behavior, cognitive, affective, and body variables to determine the similarities and differences between eating-disordered, symptomatic, and asymptomatic female undergraduates. On the eating behavior (i.e., bulimic symptoms, concern for dieting, weight fluctuation), and some of the cognitive (i.e., impression management, approval by others, dichotomous thinking, self-control, rigid weight regulation, weight and approval) and body (i.e., concern with body shape, satisfaction with face) variables, the eating-disorder group reported the most severe symptoms, followed linearly by the symptomatic and asymptomatic groups. On the affective (i.e., sad, anxious, guilty, shameful, stressed, happy, confident, overall self-esteem) and the remaining cognitive (i.e., vulnerability, catastrophizing) and body (i.e., importance of being physically fit and being attractive, satisfaction with body) variables, the symptomatic and eating-disorder groups did not differ from one another but had higher levels of distress than did the asymptomatic women. These findings suggest that (1) counselors need to be aware that a large percentage of female undergraduates are nondiagnosable yet experience eating-disorder symptoms, and (2) these symptomatic women are experiencing high levels of distress, particularly in the areas of affect and body image.

KEY WORDS: eating disorders; body image; cognitive distortions.

Although the etiology of eating disorders is likely to be multidimensional, a leading risk factor is the sociocultural environment that women experience within U.S. society (Stice, 1992; Striegel-Moore, Silberstein, & Rodin, 1986). That is, from an early age, women are exposed to sociocultural messages about how they should behave (e.g., diet, be dependent) and look (e.g., be thin, be physically fit). Communicated through family relations, friendships, the mass media, and general developmental transitions (e.g., puberty), these sociocultural pressures increase women's risk of being dissatisfied with their bodies,

experiencing negative affect (e.g., sadness, anxiety), and ultimately manifesting behavioral symptoms of disordered eating, such as extreme dieting, bingeing, and/or purging (Stice, 1992). Because these pressures are so much greater for women, prevalence rates are expected to be much higher among women than men.

Consistent with this conceptualization, eating disorders, such as bulimia nervosa, have been found to be up to 10 times more common among women than men (American Psychiatric Association, 1994). In addition to the prevalence of diagnosable disorders among young women (Mintz & Betz, 1988; Mintz, O'Halloran, Mulholland, & Schneider, 1997; Polivy & Herman, 1987; Rodin, Silberstein, & Striegel-Moore, 1984; Tylka & Subich, 1999, 2002a), an even larger percentage report clusters of symptoms, such as feeling fat, dieting excessively, and being dissatisfied with the size and shape of their bodies (Field et al., 1999; Grigg, Bowman, & Redman, 1996; Neumark-Sztainer et al., 2000), that

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may be considered “subclinical” or “symptomatic” (e.g., Mintz & Betz, 1988; Tylka & Subich, 1999). Clearly, investigation of diagnosable eating disorders is a necessary focus in research and treatment, yet the high prevalence of symptomatic eating problems argues for a broader consideration of that category as well.

Research in this area generally has compared the mean scores of different eating groups, in particular those who are classified as eating-disordered, symptomatic, and asymptomatic (or healthy eaters) across behavioral and psychological variables that are hypothesized to be predictive of disordered eating (e.g., Mintz & Betz, 1988; Tylka & Subich, 1999). Through such studies, researchers have tried to (a) determine where symptomatic women fell on a continuum between healthy eaters and those who had eating disorders, and (b) if similarities and/or differences existed, on what variables and in which direction these occurred. In other words, were symptomatic women similar to healthy eaters, more like those with eating disorders, or somewhere in between the other two groups? If, indeed, there was a pattern of similarities and differences, on what behavioral and psychological variables did that appear? On a practical level, such information can guide how health professionals understand and assess the experiences of young women, all of whom are theoretically at-risk for the development of disordered eating attitudes and behaviors.

Research in this area has been revealing, suggesting that for certain behavioral and psychological factors, such as maladaptive eating behaviors (Dancyger & Garfinkel, 1995; Katzman & Wolchik, 1984; Stice, Killen, Hayward, & Taylor, 1998a), concerns about body shape and thinness (Mintz & Betz, 1988; Thompson, Berg, & Shatford, 1987), neuroticism (Tylka & Subich, 1999), interoceptive awareness (Tylka & Subich, 1999, 2002a), self-esteem (Mintz & Betz, 1988), and dysfunctional cognitions concerning food and weight (Thompson et al., 1987; Tylka & Subich, 1999), symptomatic women fall in between healthy eaters and those with eating disorders. These results are consistent with what has been termed the “continuum model,” which hypothesizes that individuals across the eating continuum (from healthy eaters to symptomatic to eating disordered) will differ only in the degree to which they report behavioral and psychological symptoms (Tylka & Subich, 1999). This model suggests that symptomatic women experience enough distress on the psychological and behavioral factors to be different

from healthy eaters, but not enough distress to be considered similar to women with eating disorders. Such a pattern underscores the notion that it is not just women with diagnosable disorders who are distressed enough to need the attention of mental health professionals.

Other research, however, has revealed a pattern where individuals with eating disorders report more affective disorders, personality disorders, interpersonal distrust, and ego deficits than do symptomatic and asymptomatic individuals (Garner, Olmsted, & Garfinkel, 1983; Garner, Olmsted, Polivy, & Garfinkel, 1984; Johnson & Wonderlich, 1992; Polivy & Herman, 1987). These results are consistent with the “discontinuity perspective” (Bruch, 1973), which hypothesizes that individuals with eating disorders experience disturbances not present in symptomatic or asymptomatic/healthy eaters. Thus, symptomatic and asymptomatic individuals would score similarly to one another on psychological and behavioral indicators of disordered eating and in a healthier direction than those who actually have a diagnosable eating disorder. Practically, this perspective would lead to different treatment implications than those of the continuum model. According to the discontinuity perspective, symptomatic women are considered to be psychologically similar to healthy eaters and, thus, not at increased risk of developing disordered eating nor in need of particular attention from mental health providers. Therefore, treatment would be focused on those individuals with diagnosable disorders.

