AUTHOR: Eric Cooley; Tamina Toray  
TITLE: Disordered Eating in College Freshman Women: A Prospective Study  
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ABSTRACT
The authors assessed eating behaviors and attitudes of 225 college freshman women on the bulimia and restraint scales at the beginning of the year. Seven months later, they reassessed 104 of the original students. Concurrent data regression analyses found that symptoms of eating pathology were associated with figure dissatisfaction, ineffectiveness, public self-consciousness, and vigor on the Profile of Mood States, and for bulimia, self-efficacy to control eating when experiencing negative feelings, and reward conditions. Both bulimia and restraint were highly stable across the 7 months. Prospective analyses, controlling for the initial level of eating pathology in hierarchical regressions, found that figure dissatisfaction, ineffectiveness, and alcohol use/abuse over the past year were significant predictors of worsening symptoms. Beginning levels of bulimia and restraint were the best predictors of eating pathology at the end of the study. The roles that self-image and alcohol use may play as vulnerabilities for eating pathology are also considered. Key Words: body image, bulimia, college students, eating pathology

Prospective studies are highly advantageous in attempting to identify the causes of maladaptive eating attitudes and behaviors. Relatively few longitudinal studies have been completed, despite widespread reports of the prevalence of eating disorders and subclinical maladaptive eating and dieting patterns among college-aged women that create considerable concern.(FN1,2) In trying to understand the development of eating pathologies, researchers may find the first year of college a particularly appropriate period to study because of the significant life changes and stressors facing late adolescents entering the campus environment.

In this study, we surveyed a group of women over a 7-month period during their first year of college. We assessed symptoms of eating disorders, maladaptive eating, and dieting as a continuum,(FN3) anticipating that only a small minority of students would fit the criteria for an eating disorder diagnosis, but that a larger number of students would show subclinical levels of eating pathology.(FN1) Even at severity levels that fall considerably short of reaching the diagnostic criteria for eating disorders, maladaptive eating and dieting patterns represent a significant enough source of distress and interference with life tasks to warrant attention.(FN2)

In this article, we review findings regarding potential etiological factors. In most cases, these potential causal factors have been examined in correlational studies providing descriptive, rather than predictive data. We will emphasize available findings from published longitudinal data.

Body image is among the most supported etiological factors for the development of maladaptive eating and dieting. Prospective data have shown that adolescent girls who are heavier than classmates have a higher risk of developing eating problems in the future.(FN4-7) A young woman's self-perception of her body image is of even greater importance than her objective weight in developing maladaptive eating and dieting, and a high level of body dissatisfaction is a central feature of clinical eating disorders (FN5) and has been consistently identified as a key element in subclinical patterns of problematic eating.

(FN6,8)

Body dissatisfaction has also been reported as a correlate of dieting concerns in elementary-school girls(FN8,9) and has been one of the most consistent predictors of eating and dieting problems in longitudinal studies of adolescent girls.(FN5,6,10-12) Striegel-Moore(FN2) and her colleagues found that as body image worsened, disordered eating increased in a sample of first-year college women. The studies, however, fall short of unanimous agreement about the role of body image. For example, Leon et al.,(FN12) in a 2-year follow-up, did not find that body image was predictive of a later disordered eating

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pattern.

A number of personality variables have been suggested as potentially important in developing eating difficulties, with self-esteem and self-concept receiving a considerable amount of attention. The hypothesis that low self-esteem is causally related to eating pathologies has some support with concurrently gathered data,(FN4) and modest support in prospective data.(FN2,13) A closely related construct, self-efficacy, has been clearly shown to influence behavioral and emotional reactions to specific situations,(FN14) but the role it may play in food-related situations has received relatively little attention.(FN15) The theme of a loss of control over eating behavior in many eating pathologies suggests that self-efficacy may offer a valuable perspective on problematic eating.

