Dietary restraint and weight loss in college students as risk factors for eating pathology

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Dietary Restraint and Weight Loss in College Students as Risk Factors for Eating Pathology

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Abstract

Many suggest that dietary restraint represents a key component to the etiology and maintenance of eating pathology, and much research supports this position. Some recent evidence brings to question the relationship between dietary restraint and eating disorder risk. Furthermore, measures of dietary restraint do not appear to consistently predict caloric restriction, and these scales appear inadequate for differentiating between healthy and risky restraint in individuals. The current study seeks to examine the relationship between self-reported dietary restraint, recent weight loss, and eating pathology in a college sample to determine if cognitive restraint measured by restraint scales coupled with caloric restriction as measured by recent weight loss proves a more sensitive marker of eating disorder risk as compared to restraint alone.
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Introduction

Many suggest that dietary restraint plays a causal role in the development and maintenance of eating pathology. Etiological models of eating disorders, including the dual pathway model of Bulimia Nervosa (BN), integrate the concept of dieting (Fairburn, 2008; Stice, 2001). Furthermore, studies suggest that dietary restraint predicts weight gain and incidence of bulimic symptoms over time (Lowe, Davis, Lucks, Annunziato, & Butryn, 2006; Stice, 1998; 2002). Based on this information, high levels of dietary restraint should promote the incidence of both obesity and eating disorders, and reductions in dietary restraint should produce healthier eating patterns.

Conversely, some research shows that successful dietary restraint can decrease risk of both obesity and eating disorders in individuals (Annunziato et al. 2009; Stice, Marti, Spoor, Presnell & Shaw, 2008; Stice, Shaw, Burton, & Wade, 2006). From a public health standpoint, one would like to know whether dietary restraint a) proves successful in promoting long-term healthy weight maintenance, and b) poses risk for the development of eating pathology. As obesity and eating disorders represent two salient risks in the Western world, reconciling these two apparently conflicting lines of research proves a valuable endeavor. This paper attempts to clarify inconsistencies in the existing literature by reviewing each of these positions and presenting a new investigation to evaluate the relationship between dietary restraint, recent weight loss, and eating pathology in a sample of undergraduate students.
Defining dietary restraint

Dietary restraint has been defined in a variety of ways. One definition of dietary restraint is purposefully restricting caloric intake for the purpose of weight loss (Herman & Mack, 1975). The first self-report instrument to measure dietary restraint was the Restraint Scale, developed by Polivy and Herman (1985). The restraint scale measures the degree to which an individual is dieting, how conscious they are of what they eat, their weight fluctuation, and the amount of thought that they give to food. Dieting, in this measure, is not defined for respondents. The restraint scale, then, may capture a history of struggle with one’s weight rather than successful weight-loss.

Another measure, the Dutch Restrained Eating Scale (Van Strein, Frijters, Van Staveren, Defares, & Deurenberg, 1986), was developed to measure the degree to which individuals purposefully restrict their food intake. This measure captures cognitive restraint, or eating less than one would like. Other popular measures of dietary restraint are subscales of questionnaires that examine eating pathology. The Eating Disorder Examination – Questionnaire (EDE-Q; Fairburn & Beglin, 1994) has a restraint subscale that measures restraint over eating, avoidance of eating, food avoidance, dietary rules, and the desire to have an empty stomach. Another measure of restraint is a subscale of the Three Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985), which includes a series of questions about the degree to which individuals purposefully restrict their intake. Of note, no self-report measures of dietary restraint actually measure weight-loss or weight maintenance,
a major consideration when evaluating studies reporting that report on dietary restraint.

**Dietary restraint relates to eating pathology**

For many years, researchers believed that dietary restraint led to binge eating and eating pathology. A first line of studies examining dietary restraint arose from work by Herman and Mack (1975). These authors found that individuals who scored high on dietary restraint scales were more likely to increase the amount of ice cream that they ate relative to unrestrained eaters following a preload intake of a milkshake. When they did not receive the milkshake preload, restrained eaters would eat less than unrestrained eaters, consistent with their reports from dietary restraint scales. In theory, when restrained eaters intake a food that is not consistent with their goal of restricting their eating behavior, they will temporarily give up this goal of restraint. When an individual who is dieting relinquishes restraint, this produces a disinhibited state in which the individual would likely overeat. This phenomenon has been termed “counterregulatory” eating (Federoff, Polivy, & Herman, 1997; Heatherton, Herman, & Polivy, 1991; Polivy, Herman, & Deo, 2010). Some posit that dietary restraint produces bingeing behavior and that repeated experiences of disinhibition-induced overeating should shift an individual’s satiety boundary upwards. These individuals may then need to eat more on future occasions to feel satiated (Polivy & Herman, 1985). Counterregulatory eating has been replicated not only with a food preload, but also with other states such as alcohol intoxication and depression (Polivy & Herman, 1976a; 1976b).
These experiences all appear to increase a restraining individual's subsequent food intake while decreasing the food intake of a nonrestrained eater.