Recently, research in this area has moved away from a practical examination of group similarities and differences to a more direct investigation of the underlying structure of eating disorders through taxometric analyses (Meehl, 1995). This analytic approach allows researchers to “...detect whether a latent taxon exists among the statistical patterns of the relations between indicators of a given disorder” (Tylka & Subich, 2003, p. 277). The presence of a taxon among the indicators provides evidence for a discontinuity or “taxonic” perspective, whereas the absence of one supports a continuum model. Results of research on the underlying structure of eating disorders, however, have been equivocal; some studies support the presence of an underlying taxon (e.g., Gleaves, Lowe, Green, Cororve, & Williams, 2000; Gleaves, Lowe, Snow, Green, & Murphy-Eberenz, 2000), and others support the idea that eating disturbances are continuous in nature (Tylka & Subich, 2003). As Tylka and Subich (2003) argued,

a key determinant in this line of research appears to be the type of indicators used by the researchers. When behavioral indicators (e.g., measures of disordered eating) are used, a taxon has been uncovered. However, when nonbehavioral measures (e.g., personality, body image) are included, the taxon is not found.

Although the taxometric approach does provide researchers with a more direct way to “test” the continuity–discontinuity perspective, it has many limitations and is not the only acceptable way to examine differences among eating-disorder groups (T. Tylka, personal communication, November 27, 2003). In fact, some researchers have argued that, because of the nature of a taxon, it has little practical significance, particularly with respect to the findings’ applicability (Widiger, 2001). As Widiger noted, “there are good reasons to believe that the taxometric techniques are simply identifying manifest class taxa that have few (if any) implications for specific etiologies, pathologies, or treatment” (p. 528). More specifically, a taxometric approach provides no information about how the eating-disorder groups (i.e., eating-disordered, symptomatic, and asymptomatic) actually relate to one another or if subcategories of these groups (i.e., symptomatic subgroups) are similar or different. Thus, this approach fails to inform us about how similar or different symptomatic and eating-disordered individuals are and on what psychosocial variables these relationships might be found. Such information is crucial for understanding the level of distress symptomatic women are experiencing and the extent to which they are harming themselves through their behaviors. Also, as discussed previously, an understanding of the variables on which symptomatic women are similar to those with eating disorders is key to determining risk and developing appropriate treatments (both preventive and remedial).

In the present study, for the reasons outlined above, our focus was not on directly testing the discontinuity–continuity hypothesis. Instead, we wanted to address other important questions concerning the relationship between eating-disorder groupings and behavioral and psychological variables. First, as Tylka and Subich (1999, 2002b) noted, additional research is needed to replicate findings on the gradation of symptoms across groups and to examine more extensively the role that variables, such as dysfunctional cognitions, play in differentiating eating-disordered, symptomatic, and asymptomatic groups. Thus, we wanted to examine the extent to

which these three groups differ from one another on a broad set of behavioral (e.g., concern for dieting) and psychological variables, such as body image disturbances, mood states, and cognitive dysfunctions. We selected these constructs because of their centrality in understanding the development of disordered eating (Stice, 1992, 2001; Tylka & Subich, 1999). Second, if differences across the three groups are not continuous, will the symptomatic group be similar to the eating-disorder group or more comparable to the asymptomatic group (Tylka & Subich, 1999)? It may be that as dieting and body dissatisfaction have become normative for women (Polivy & Herman, 1987), the line between symptomatic and eating-disordered individuals has blurred. If so, then we might expect to find differences primarily between asymptomatic individuals and those who are experiencing disordered eating symptoms (i.e., symptomatic and eating-disordered groups). Determining the relationship between disordered eating and asymptomatic groups is of great practical significance, particularly given the very large number of women who are symptomatic and likely to be experiencing considerable distress. It may be that symptomatic women are as distressed as their diagnosed counterparts, but, because of the lack of a diagnosis, are overlooked by mental health professionals. Third, is the symptomatic group unitary or is it best defined by specific subgroups? Mintz et al. (1997) proposed that the symptomatic category was actually made up of different subgroups of disordered eaters, including chronic dieters and subthreshold behavioral bulimics. To date, however, no study has directly compared these symptomatic subgroups to determine whether Mintz et al.’s nosological system has utility or if researchers and clinicians would be better served by simply viewing the symptomatic subgroups as unitary. An understanding of how symptomatic individuals differ in terms of their responses to a variety of psychological and behavioral correlates of eating disorders would provide useful information for treatment and future research.

Thus, the purpose of the present study was to address these three issues. Specifically, we extended the Tylka and Subich (1999) study by using a broader range of psychological and behavioral variables, including disordered eating behaviors (Katzman & Wolchik, 1984; Stice et al., 1998a), dysfunctional cognitions (Garner & Bemis, 1982; Mizes, 1988; Thompson et al., 1987), negative and positive affect (Mizes, 1988; Stice & Shaw, 1994; Stice, Ziemba, Margolis, & Flick, 1996), and body attitudes

(Mintz & Betz, 1988; Stice et al., 1998a; Tylka & Subich, 1999), that appear to be associated with eating-disorder symptomatology. Second, we examined these variables across the three groups to determine how symptomatic college women compare to their eating-disordered and asymptomatic counterparts. Based on past research (Mintz & Betz, 1988; Stice et al., 1998a; Tylka & Subich, 1999), we expected that when the eating-disordered group differed from the other groups, the asymptomatic group would have fewer pathogenic symptoms than the symptomatic and eating-disorder groups. Finally, we examined how the symptomatic subgroups identified by Mintz et al. (1997) would differ across the variables. Because previous researchers have only conceptualized the symptomatic category in a unitary manner (e.g., Tylka & Subich, 1999), we did not make any specific hypotheses about how the subgroups might differ from one another.

METHOD

Participants

Three hundred thirty-four female undergraduates from a large, public university located in the southwestern U.S. participated in this study. Mean age was 20.8 years ($SD = 4.1$) and mean body mass index (BMI) was 23.63 kg/m² ($SD = 5.3$). In terms of racial/ethnic status, 66% were European American, 17% were African American, 10% were Latinas, 4% were Asian Americans, and 0.3% were Native Americans; 2% indicated "Other." Concerning year in school, 37% were freshmen, 14% sophomores, 16% juniors, and 33% seniors. The majority (91%) had never been married.

Measures

Demographics and Weight

This questionnaire was developed for the current study to assess age, race, participants' reported current weight and height, marital status, and grade level. Self-reported current weight and height were used to determine BMI (Keys, Fidanza, Karvonen, Kimura, & Taylor, 1972).