Several other personality variables have been identified as predictive factors in prospective studies. Perfectionism(FN16) and a lack of awareness of emotional experience, assessed on the Interoceptive Awareness Scale of the Eating Disorders Inventory,(FN17) have received some support as causal factors.(FN18) These personality traits may create vulnerabilities that interact with life stressors and body dissatisfaction to promote disordered eating.(FN16,18)

An increasing tendency to experience depression and negative emotions has also been associated with disordered eating.(FN8,19,20) Leon et al(FN18) found that teachers rated adolescents at high risk for developing eating disorders as having greater internalizing problems, including depression, anxiety, and social awkwardness. Prospectively, higher levels of negative affect have been associated with the onset of binge eating and compensatory behaviors in nonclinical populations.(FN21,22)

Heatherton and Baumeister(FN23) reviewed the evidence that binge eaters are, among other traits, highly self-conscious and tend to set high standards for themselves, especially about appearance. Binge eating may help these individuals escape from their painful self-awareness, these authors suggested. Although we did not find any support for this hypothesis in prospective studies, we included it among the variables in our current study.

Eating disorders, particularly disorders involving binge eating, have a fairly high comorbidity with alcohol abuse.(FN24) Whether this relationship exists for less severe, subclinical, disordered eating is not clear; some studies suggest a relationship,(FN24-26) whereas others find none. In this study, we examined the relationship in college women across their freshman year.

As the reader can see from the preceding brief review, various constructs have been hypothesized to be causally related to eating pathology. Our goal was to examine several of these constructs prospectively, exploring variations that have been identified as important in other prospective studies. We included body image dissatisfaction, self-image, emotional distress, alcohol use, and two largely untested variables—self-efficacy and public self-consciousness.

We hypothesized that the unique demands and stressors that late adolescents face in making the transition to college would increase the likelihood of disordered eating behaviors that college women experience in their first year on campus. The value of this kind of prospective data is that a distinction can be made between descriptive and predictive factors in a nonclinical sample of young women with eating difficulties.

METHOD

PARTICIPANTS

We recruited participants from mandatory meetings during the first month of the school year in residence halls housing only women, following approval through appropriate academic procedures. This led to involvement of 17 out of the 33 resident assistants. The total population for these residence halls was 310 students; 225 women (74% of all residents) completed our original assessment. Nearly all of the attrition in the original sample came from women who did not attend the "mandatory" meeting for their residence area. Ninety-four percent of the women who attended the meetings completed the research protocol.

All of our respondents were first-year students, 86% were aged 18 years at the initial assessment (M = 17.95 y), and approximately 95% were White. Undergraduate research assistants administered the initial

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surveys. For the assessment 7 months later (n = 135), we also used meetings in the residence halls.

We compared the participants who completed both assessments (n = 104) and those who completed only the first (n = 120) on every measure we report in this article. The results of simple t tests revealed no differences on any of the measures. When we had completed the study, we provided participants with a list of on-campus services that deal with disordered eating, including both the counseling center and the health center.

MEASURES

We used two measures to assess eating pathology: the Restraint scale (FN27) and the Bulimia scale. (FN17) The Restraint scale is a 10-item measure that assesses both concern for dieting and weight fluctuations (e.g., What is your maximum weight gain within a week? or How often are you dieting?), using a 5-point response scale. Scores are the sum of answers across the 10 items. Heatherton and associates (FN27) argue for the inclusion of both factors in a single score and present a range of validity data to support their stance. In the current sample (n = 225), Cronbach's alpha was .81. (FN27)

The Bulimia scale of the Eating Disorders Inventory (EDI) (FN17) is a 7-item scale that "assesses the tendencies to think about and to engage in bouts of uncontrollable overeating (bingeing)" (p5). The bulimia and the ineffectiveness scales of the EDI have established reliability and validity. Items consist of declarative statements (e.g., I eat when I am upset.) that are rated on a 6-point frequency scale varying from always to never. Scores are the sum of the 7 items. For the current sample, the Cronbach's alpha was .82 (n = 225).

We examined the following seven measures of variables as predictors of eating pathology change across the 7-month interval:

Body Mass Index (BMI) is a calculation of weight in kilograms divided by height in meters squared; it was based on self-reported height and weight measured on the same digital scale provided by experimenters at each data collection point. We used English units (feet, inches, and pounds) for measuring both height and weight.

Figure Dissatisfaction consisted of a rating scale showing 11 silhouettes with each figure heavier than the previous one. Although similar to other rating scales described in the literature, (FN4) the figures were drawn to reflect more lifelike qualities. Participants were asked to look at the silhouettes and identify: (a) which figure is closest to the way you look? (actual figure) and (b) which figure is closest to how you would most like to look? (ideal figure). We calculated figure dissatisfaction by subtracting the number corresponding to the ideal figure from the number corresponding to the actual figure.