These counterregulatory eating experiences coupled with a potential increase an individual's metabolic efficiency due to restraint status should lead to weight gain in restrained eaters. Indeed, high scores on dietary restraint scales appear to predict future weight gain in prospective studies of both adolescents and adults (Stice, Burton & Shaw, 2004; Lowe, Annunziato et al., 2006). In addition, the correlation between restraint scales and percentage overweight are reported in the moderate range (Heatherton, Herman, Polivy, King, & McGree, 1988). Furthermore, theoretical models posit that counterregulatory eating may increase risk for purging behavior after episodes of disinhibition in vulnerable individuals (Heatherton & Polivy, 1992). Thus, dieting may lead to binge eating, and binge eating may lead to purging as a method to regain control over caloric intake.

Other evidence that dietary restraint promotes incidence of both eating pathology and obesity include that overweight status and a range of eating disordered behaviors often co-occur in individuals, both simultaneously and by crossing over from one condition to another over time (Haines & Neumark-Sztainer, 2006). This transition between obese, overweight, and normal weight status in individuals with eating disorders indicates that these individuals utilize dietary restraint strategies inconsistently over time, varying between periods of restraint and periods of disinhibition. This pattern then produces fluctuations in weight. Fairburn, Welch, & Doll (1997) also found that the odds of being an obese child were
three times higher among healthy-weight individuals with BN compared to healthy-weight controls. Furthermore, most BN patients report a period of dieting prior to their eating disorder onset, and dieting appears to precede the onset of binge eating in clinical samples (Polivy & Herman, 1985).

More evidence highlighting negative consequences of dietary restraint arises from studies involving those in treatment for BN. Wilson, Fairburn, Agras, Walsh and Kraemer (2002) examined the efficacy of treatments for BN and found that low scores on dietary restraint measures early in treatment predicted a positive treatment outcome. In addition, Shah, Passi, Bryson and Agras (2005) found that individuals with BN who normalize eating patterns by eating regularly evidence greater treatment gains. These authors also discovered that patients who reported eating more meals and snacks over a one-month period had a 70% probability of achieving abstinence from binge eating compared to a 4% probability of abstinence in those eating fewer meals and snacks. Altogether, much evidence suggests that dietary restraint, as defined by self-report restraint scales, consistently relates to a disinhibition after breaking self-imposed dietary rules.

Within the context of obesity treatment, one study suggests that restricted diets do not appear successful in the long-term and that hunger and disinhibition often lead to weight regain (Polivy & Herman, 2002). In addition, restrictive diets may increase appetite and obsessive thoughts about food and eating (Hart & Chiovari, 1998). Altogether, much evidence suggests that dietary restraint, as
defined by restraint scales, consistently relates to obsession with food and binge
eating after breaking self-imposed dietary rules.

**Effective dieting reduces eating pathology**

Despite this volume of research highlighting potential negative effects of
restraint, other studies suggest that practicing effective dietary restraint does not
increase eating pathology. For example, Snoek, van Strien, Janessens, and Engels,
(2008) found that, longitudinally, body mass index (BMI) predicted restrained
eating to a greater degree than restrained eating predicted BMI. This finding
suggests that while dietary restraint and weight gain often correlate, those who
exhibit high levels of restraint may not gain any more weight than weight-matched,
non-restraining individuals over time.

In another study, Lowe, Whitlow, and Bellwoar (1991) found an absence of
counterregulatory eating individuals who were overweight and dieting to lose
weight. Thus, counterregulatory eating that purportedly leads to binge eating
behavior may be absent from a restraining sample that is in most need of caloric
restriction. This news is encouraging because it suggests that placing overweight
individuals on weight loss diets should not theoretically increase binging behavior.