Disordered Eating

The 50-item Questionnaire for Eating Disorder Diagnoses (Q-EDD; Mintz et al., 1997) measures

eating-disorder symptoms based on *DSM-IV* criteria. Based on their endorsement of symptoms, participants were classified as: eating-disordered (i.e., anorexia, bulimia, subthreshold bulimia, menstruating anorexia, nonbingeing bulimia, and binge-eating disorder), symptomatic (i.e., low-weight anorexia, nonnormal-weight nonbingeing bulimia, subthreshold nonbingeing bulimia, subthreshold binge-eating disorder, binge dieter, behavioral bulimia, subthreshold behavioral bulimia, chronic dieter, and others) and asymptomatic (i.e., no eating disturbances). Mintz et al. (1997) provided evidence to support the scale's psychometric properties, and it has been used extensively in research to determine eating-disorder groupings (e.g., Tylka & Subich, 2002a, 2002b).

The 36-item Bulimia Test Revised (BULIT-R; Thelen, Mintz, & Vander Wal, 1996) assesses bulimic symptoms based on *DSM-IV* criteria. Although all items are administered, total scores are based on only 28 items and can range from 28 (no bulimic symptoms) to 140 (highest level of bulimic symptoms). The BULIT appears to be internally consistent (Thelen et al., 1996) and stable over time (Brelsford, Hummel, & Barrios, 1992); Cronbach's alpha from the current sample was .94. In addition, the BULIT-R has demonstrated acceptable levels of convergent and criterion-related validity (Thelen et al., 1996).

The 10-item Revised Restraint Scale (RRS; Herman & Polivy, 1980) assesses dieting and weight concerns through two subscales: weight fluctuation (WF—4 items) and concern for dieting (CD—6 items). Total scores on the WF subscale range from 4 (no overeating or weight gain) to 20 (high levels of overeating and weight gain), whereas total scores on the CD subscale range from 6 (no dietary restraint) to 25 (high levels of dietary restraint). Cronbach alphas for the current sample were .83 (CD) and .76 (WF). Significant correlations between the CD and WF subscales and body satisfaction ($r = -.57$, $r = -.42$) and bingeing ($r = .59$, $r = .42$) support the scales' validity (Tripp & Petrie, 2001).

Dysfunctional Cognitions

The 56-item version of the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978, as cited in Phillips, Tiggemann, & Wade, 1997) measures the maladaptive beliefs and assumptions that Beck (1967) identified as underlying depression, including: impression management (i.e., the need to impress

others with one's wit, intelligence, or charm), approval by others (i.e., the need for others' approval in order to feel happy), imperatives (i.e., expectations that are perfectionistic or absolute in nature), need to succeed (i.e., attitudes concerning success and failure), vulnerability (i.e., the sense of being vulnerable to the uncertainty of life), catastrophizing (i.e., the tendency to explain situations in extreme terms), dichotomous thinking (i.e., the explanation of events using mutually exclusive categories), and pleasing others (i.e., the tendency to sacrifice one's interests to please or appease others) (Dyck & Agar-Wilson, 1997). Individuals rate each item from 1 (totally disagree) to 7 (totally agree); higher scores on each subscale indicate more dysfunctional thinking. Cronbach's alphas from the current sample were .78 (impression management), .85 (approval by others), .73 (imperatives), .82 (need to succeed), .79 (vulnerability), .74 (catastrophizing), .82 (dichotomous thinking), and .52 (pleasing others). Given the low internal consistency for the pleasing others subscale, it was excluded from subsequent analyses. Support for the scale's validity has been found through correlations between the original DAS and the Beck Depression Inventory (Dyck, 1992).

The 24-item Mizes Anorectic Cognitions Questionnaire-Revised (MAC-R; Mizes et al., 2000) assesses cognitive distortions across three factors: self-acceptance based on eating patterns and weight (weight and approval—8 items), self-esteem based on controlled eating, weight gain, and daily experiences (self-control and self-esteem—8 items), and strict weight monitoring in order to maintain or decrease weight (rigid weight regulation and fear of weight gain—8 items). Individuals rate each item from 1 (strongly disagree) to 5 (strongly agree); higher scores on each subscale indicate more dysfunctional cognitions. Cronbach alphas for the current study were .73 (weight and approval), .86 (self-control), and .76 (rigid weight regulation). Concerning validity, the MAC-R total score was significantly related to the EDI, the restraint scale, and the original MAC (Mizes et al., 2000).

Mood and Esteem

A 7-item mood scale used by Stice and Shaw (1994) assesses participants' levels of depression, happiness, shame, guilt, confidence, anxiety, and stress. One item represents each affective state, and individuals rate their current feelings from 1 (not

at all) to 5 (extremely). Stice and Shaw (1994) reported that the depression, shame, guilt, stress, happiness, and confidence items were significantly correlated with the Beck Depression Inventory, which provides evidence for the items' construct validity.

The 10-item Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) measures a self-acceptance dimension of self-esteem. Participants respond to each item from 1 (strongly disagree) to 4 (strongly agree); higher scores indicate greater self-esteem. Cronbach's alpha in the current study was .73. Concerning validity, the RSES correlates moderately with the Coopersmith Self-Esteem Inventory and the California Psychological Inventory Self-Acceptance subscale (Robinson & Shaver, 1973).

Body Attitudes

The 10-item Body Parts Satisfaction Scale-Revised (BPSS-R; Petrie, Tripp, & Harvey, 2002) measures individuals' satisfaction with their bodies (seven different body parts, such as stomach) and face (three different body parts). For each factor, scores can range from 1 to 6; higher scores represent greater satisfaction with body and facial features. Cronbach alphas for the current sample were .92 (Body) and .69 (Face). Concerning validity, Petrie et al. (2002) found that the body and face factors demonstrated moderate to high correlations with the Multidimensional Body-Self Relations Questionnaire Appearance Evaluation subscale, the Body Shape Questionnaire, and the RRS.

The 10-item Body Shape Questionnaire-Revised (BSQ-R-10; Mazzeo, 1999) measures body image preoccupation. Total scores can range from 10 (no preoccupation) to 60 (high preoccupation). Cronbach's alpha was .98 in the current study. Mazzeo (1999) found that the BSQ-R-10 was related strongly to the BULIT-R and EAT-26, which suggests adequate validity.