A previous study with this measure supported its utility. (FN25) We calculated a correlation between the corresponding number for the figure chosen as closest to herself with the individual's BMI. This correlation was r = .79 (p < .001), suggesting a close correspondence between the figure chosen as self-descriptive and the individual's BMI. The choice of the actual figure (a self-descriptive figure) was also quite stable across the 7 months of this study, with a retest correlation of .77 (n = 104). The retest correlation for figure dissatisfaction was r = .70, p < .001.

The Ineffectiveness scale of the EDI (FN17) is a 10-item scale that "assesses feelings of general inadequacy, insecurity, worthlessness, emptiness, and lack of control over one's life"(p5).

Items on this scale consist of declarative statements (e.g., I feel inadequate) rated on a 6-point frequency measure from always to never. Scores are the sums of answers across the 10 items; for our sample, Cronbach's alpha was .90 (n = 222).

The Public Self-consciousness scale (FN29) assesses the individual's level of sensitivity to the opinions and impressions of others. This 7-item scale also includes declarative statements (e.g., I usually worry about making a good impression) that are to be answered on a 6-point scale of agreement from always to never. Scores are the sum of answers across the 7 items; Cronbach's alpha for the current sample was .83 (n = 223).

The Profile of Mood States (FN30) (POMS) lists 65 emotions on a 5-point scale for self-descriptive accuracy. To reduce the number of highly correlated factors in our design, we factor analyzed this measure. We used principle components analysis (SPSS) to extract two factors that accounted for 77%.
of the variance. The first factor contained the anger, confusion, depression, fatigue, and tension scales, and the second factor consisted of the vigor scale. Each participant received two scores, a vigor score and a distress score. The latter was a simple sum of the other five scale scores. Cronbach's alphas for these scales in our sample were .84 for vigor and .95 for distress (n = 222).

The Situational Appetite Measure (SAM)(FN15) is a 30-item questionnaire asking respondents to describe their confidence in their abilities to resist the urge to overeat under various conditions. The original SAM had separate questions for the strength of the urge to overeat and the respondent's confidence (efficacy) in resisting this urge. Because of the high correlation between these scales,(FN15) we used only the SAM-E, the efficacy questions, in this study.

The SAM consists of five 6-item scales, each of which focuses on one situation in which overeating may occur: relaxation, food present, hunger, reward, and negative feelings. Respondents use a 5-point scale to rate their confidence in being able to resist overeating; extremely confident and not at all confident are at the poles.

We used factor analysis as a data reduction strategy with the SAM scales, and used principal components analysis to extract two factors that explained 82% of the variance (n = 222). The first factor included the negative feelings and reward scales; the second factor included the food present, hunger, and relaxation scales. Each participant received two factor scores: the simple sums of the scales within the factor. Cronbach's alphas for our current sample were .92 and .94, respectively (n = 224).

ALCOHOL USE/ABUSE COMPOSITE MEASURE

We used two questionnaires to assess alcohol use during the students' freshman year. The first was a 3-item scale asking that participants report how many days per week they drank, how many drinks they had during an average week, and how often in a month they had three or more drinks in 1-hour or shorter period. Participants answered each question on a 5-point scale of frequency; Cronbach's alpha for this measure was .93 (n = 137).

We adapted the second questionnaire from the widely used Michigan Alcoholism Screening Test (MAST). (FN33) This measure consists of 14 true-false items that ask about possible negative consequences of alcohol use, such as hangovers, driving while drinking or drunk, and drinking alone. For this measure, Cronbach's alpha in our sample was .82 (n = 138).

Both of these measures ask about alcohol use during the freshman year and were administered as part of the second data collection in the study. The measures were correlated with each other (r = .64). For the further analysis, we summed the standard score for each measure to create a composite alcohol use measure.

ANALYSES

We analyzed the data in two stages: first, we examined the concurrent data for the complete sample to find the correlates of the eating disorder measures (Bulimia and Restraint scales); as a second step, we analyzed the prospective data. We used hierarchical regressions for the prospective data, entering the original score on the Bulimia or Restraint scale as the first step of the regression. This procedure examined the strength of the variables in predicting the eating disorder variables 7 months later, controlling for the original level of these eating disorder variables.

RESULTS

This group of first-year college women had reasonably normal levels of weight, with a mean BMI of 22.87. When asked what they would ideally like to weigh, 94% of the women chose a weight that was less than their current weight. We found a substantial difference in actual and ideal weights of 14.56 pounds, t(203) = 12.39, p < .001. This equates to a BMI difference of 1.41 units.

At the second data collection point (7 months later) 72% of the group had gained weight. The mean weight gain was 4.52 pounds, t(100) = 5.88, p < .001.

CONCURRENT DATA ANALYSIS

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We analyzed the concurrent data, using separate hierarchical regressions for restraint and bulimia. In each of these analyses, we entered BMI as the first variable, figure dissatisfaction as a second variable, and the psychological measures as a third block. We chose this strategy because of previous evidence that both BMI and body dissatisfaction are strong predictors of eating problems.

We were able to test whether the psychological variables accounted for differences in the eating disorder variables above and beyond those already accounted for by BMI and figure dissatisfaction.

Results of these regressions are shown in Tables 1 and 2. The bulimia score was significantly associated with the BMI, although this relationship accounted for only 14% of the bulimia variance. Adding figure dissatisfaction to the regression boosted this explained variance by another 10%. The personality measures entered as a block created yet another significant increase in the accounted-for variance. The final equation identified the variables that uniquely improved the level of variance accounted-for in bulimia. Participants who scored higher on bulimia also tended to have high scores on figure dissatisfaction, ineffectiveness, public self-consciousness, high levels of vigor on the POMS, and low levels of self-efficacy for controlling eating when experiencing negative feelings or using food as a reward.

The regression for restraint revealed a similar pattern (see Table 2). When entered as a first variable, BMI was significantly related to restraint, although in later equations, this variable did not add a unique contribution to the equation. Individuals high on restraint tended to be high in figure dissatisfaction, ineffectiveness, public self-consciousness, and vigor from the POMS.

LONGITUDINAL DATA ANALYSES

The first step in the longitudinal analysis was to compare the bulimia and restraint scores between the two data collection points. These correlations were quite high, with bulimia showing a correlation of \( r(106) = .68 \); and restraint even higher, \( r(98) = .81 \). We noted a slight tendency for each of these scores to get larger over the year, but only the restraint scores reached statistical significance, \( t(98) = 2.80, p < .01 \). Because the goal of the longitudinal design was to be able to predict variance in changes in bulimia and restraint variables, the high degree of consistency limited the predictive possibilities of the other variables.

We included psychological variables that were significant in at least one of the concurrent regressions in the longitudinal regressions. In addition, we included the alcohol use variable, which assessed alcohol use during the year (and was taken at the follow-up assessment). We entered the BMI and the eating disorder scale (restraint or bulimia) as the first step in the hierarchical regressions. This was a regression strategy that controlled for the initial level of these variables. The variables entered in later blocks in the regression were significant only if they could account for variance that was unrelated to the initial levels of the eating disorder scale.

The results of these regressions are shown in Tables 3 and 4. The final \( R^2 \) values for both of the regressions were quite high. This was largely a result of the stability of the bulimia and restraint variables across the follow-up period. Results for both variables were quite similar. The original BMI measure was negatively weighted in both regressions, which suggested that when all the other variables were controlled, higher BMIs were associated with lower levels of bulimia and restraint at the follow-up.

Figure dissatisfaction uniquely contributed to the variance accounted for in both regressions. Participants who were most dissatisfied with their figures at the beginning of the year were those whose bulimia and restraint scores got worse during the year. The alcohol use variable was also significant in both regressions, with heavier use of alcohol associated with worsening scores on bulimia and restraint. The ineffectiveness variable was significant for bulimia but did not quite reach significance for restraint (\( p = .05 \)).

COMMENT

This study, which followed a group of women across most of their first year of college, provided both concurrent and prospective data relating to eating and dieting pathologies. The concurrent data asked
which variables could be related to eating pathology and could provide descriptive information about characteristics and behaviors that seem to accompany eating pathology. The prospective data asked which variables could predict the development of eating pathologies across the first year of college.