The 19-item Beliefs About Attractiveness Scale-Revised (BAA-R; Petrie, Rogers, Johnson, & Diehl, 1996) measures women's endorsement of U.S. cultural values concerning attractiveness and beauty, including importance of being physically fit and in-shape (9 items) and importance of being attractive and thin (10 items). Mean scores on each subscale can range from 1 to 7; higher scores indicate greater endorsement. For the current sample, Cronbach alphas ranged from .84 (physically fit) to .88 (attractive and thin). Regarding the scale's construct validity, both factors were significantly related to more

bulimic symptoms, lower self-esteem, more concern with body size and shape, and higher levels of depression (Petrie et al., 1996).

Social Desirability

The 12-item Marlowe–Crowne Social Desirability Scale-Form B (SDS; Reynolds, 1982) assesses participants' tendencies to respond in a socially desirable manner. Total scores can range from 0 (low social desirability) to 12 (high social desirability). For the current study, the Kuder–Richardson-20 reliability coefficient was .66. In addition, Reynolds (1982) found that the Form B was moderately but significantly correlated with the Edwards Social Desirability Scale.

Procedure

Women from undergraduate psychology courses were solicited to participate in a study on women's health. After their classes and in small groups, the women completed consent forms and then the packet of questionnaires. Upon completion of the study, participants received extra credit cards that could be applied to their psychology classes. Presentation of questionnaires was counterbalanced to control order effects.

Design and Statistical Analysis

The women were grouped based on their Q-EDD classification as eating-disordered, symptomatic, or asymptomatic. To compare these three groups, separate multivariate analyses of variance (MANOVAs) were conducted on the following sets of variables: disordered eating behaviors (i.e., BULIT-R, RRS), dysfunctional cognitions (i.e., DAS, MAC-R), mood and esteem (i.e., sadness/depression, anxiety, guilt, shame, stress, happiness, confidence, RSES) and body attitudes (i.e., BAA-R, BPSS-R, BSQ-R-10). Given the large number of comparisons, p was set at .005 to control the family-wise error rate. If MANOVAs were significant, univariate analyses of variance (ANOVAs) and, where appropriate, the Scheffe posthoc procedures were conducted.

To examine the symptomatic subgroups, a similar approach was taken using the same sets of dependent variables. Given the exploratory nature of these

analyses, p was set at .05. The observed power for these multivariate analyses was 1.00. For each set of subsequent univariate analyses, observed power exceeded .80 for all dependent variables except for imperatives where the power was .61.

RESULTS

Eating Disorder Categories

Based on their Q-EDD responses, 172 (51.5%) women were categorized as asymptomatic, 130 (38.9%) as symptomatic (1 was classified with low-weight anorexia, 5 with nonnormal-weight nonbingeing bulimia, 1 with both low-weight anorexia and nonnormal-weight nonbingeing bulimia, 38 with subthreshold nonbingeing bulimia, 10 with subthreshold binge-eating disorder, 4 as binge dieters, 1 with behavioral bulimia, 11 with subthreshold behavioral bulimia, 41 as chronic dieters, and 18 as other) and 32 (9.6%) as eating-disordered (1 was classified with anorexia, 1 with menstruating anorexia, 2 with bulimia, 17 with subthreshold bulimia, 6 with nonbingeing bulimia, and 5 with binge-eating disorder).

The three eating groups were unrelated to race/ethnicity, $\chi^2(10, n = 333) = 15.07, p = .13$, year in school, $\chi^2(10, n = 331) = 12.02, p = .28$, and age, $F(2, 329) = 2.85, p = .06$. There was a significant difference among the groups in social desirability, $F(2, 331) = 3.81, p < .05$; the asymptomatic group ($M = 5.59, SD = 2.68$) scored higher than the eating-disordered group ($M = 4.42, SD = 2.17$), but neither group differed significantly from the symptomatic women ($M = 4.96, SD = 2.66$). Despite this between-group difference, correlations between the dependent variables and social desirability were small; the absolute value of the correlations ranged from .09 to .31 (the average correlation was .19).

Eating-Disordered Versus Symptomatic Versus Asymptomatic

The MANOVA for the disordered eating measures reached significance, Wilk's Lambda = .48, $F(6, 658) = 47.92, p \leq .001$ ($d = .55$). Follow-up ANOVAs revealed significant differences on bulimia, $F(2, 331) = 142.61, p \leq .001$, CD, $F(2, 331) = 105.10, p \leq .001$, and WF, $F(2, 331) = 40.23, p \leq .001$. The eating-disordered group reported more bulimic symptoms ($d = 1.41$), a higher concern for

dieting ($d = .85$), and greater weight fluctuation ($d = .59$) than did the symptomatic group who, in turn, had more bulimic, restrictive, and weight fluctuation symptoms ($d = 1.25$; $d = 1.32$; $d = .81$, respectively) than did the asymptomatic group (See Table I).

The MANOVA for the dysfunctional cognition measures reached significance, Wilk's Lambda = .65, $F(20, 644) = 7.70$, $p \leq .001$ ($d = .44$). Follow-up ANOVAs revealed differences on impression management, $F(2, 331) = 11.06$, $p \leq .001$, approval by others, $F(2, 331) = 16.23$, $p \leq .001$, vulnerability, $F(2, 331) = 5.49$, $p \leq .005$, catastrophizing, $F(2, 331) = 9.06$, $p \leq .001$, dichotomous thinking, $F(2, 331) = 13.00$, $p \leq .001$, self-control, $F(2, 331) = 75.02$, $p \leq .001$, rigid weight regulation, $F(2, 331) = 42.82$, $p \leq .001$, and weight and approval, $F(2, 331) = 24.41$, $p \leq .001$. No significant

differences were found on imperatives, $F(2, 331) = 3.17$, $p = .043$ and need to succeed, $F(2, 331) = 5.15$, $p = .006$.