DESCRIPTIVE DATA

A number of descriptive studies of eating pathology have been reported in the literature, so we focused on the variables we found that were unique to this body of literature. The finding that individuals who reported more symptoms of bulimia and higher levels of restraint also reported higher levels of body dissatisfaction and more personal ineffectiveness are replications of many previous descriptive studies in this area. (FN3,4,8) The finding that vigor on the POMS was positively related to the symptoms is unique to this literature. The participants who reported eating pathology symptoms also reported being more energetic. This level of vigor may correspond to the push toward physical activity and exercise that may accompany eating pathologies.

We used the SAM to evaluate self-efficacy in controlling eating. This measure includes a variety of situational cues for eating. Although we found no relationships between self-efficacy and restraint, we did find that higher scores on bulimia were related to individual reports of lower self-efficacy in situations in which they felt negative emotions or used food as a reward. These findings seem to fit the theme of a loss of control over eating and bingeing in the face of emotional arousal. This theme was not present in relation to restraint.

The other finding of interest in the concurrent analyses was the significance of the public self-consciousness variable. We learned that increasing levels of bulimia and restraint were associated with a greater level of sensitivity to the opinions and impressions of others. When coupled with a high level of figure dissatisfaction, an exaggerated level of self-consciousness could place these individuals in the uncomfortable circumstance of feeling that their personal appearance failed to meet acceptable standards and being sensitive to the impression they are making on others. This experience of "failure in the eyes of others" may drive them toward extreme measures to improve their physical figures. These findings could also fit with heatherton and Baumeister's (FN23) hypothesis that some instances of binge eating are motivated by a desire to escape from this self-awareness.

PROSPECTIVE DATA

The freshman women we studied across 7 months of their first year of college tended to show a moderate and statistically significant weight gain (4.5 lb). This weight gain has been commonly noted and referred to with a variety of terms, such as the freshman 10 and the freshman 15. Our data would most clearly support the term freshman 5. Although eating disorder symptoms worsened slightly over the year, the most marked aspect of these symptoms was their high degree of stability. The restraint measure has been noted to remain stable over as long as 2.5 years, (FN32) but may even remain fairly stable during adolescence, (FN19,33) but may decline when followed into early adulthood. (FN9)

The best predictor of bulimia or restraint at the end of the study was, by far, the level of bulimia or restraint at the beginning of the study. We evaluated the other prospective measures in terms of their ability to predict development of eating pathology across the span of the study.

Participants who were most dissatisfied with their figures at the outset of the study were more likely to experience worsening symptoms during the year. This finding replicates those in several other prospective studies. (FN1,2,6) In applying a developmental psychopathology paradigm to binge eating, Striegel-Moore (FN34) points to the importance of body image in gender identity and interpersonal relationships in adolescent girls. A negative view of one's own body, no matter how unrealistic, may be a significant vulnerability for developing maladaptive eating patterns.

One intriguing finding was that Time 1 BMI was suppressed by figure dissatisfaction in the regressions. Although BMI was positively related to bulimia at Time 2 in zero-order correlations (r = .14), the partial correlation between BMI and bulimia, controlling for figure dissatisfaction, became negative when figure dissatisfaction was added to the model (r = -.24). This suggests that being heavy, by itself, was not a strong risk factor for bulimia and restraint. To the extent that someone was heavy but
did not show figure dissatisfaction, the heaviness predicted lower levels of eating pathology at the follow-up. This seems to support the contention that a subset of overweight individuals will show low levels of eating pathologies. The perception of being too heavy (figure dissatisfaction), not the actual weight level, is the crucial influence on eating problems.

Our assessment of alcohol use/abuse inquired about alcohol use during college women's first year of college. These data were not prospective because they were not collected at Time 1, so we must be cautious in making conclusions about causal relationships. The participants who reported greater use of alcohol during their freshman year and were more likely to report signs of alcohol abuse also tended to show worsening symptoms of eating pathologies. These findings agree with Striegel-Moore and Huydics's(FN24) results; they provide further support for the link between alcohol use and eating disorder symptoms in a nonclinical population. The mechanisms of such a connection are not established, but in our data they do appear to be independent of Striegel-Moore and Huydics's(FN24) suggested interaction with figure dissatisfaction.

The other measure that predicted bulimia at the follow-up was ineffectiveness. Respondents who felt more ineffective at Time 1 were likely to show higher levels of bulimia at the follow-up. The relationship with restraint did not quite reach significance. This finding fits with the correlational data from previous studies,(FN2) but it goes one step farther in suggesting that feelings of ineffectiveness not only describe an individual who has some maladaptive eating patterns, but also predict that the eating difficulties will get worse in the future.

SUMMARY AND IMPLICATIONS

We found that the level of eating and dieting pathologies in college freshman women was fairly stable across the first year of college. Women who entered the study with higher levels of eating pathology were more dissatisfied with their figures, felt ineffective, and were more sensitive to others' opinions. They also reported that they felt more likely to lose control of their eating when experiencing strong emotions. With concurrently gathered data, it was impossible to discern any cause-and-effect relationships. These descriptive correlates may therefore be outcomes of the eating pathology rather than a source of eating pathology.

In addressing the question of preventing the development of eating pathology in a college population, our current data suggest that body image holds the most promise as a focus for prevention programs. Figure dissatisfaction was the strongest predictor that eating symptoms would get worse over the freshman year. Prevention programs offered by university counseling or health centers or in residence halls could focus on promoting students' acceptance of their own bodies. Certainly, such programs could attempt to counteract the powerful media influences in defining the "ideal" figure as exceptionally thin and unobtainable by most normal women.

Recognition of individual differences and varied perception of beauty in the human form may be targets for a prevention program. Such programs need to contain an evaluative component to assess whether they are having some influence on body image and, in turn, on eating pathology.

Future longitudinal studies may be most informative if they begin collecting individual data in early adolescence and follow people into young adulthood. These studies will be most beneficial if they can catch participants before they develop fairly stable levels of eating pathologies.

ADDED MATERIAL

Eric Cooley, PhD; Tamina Toray, PhD

Eric Cooley is a professor of psychology at Western Oregon University in Monmouth, where Tamina Toray is an associate professor of psychology.

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NOTE
For comments and further information, please send communications to Eric Cooley, Department of Psychology, Western Oregon University, Monmouth, OR 07361 (e-mail: Cooleyec@WOU.edu).

TABLE 1 Hierarchical Regressions for Concurrent Bulimia Data in a Study of Disordered Eating

<table>
<thead>
<tr>
<th>Variable</th>
<th>beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable: Bulimia</td>
<td>.55</td>
<td>28.27</td>
<td>.0001</td>
</tr>
<tr>
<td>Total R[^2] = .55, F(8, 182) = 28.27, p &lt; .0001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>.008</td>
<td>.11</td>
<td>NS</td>
</tr>
<tr>
<td>Figure dissatisfaction</td>
<td>.201</td>
<td>2.69</td>
<td>.008</td>
</tr>
<tr>
<td>Ineffectiveness</td>
<td>.151</td>
<td>2.04</td>
<td>.04</td>
</tr>
<tr>
<td>Public self-consciousness</td>
<td>.210</td>
<td>3.59</td>
<td>.0004</td>
</tr>
<tr>
<td>POMS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distress</td>
<td>.025</td>
<td>.41</td>
<td>NS</td>
</tr>
<tr>
<td>Vigor</td>
<td>.150</td>
<td>2.79</td>
<td>.006</td>
</tr>
<tr>
<td>SAM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative feelings</td>
<td>-.484</td>
<td>6.34</td>
<td>.0001</td>
</tr>
<tr>
<td>Food, hunger</td>
<td>.023</td>
<td>.38</td>
<td>NS</td>
</tr>
</tbody>
</table>

Notes. Standardized betas are from the final equation. Step 1: entered BMI, R[^2] = .14, F(1, 189) = 31.97, p < .0001. Step 2: entered Figure dissatisfaction, change in R[^2] = .10, F(1, 188) = 23.78, p < .001. Step 3: entered all other variables, change in R[^2] = .313, F(6, 182) = 8.04, p < .001. BMI = body mass index; POMS = Profile of Mood States[^27]; SAM = Situational Appetite Measure.[^16]

TABLE 2 Hierarchical Regressions for Concurrent Restraint Data in a Study of Disordered Eating