Posthoc tests revealed that eating-disordered, symptomatic, and asymptomatic groups differed from each other in a linear direction on a majority of the cognitive variables. The eating-disorder group scored higher on impression management ($d = .47$), approval by others ($d = .45$), dichotomous thinking ($d = .45$), self-control ($d = .75$), rigid weight regulation ($d = .60$), and weight and approval ($d = .44$) than the symptomatic group. The symptomatic group endorsed statements regarding impression management ($d = .34$), approval by others ($d = .47$), dichotomous thinking ($d = .41$), self-control ($d = 1.11$), rigid weight regulation ($d = .84$), and weight and approval ($d = .64$) more than did

Table I. Dependent Variable Means and Standard Deviations for Each Group

	Asymptomatic ($n = 172$)		Symptomatic ($n = 130$)		Eating-disordered ($n = 32$)		<i>F</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Eating measures							
Bulimic symptoms	41.67 _a	10.16	58.70 _b	17.14	82.22 _c	14.38	142.610**
Concern for dieting	10.91 _a	3.18	15.39 _b	3.64	18.41 _c	3.14	105.103**
Weight fluctuation	8.23 _a	3.32	10.86 _b	3.14	12.66 _c	2.80	40.227**
Cognitions							
Impression management	32.34 _a	8.48	35.32 _b	9.28	39.59 _c	7.77	11.064**
Approval by others	20.57 _a	8.24	24.62 _b	8.98	28.56 _c	7.85	16.227**
Imperatives	36.29	7.54	38.12	8.74	39.50	8.46	3.174
Need to succeed	13.63	5.69	15.42	6.73	16.81	7.26	5.154
Vulnerability	21.91 _a	7.30	24.09 _b	7.92	26.13 _b	9.39	5.492*
Catastrophizing	28.77 _a	7.17	31.77 _b	7.06	32.72 _b	4.58	9.060**
Dichotomous thinking	16.28 _a	6.40	19.02 _b	7.15	22.41 _c	9.02	12.996**
Self-control	21.76 _a	6.37	28.65 _b	6.03	32.91 _c	3.62	75.022**
Rigid weight regulation	16.80 _a	4.63	21.01 _b	5.49	24.44 _c	6.51	42.816**
Weight and approval	16.26 _a	4.54	19.35 _b	5.13	21.69 _c	6.14	24.407**
Mood & esteem							
Sad/depressed	2.29 _a	1.03	2.79 _b	1.11	3.25 _b	1.08	15.284**
Anxious	2.87 _a	1.19	3.19 _b	1.20	3.53 _b	1.16	5.598*
Guilty	1.61 _a	.82	2.06 _b	1.11	2.41 _b	1.13	13.712**
Shameful	1.45 _a	.72	1.89 _b	1.02	2.25 _b	1.08	15.929**
Stressed	3.54 _a	1.17	3.91 _b	1.07	4.09 _b	.96	6.002*
Happy	3.98 _a	.83	3.62 _b	.91	3.56 _b	.91	7.436**
Confident	3.58 _a	.97	3.27 _b	1.08	2.94 _b	.98	6.961**
Self-esteem	5.24 _a	1.02	4.54 _b	1.43	4.00 _b	1.55	20.110**
Body attitudes							
Importance of physical fitness	4.31 _a	1.07	4.79 _b	1.08	5.25 _b	1.01	14.138**
Importance of attractive and thin	2.23 _a	.82	2.69 _b	1.14	3.00 _b	1.41	12.558**
Concern w/body shape	26.40 _a	12.11	39.73 _b	13.63	48.33 _c	10.90	65.126**
Satisfaction w/body	3.65 _a	1.13	2.84 _b	1.21	2.33 _b	1.04	28.788**
Satisfaction w/face	4.59 _a	.86	4.32 _b	1.06	3.59 _c	1.01	15.019**

Notes. BULIT-R (Bulimic symptoms), RRS (concern for dieting, weight fluctuation), DAS (impression management, approval by others, imperatives, need to succeed, vulnerability, catastrophizing, dichotomous thinking), MAC-R (self-control, rigid weight regulation, weight and approval), 7-item mood scale (sad/depressed, anxious, guilty, shameful, stressed, happy, confident), RSES (self-esteem), BAA-R (importance of physical fitness, importance of attractiveness and thinness), BSO-R-10 (concern with body shape), BPSSR (satisfaction with body, satisfaction with face). Means scores without common subscripts are significantly different at $p \leq .05$. * $p \leq .005$. ** $p \leq .001$.

the asymptomatic group. In addition, individuals who were classified in the eating-disorder or symptomatic groups, did not differ significantly from one another, and felt more vulnerable to the precariousness of life ($d = .55$; $d = .29$, respectively) and explained situations in more extreme terms ($d = .58$; $d = .42$, respectively) than did individuals in the asymptomatic group (see Table I).

The MANOVA for the mood and self-esteem measures reached significance, Wilk's Lambda = .83, $F(16, 648) = 4.03$, $p \leq .001$ ($d = .30$). Follow-up ANOVAs revealed significant differences on sadness, $F(2, 331) = 15.28$, $p \leq .001$, anxiety, $F(2, 331) = 5.60$, $p \leq .005$, guilt, $F(2, 331) = 13.71$, $p \leq .001$, shame, $F(2, 331) = 15.93$, $p \leq .001$, stress, $F(2, 331) = 6.00$, $p \leq .005$, happiness, $F(2, 331) = 7.44$, $p \leq .001$, confidence, $F(2, 331) = 6.96$, $p \leq .001$, and self-esteem, $F(2, 331) = 20.11$, $p \leq .001$.

The eating-disordered and symptomatic groups, who did not differ significantly from one another, reported higher levels than did the asymptomatic group on sadness/depression ($d = .93$; $d = .47$, respectively), anxiety, ($d = .56$; $d = .27$, respectively), guilt, ($d = .91$; $d = .47$, respectively), shame, ($d = .102$; $d = .51$, respectively) and stress, ($d = .48$; $d = .33$, respectively), and lower levels than did the asymptomatic group on happiness, ($d = .50$; $d = .42$, respectively), confidence, ($d = .66$; $d = .30$, respectively), and self-esteem ($d = 1.11$; $d = .58$, respectively). See Table I.

The MANOVA for the body attitude variables achieved significance, Wilk's Lambda = .69, $F(10, 654) = 13.15$, $p \leq .001$ ($d = .41$). Follow-up ANOVAs revealed significant differences on importance of being physically fit and in shape, $F(2, 331) = 14.14$, $p \leq .001$, importance of being attractive and thin, $F(2, 331) = 12.56$, $p \leq .001$, concern with body-size and shape, $F(2, 331) = 65.13$, $p \leq .001$, satisfaction with one's body, $F(2, 331) = 28.79$, $p \leq .001$, and satisfaction with one's face, $F(2, 331) = 15.02$, $p \leq .001$.

The eating-disorder group reported being more preoccupied with their body shape ($d = .65$) and less satisfied with their facial features ($d = .70$) than did the symptomatic group who, in turn, had more body concern and dissatisfaction with their face ($d = 1.04$; $d = .28$, respectively) than did the asymptomatic group. The eating-disorder and symptomatic groups, who did not differ significantly from one another, more strongly internalized sociocultural attitudes about the importance of being physically fit and

in shape ($d = .89$; $d = .45$, respectively) and about being attractive and thin ($d = .82$; $d = .47$, respectively), and they were less satisfied with their bodies ($d = 1.18$; $d = .70$, respectively) than was the asymptomatic group (See Table I).

Symptomatic Subcategories

Based on criteria defined by Mintz et al. (1997) for scoring the Q-EDD, the symptomatic category was divided into specific subgroups (see "Method"). Although there were 18 participants in the "other" category, the heterogeneity of that group invalidated its inclusion in the statistical analyses. To determine whether the symptomatic groups differed on the dependent variables, the subthreshold nonbingeing bulimia ($n = 38$), subthreshold binge-eating disorder ($n = 10$), subthreshold behavioral bulimia ($n = 11$), and chronic dieter ($n = 41$) groups were compared (the low-weight anorexia, nonnormal-weight nonbingeing bulimia, low-weight anorexia and nonnormal-weight nonbingeing bulimia, binge dieter, and behavioral bulimia groups were dropped due to low numbers). The MANOVA for the eating-disorder variables reached significance, Wilk's Lambda = .66, $F(9, 229) = 4.78$, $p \leq .001$ ($d = .36$). Follow-up ANOVAs revealed significant differences only on the BULIT-R, $F(3, 96) = 11.89$, $p \leq .001$. The subthreshold binge-eater and subthreshold behavioral bulimic groups, who did not differ significantly from one another, reported more bulimic symptoms than did the subthreshold nonbingeing bulimic group ($d = 1.28$; $d = .93$, respectively) and the chronic dieter group ($d = 1.88$; $d = 1.51$, respectively); the latter two groups did not differ significantly from one another (See Table II).

The MANOVAs for the cognitive variables, Wilk's Lambda = .65, $F(30, 256) = 1.38$, $p = .099$ and the body variables, Wilk's Lambda = .84, $F(15, 254) = 1.09$, $p = .364$ ($d = .24$) did not reach significance; however, the MANOVA for the mood variables did, Wilk's Lambda = .67, $F(24, 259) = 1.60$, $p = .042$ ($d = .35$). None of the follow-up ANOVAs were significant ($p > .05$), with the exception of the shame variable, $F(3, 96) = 5.36$, $p \leq .005$. The subthreshold binge-eater group reported more shame than did the subthreshold behavioral bulimic group ($d = 1.60$) and the chronic dieter group ($d = 1.54$) and a similar level of shame to that reported by subthreshold nonbingeing bulimic group; there were

no significant differences between the subthreshold behavioral bulimic, chronic dieter, and subthreshold nonbingeing bulimic groups (See Table II).

DISCUSSION

In this study, we compared three groups of undergraduate women—eating-disordered, symptomatic, and asymptomatic—on various behavioral and psychological variables that previously have been related to eating disorders. The eating-disordered group reported the highest levels of disturbance on the eating behavior measures (bulimia,

dietary restraint, and weight fluctuation), followed in a stepwise fashion by the symptomatic and then the asymptomatic groups. The fact that women across the three groups differed in the expected direction on measures of disordered eating is consistent with past research (Katzman & Wolchik, 1984; Stice et al., 1996, 1998; Thompson et al., 1987) and provides further support for the construct validity of the Q-EDD (Mintz et al., 1997). These findings also suggest that the Q-EDD may be a useful research tool for screening large groups of women to identify level of eating-disorder symptoms.

We predicted that the most severe disturbances on the measures of dysfunctional cognitions would be

Table II. Dependent Variable Means and Standard Deviations for the Symptomatic Subgroups

	Subthreshold nonbingeing bulimia (<i>n</i> = 38)		Subthreshold binge-eating disorder (<i>n</i> = 10)		Subthreshold behavioral bulimia (<i>n</i> = 11)		Chronic dieter (<i>n</i> = 41)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>
Eating measures									
Bulimic symptoms	56.90 _a	15.36	76.10 _b	13.75	70.27 _b	10.01	51.42 _a	13.00	11.891**
Concern for dieting	14.76	4.06	16.90	3.07	16.00	3.41	15.59	2.94	1.191
Weight fluctuation	10.68	3.51	12.10	2.33	11.91	3.65	10.59	2.71	1.078
Cognitions									
Impression management	34.47	9.88	35.30	12.00	38.09	12.39	35.32	6.49	0.439
Approval by others	24.68	8.05	25.10	12.09	26.82	8.81	23.02	8.92	0.619
Imperatives	36.42	9.61	42.30	7.23	39.64	10.08	38.46	7.79	1.371
Need to succeed	14.50	6.73	17.90	8.80	16.73	8.45	14.93	5.98	0.850
Vulnerability	23.26 _a	7.58	31.20 _b	8.44	24.91 _{a,b}	10.51	22.29 _a	6.67	3.765
Catastrophizing	30.92	6.64	32.50	6.85	31.82	9.97	31.93	6.13	0.215
Dichotomous thinking	18.37	6.93	18.90	8.02	20.64	8.61	19.17	6.47	0.308
Self-control	28.03	6.04	30.80	5.85	28.46	6.53	29.17	5.58	0.670
Rigid weight regulation	21.29	5.69	22.00	5.77	21.27	6.70	20.76	4.82	0.161
Weight and approval	18.66	4.90	21.00	4.55	18.27	4.74	19.49	5.07	0.776
Mood & esteem									
Sad/depressed	2.92	1.22	3.30	.82	3.00	1.34	2.56	1.00	1.560
Anxious	3.29	1.27	3.10	1.37	3.46	1.04	3.05	1.30	0.421
Guilty	2.18	1.21	2.40	1.17	1.73	.91	1.98	0.99	0.916
Shameful	1.95 _{a,b}	1.11	2.80 _b	1.14	1.55 _a	.69	1.56 _a	0.71	5.361*
Stressed	4.16	1.08	4.00	1.05	3.46	1.13	3.85	1.11	1.320
Happy	3.47	0.98	3.20	.92	3.73	.79	3.73	0.81	1.299
Confident	3.32	1.02	2.60	.97	3.55	.93	3.42	1.05	1.966
Self-esteem	4.55	1.47	4.00	1.63	4.82	1.17	4.51	1.40	0.609
Body attitudes									
Importance of physical fitness	4.62	1.04	5.16	.93	4.84	1.24	4.86	0.90	0.884
Importance of attractive & thin	2.58	1.07	3.44	1.28	2.94	1.39	2.51	0.95	2.296
Concern w/body shape	39.16	14.55	48.70	12.18	37.55	10.89	40.90	11.52	1.179
Satisfaction w/body	3.01	1.21	2.20	1.29	3.20	1.12	2.68	1.04	1.945
Satisfaction w/face	4.35	1.05	4.03	.91	4.61	1.10	4.33	1.08	0.518