<table>
<thead>
<tr>
<th>Variable</th>
<th>beta</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable: Restraint</td>
<td>.47</td>
<td>19.00</td>
<td>.0001</td>
</tr>
<tr>
<td>Total R[^2] = .47, F(8, 169) = 19.00, p &lt; .0001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>.139</td>
<td>1.32</td>
<td>NS</td>
</tr>
<tr>
<td>Figure dissatisfaction</td>
<td>.278</td>
<td>3.30</td>
<td>.002</td>
</tr>
<tr>
<td>Ineffectiveness</td>
<td>.296</td>
<td>3.58</td>
<td>.0005</td>
</tr>
<tr>
<td>Public self-consciousness</td>
<td>.218</td>
<td>3.34</td>
<td>.001</td>
</tr>
<tr>
<td>POMS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distress</td>
<td>.025</td>
<td>-.32</td>
<td>NS</td>
</tr>
<tr>
<td>Vigor</td>
<td>.130</td>
<td>2.17</td>
<td>.03</td>
</tr>
<tr>
<td>SAM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative feelings</td>
<td>-.014</td>
<td>-.169</td>
<td>NS</td>
</tr>
<tr>
<td>Food, hunger</td>
<td>-.099</td>
<td>-1.237</td>
<td>.0001</td>
</tr>
</tbody>
</table>


TABLE 3 Hierarchical Regressions for Prospective Bulimia Data at Follow-up in a Study of Disordered Eating

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable: Bulimia at follow-up. Total R[^2] = .598</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulimia, Time 1</td>
<td>.480</td>
<td>5.05</td>
<td>.0001</td>
</tr>
<tr>
<td>BMI</td>
<td>-.226</td>
<td>2.56</td>
<td>.01</td>
</tr>
<tr>
<td>Figure dissatisfaction</td>
<td>.286</td>
<td>3.01</td>
<td>.003</td>
</tr>
<tr>
<td>Ineffectiveness</td>
<td>.197</td>
<td>2.17</td>
<td>.03</td>
</tr>
</tbody>
</table>
Public self-consciousness  -.042  .51  NS
POMS Vigor            -.075  .98  NS
SAM Negative feelings .007  .08  NS
Alcohol use/ abuse    .170  2.32  .02

Notes. Standardized betas are from the final equation. Step 1: entered BMI and Bulimia at Time 1, R [sup2] = .472, F(2,95) = 42.39, p < .0001. Step 2: entered Figure dissatisfaction, change in R [sup2] = .056, F(1, 194) = 11.15, p < .005. Step 3: entered all other variables, change in R [sup2] = .070, F(5, 89) = 3.10, p < .025. BMI = body mass index; POMS = Profile of Mood States(FN27); SAM = Situational Appetite Measure.(FN16)

**TABLE 4 Hierarchical Regressions for Prospective Restraint Data at Follow-up in a Study of Disordered Eating**

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulimia at follow-up. Total R [sup2] = .746</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restrained, Time 1</td>
<td>.741</td>
<td>10.14</td>
<td>.0001</td>
</tr>
<tr>
<td>BMI</td>
<td>-.184</td>
<td>2.48</td>
<td>.02</td>
</tr>
<tr>
<td>Figure dissatisfaction</td>
<td>.218</td>
<td>2.64</td>
<td>.01</td>
</tr>
<tr>
<td>Ineffectiveness</td>
<td>.153</td>
<td>1.98</td>
<td>.06</td>
</tr>
<tr>
<td>Public self-consciousness</td>
<td>-.108</td>
<td>1.60</td>
<td>NS</td>
</tr>
<tr>
<td>POMS Vigor</td>
<td>.056</td>
<td>.91</td>
<td>NS</td>
</tr>
<tr>
<td>SAM Negative feelings</td>
<td>.037</td>
<td>.58</td>
<td>NS</td>
</tr>
<tr>
<td>Alcohol use/ abuse</td>
<td>.137</td>
<td>2.23</td>
<td>.03</td>
</tr>
</tbody>
</table>

Notes. Standardized betas are from the final equation. Step 1: entered BMI and Restrained at Time 1, R [sup2] = .673, F(2, 87) = 89.50, p < .0001. Step 2: entered Figure dissatisfaction, change in R [sup2] = .031, F(1, 86) = 9.01, p < .005. Step 3: entered all other variables, change in R [sup2] = .042. F(5, 81) = 2.58, p < .05. BMI = body mass index; POMS = Profile of Mood States(FN27); SAM = Situational Appetite Measure.(FN16)

**FOOTNOTES**
9. Hill AJ, Oliver S, Rogers PJ. Eating in the adult world: The rise of dieting in childhood and}

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