Notes. BULIT-R (Bulimic symptoms), RRS (concern for dieting, weight fluctuation), DAS (impression management, approval by others, imperatives, need to succeed, vulnerability, catastrophizing, dichotomous thinking), MAC-R (self-control, rigid weight regulation, weight and approval), 7-item mood scale (sad/depressed, anxious, guilty, shameful, stressed, happy, confident), RSES (self-esteem), BAA-R (importance of physical fitness, importance of attractiveness and thinness), BSQ-R-10 (concern with body shape), BPSSR (satisfaction with body, satisfaction with face). Means scores without common subscripts are significantly different at $p \leq .05$. * $p \leq .005$. ** $p \leq .001$.

reported by the eating-disorder group, followed by symptomatic group; the asymptomatic group was expected to endorse the healthiest beliefs and attitudes (Bonifazi, Crowther, & Mizes, 2000; Thompson et al., 1987). This hypothesis was supported with respect to cognitive and behavioral rigidity, as measured by dichotomous thinking, self-control, and extreme weight regulation. Further, the eating-disordered group reported a greater need to obtain others' approval (e.g., for their weight) in order to be happy and to impress new acquaintances with their personality and intellect than did the symptomatic group, who, in turn, had higher scores than the asymptomatic group. In Western societies, a woman's worth is often determined by her level of attractiveness (Polivy & Herman, 1987). Although a causal relationship cannot be determined from the current data, it is possible that the greater importance a woman places on being accepted by others, the more concerned she may be with her appearance and the more involved she may become in restrictive and purging practices in her quest to reach her culture's beauty ideal.

Although many of the cognitions we measured became more dysfunctional as the severity of disordered eating increased, two cognitive variables did not differentiate the symptomatic and eating-disordered groups. Specifically, eating-disorder symptoms, for both these groups, were positively associated with a tendency to explain situations in extreme terms and with the belief that one is prone to negative life events. The higher levels of catastrophizing and vulnerability among women in the eating disorder and symptomatic groups, as compared to the asymptomatic group, is consistent with past research that has shown eating-disordered individuals to feel less in control of their environment (Dagleish et al., 2001). Restricting, purging, and/or other disordered eating behaviors may provide these women, who perceive their environments as uncertain or disastrous, with a sense of empowerment or control. Unfortunately, such rigid control can exacerbate eating problems by setting up cycles of bingeing and purging.

The three groups of women did not differ on the amount of success they desired in their educational, occupational, and social lives nor in the extent to which their expectations were perfectionistic and absolute in nature. Similarly, other researchers have found that level of disordered eating is unrelated to perfectionism among high school and college women (Tylka & Subich, 1999) and to achievement strivings

in academic and career pursuits among female undergraduates (Burckle, Ryckman, Gold, Thornton, & Audeesse, 1999). The lack of relationship between disordered eating and these variables may be due to the fact that, in the college environment, achievement and perfectionism are typically high for most undergraduate women. Overall, level of disordered eating was related to 8 of the 10 cognitive variables, a finding that is consistent with Garner and Bemis' (1982) argument that distorted cognitions are fundamental to eating disorders.

The asymptomatic group reported overall healthier body attitudes than did either the symptomatic or eating-disordered groups; however, with regard to concern with body shape and dissatisfaction with facial features, the eating-disordered group evidenced more concern and dissatisfaction than did the symptomatic group, who in turn reported more than did the asymptomatic group. Regarding these findings, two points should be noted. First, consistent with past research, symptomatic and eating-disordered women were more dissatisfied with their bodies and placed a higher importance on the sociocultural values of physical fitness, attractiveness, and thinness than did asymptomatic women (Dancyger & Garfinkel, 1995; Stice et al., 1996, 1998; Thompson et al., 1987; Tylka & Subich, 1999). As women adopt unrealistic standards of beauty, the differences between the physical realities of their bodies and the thin-ideal that is portrayed in the media become more salient and influential (Hoyt & Kogan, 2001), and possibly lead to more negative affect, lower self-esteem, and greater body dissatisfaction. Barber (2001), however, suggested that the direction of this relationship may be the reverse; negative affect may contribute to greater striving for the cultural-ideal and less self-acceptance, specifically with regard to weight. Second, despite the fact that the asymptomatic group was the most accepting of their physical features, the women in the present study expressed only low to moderate satisfaction with their bodies and faces (Petrie et al., 2002). Because body image concerns appear to be a key precursor to the development of disordered eating (Attie & Brooks-Gunn, 1989; Tripp & Petrie, 2001), even currently asymptomatic women may be at risk because of the dissatisfaction they experience with regard to their appearance.

The symptomatic and eating-disordered groups (who did not differ significantly) reported more sadness, anxiety, guilt, shame, and stress and less happiness, confidence, and self-esteem than did the

asymptomatic group. Past studies have demonstrated a similar pattern of symptoms among women of varying levels of disordered eating for anxiety, depression, and hostility (Stice et al., 1996, 1998a). Stice, Shaw, and Nemeroff (1998b) suggested that negative affect serves as both a predictor of bulimic symptoms and a mediator of the effects of sociocultural, self-perceptual, and physical factors on subsequent bulimic pathology. If so, then monitoring female undergraduates' mood states may provide a better understanding of why some women are more likely to experience a worsening of symptoms while in college (Striegel-Moore, Silberstein, Frensch, & Rodin, 1989).

In summary, we found support for gradations of symptom severity across the eating-disordered, symptomatic, and asymptomatic groups, as well as for similarities between women who evidence any eating-disorder symptoms (eating-disorder and symptomatic groups) in comparison to those who do not. The linear variation found in the present study suggests that asymptomatic, symptomatic, and eating-disordered women clearly differ in the frequency and severity of bulimic symptoms and dietary restraint, which provides further support for the construct validity of the Q-EDD. Paralleling these maladaptive eating behaviors are a rigid cognitive style; dysfunctional beliefs about eating, body, weight and the world in general; and concern with others' approval and focus on body shape and facial features.

Not all variables, though, differed in this linear manner across the groups. Certain variables, such as negative and positive affect, self-esteem, sociocultural beliefs about thinness and attractiveness, body dissatisfaction, vulnerability, and catastrophizing, distinguished the asymptomatic group from the women who were classified as symptomatic and eating disordered, which is consistent with past research (Mintz & Betz, 1988; Stice et al., 1998a; Tylka & Subich, 1999). Further, these findings suggest that disordered eating behaviors, regardless of their severity or frequency, are related to greater mood disturbances, increased internalization of the thin-ideal, greater disappointment with one's physical appearance, a more negative perception of life circumstances, and feeling more out of control. Based on these findings, symptomatic women should not be considered a variant of asymptomatic eaters with similar psychological characteristics; rather, these women may be more similar to women with eating disorders on important cognitive, affective, and body attitude variables.

The third issue we examined concerned the extent to which the symptomatic subcategories differed from one another on the behavioral and psychological correlates. Although we were only able to compare 4 of the 9 symptomatic subgroups due to small sample sizes (subthreshold nonbingeing bulimia, subthreshold binge-eating disorder, subthreshold behavioral bulimia, and chronic dieter groups), they were practically indistinguishable on the eating, cognitive, affect, and body measures. The only differences that appeared among these four groups were on measures of bulimic symptoms and shame. These findings are consistent with those of Mintz and Betz (1988), who found no differences among chronic dieters, bingers, purgers, and subthreshold bulimics on measures of body satisfaction, self-esteem, endorsement of sociocultural beliefs about attractiveness, cognitions about their appearance and about food and body attitudes.

Overall, the results of the symptomatic analysis suggest that although the Q-EDD provides detailed descriptive information regarding symptomatic eating behaviors, these subgroups do not differ empirically from one another and thus may provide minimal information about how women think and feel about and behave toward their bodies. Thus, women who present with varying constellations of eating-disorder symptoms may benefit from similar counseling services because of the commonalities they share across a wide spectrum of cognitive, affective, and behavioral variables.

There are several limitations to the current study that deserve mention. First, undergraduate women were used exclusively because a higher prevalence of eating-disorder symptomatology has been reported among young women in comparison to other age groups (American Psychiatric Association, 1994). Although we found a broad range of disordered eating behaviors and correlates, the generalizability of these findings is restricted. Thus, future researchers may want to extend the current study by examining other populations, such as high school students or community women. Second, self-report measures were the sole source of data for this study, including height and weight. Although women may have underreported their symptoms, the psychological, eating, and behavioral variables did not correlate significantly with social desirability, and there are data to suggest that, for variables such as height and weight, self-report measures are highly accurate (Brooks-Gunn, Warren, Rosso, & Gargiulo, 1987). Even so, future researchers may want to incorporate other

forms of data collection, such as clinical interviews, to increase confidence in diagnostic groupings. Third, several of the symptomatic subgroups (i.e., low-weight anorexia, nonnormal-weight nonbingeing bulimia, binge dieting, behavioral bulimia) could not be used in the current study because of small sample sizes; so our findings were limited to the four symptomatic subgroups that were included. To determine if *all* the subgroups are undifferentiated from one another, a larger symptomatic group would be needed and might be sought in future studies. Finally, negative affect was represented by a series of one-item mood states. Although a longer questionnaire about mood states might have been ideal, we chose the single-item measures for practical reasons (i.e., number of overall items in the questionnaire packet) and because they have been used successfully in past eating-disorder studies (e.g., Stice & Shaw, 1994).

Despite these limitations, our findings have implications for counseling and psychotherapy. Mental health professionals need to be aware that almost one-half of all college women may be experiencing disordered eating behaviors that are symptomatic or diagnosable. This wide prevalence is troubling given the psychological problems that accompany these behaviors and the fact that undergraduate women may actually develop more eating-disorder symptoms during the course of their first year in school (Cooley & Toray, 2001; Striegel-Moore et al., 1989). Unfortunately, women with eating-disorder symptoms may underuse typical support groups and clinical services because they are fearful about disclosing their symptoms to others and tend to minimize the severity of their eating-disorder behaviors (Meyer, 2001). To address this underuse and minimize the extent to which young women suffer from disordered eating attitudes and behaviors, Stice and his colleagues developed a prevention program based on cognitive-dissonance (Stice, Chase, Stormer, & Appel, 2001; Stice, Mazotti, Weibel, & Agras, 2000). After discussing issues related to the development and personal impact of the thin-ideal, as well as brainstorming ways in which to help others to resist that ideal, participants reported decreases in body dissatisfaction, dieting, negative affect, bulimic behaviors, and idealization of the thin-ideal; no such improvements were noted in a delayed-intervention control group. Thus, mental health professionals who work in the areas of eating-disorder prevention and treatment may want to focus on societal attitudes about thinness, unhealthy cognitions, and resultant

affective disturbances using interventions based on cognitive-dissonance.

Subsequent research should focus on the appropriateness of the Q-EDD for use in other populations. Women as well as men of different educational levels, socioeconomic statuses, racial/ethnic groups, and ages will need to be examined to determine the extent to which the current findings generalize. To gain a more thorough understanding of the symptomatic group, larger samples are needed to ensure that each symptomatic subgroup has adequate numbers and can be tested statistically. Only by testing all of the subgroups will we be able to determine the extent to which they actually represent different categories. Finally, a longitudinal study utilizing the Q-EDD would provide information on the development and maintenance of eating-disorder behaviors over time. Although some research suggests that subclinical symptoms may improve over time even when untreated (Thelen, Farmer, Mann, & Pruitt, 1990), other studies have demonstrated a worsening of symptoms during the first year of college (Cooley & Toray, 2001; Striegel-Moore et al., 1989). Thus, additional research is needed to determine whether undergraduate women shift categories during their first year or two in college and the extent to which their ability to cope with normal college stressors, such as academic demands, living away from home, or negotiating romantic and platonic relationships, contribute to such shifts.

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