Randomized controlled trials also find that assignment to low-calorie weight
loss diets results in significant decreases in binge eating for obese and overweight
women relative to weight list controls (e.g. Reeves, McPherson, Nichaman, Harrist,
Foreyt, & Goodrick, 2001). One study found that obese women assigned to a diet of
1,000 calories a day of liquid meal replacements for 40 weeks did not develop
binge-eating disorder (Wadden et al., 2004). In this study, women on a meal replacement diets evidenced similar ratings of hunger, disinhibition, and binge eating compared with women on a more moderate diet of 1,200 to 1,500 calories a day and those assigned to non-dieting. Women on the meal replacement diet showed slightly more binge eating as compared to other groups at 28 weeks, though this increase was not sustained at later follow-up points. Results from this investigation suggest that even significant caloric restriction does not lead to binge eating in obese individuals.

Studies also suggest that caloric restriction does not produce binge eating in normal weight individuals. Presnell & Stice (2003) found that assignment to a six-week low calorie weight loss diet actually decreased bulimic symptoms in non-obese women compared to waitlist control. Furthermore, assignment to a low intensity weight-maintenance prevention program reduced risk for weight gain, obesity onset, and bulimic symptoms in normal weight adolescents with body image concerns over the course of three years (Stice, Shaw, et al., 2006).

Overall, healthy-weight targeted interventions promote some degree of dietary restraint and result in decreases in bulimic symptoms along with significant weight loss in overweight individuals. These results cast doubt on the dietary restraint theory of the etiology and maintenance of eating disorders, particularly with regards to BN and binge eating.

**Weight loss dieting is lower risk than weight maintenance dieting**
Many plausible explanations arise for the apparent contradictions in the literature reviewed above. One explanation for discrepant findings in the above mentioned studies would be that certain variables moderate response to restraint. Some individuals may be at high risk for developing eating pathology from restraining, while others may be at low risk. One possible moderator of response could be if individuals are on a weight-loss as opposed to a weight-maintenance diet. While in an initial caloric restriction phase, individuals may be less susceptible to counterregulatory eating as compared to when they are striving to maintain a new, healthier weight. Indeed, studies find that dietary restraint differentially impacts those reporting dieting to lose weight as compared to those reporting that their restraint is related to weight maintenance. In particular, weight maintenance dieters may be more susceptible to eating pathology (e.g. Lowe & Timko, 2004).

Consistent with this idea is literature examining the effects of weight suppression, or the discrepancy of individual’s current weight from their highest adult weight. Researchers have found that weight suppression leads to weight gain in bulimic samples along with college freshman (Lowe, Davis, Lucks, Annunziato, & Butryn, 2006; Lowe, Annunziato et al., 2006). Weight suppression also appears a negative predictor or treatment outcome for BN (Butryn, Lowe, Safer & Argas, 2006), and many BN patients report that their BN pathology initiated during a time of weight suppression (Haines & Neumark-Sztainer, 2006). This evidence supports the idea that maintenance of lower-than-natural weight for many individuals appears quite challenging, and difficulty in maintaining a long-term healthy weight
may promote initiation of unhealthy behaviors such as fasting, meal skipping, binge eating, and purging.

Interestingly, Lowe, Graham, Safer, and Butryn (2007) found that weight suppression partially determined severity of binge eating in a clinical sample of BN patients, but high levels of current weight-loss dieting actually attenuated this tendency. Thus, those who reported dieting to lose weight, even in a weight-suppressing sample, reported less binging than those dieting to maintain weight.

It seems possible that most restrained eaters are actually weight maintenance dieters. Indeed, studies of naturalistic dieting indicate that the majority of community dieters report restraining their caloric intake to maintain, rather than to lose, weight (Lowe & Timko, 2004). Dieting interventions in randomized-controlled trials likely focused on weight loss, while community dieters who seek weight maintenance may practice less effective weight control methods.

**Subtypes of dietary restraint present differential risk profiles**

Another possible explanation for different findings among studies that evaluate dietary restraint includes that restraint scales identify a heterogeneous group of behaviors. Dieting in well-controlled studies is prescriptive in nature, minimizing differences of dieting practices between participants. Naturalistic dieting may include a wide range of dietary restraint practices, including certain types of restraint that promote eating disorder risk.

One type of restraint that some propose as high-risk is fasting, or going a period of about twenty-four hours or more without food for weight control.
purposes. These periods of extreme caloric restriction may increase the reinforcing potential for food. Acute dietary restraint, such as fasting, may deplete tryptophan, a precursor to serotonin, and subsequently increase the likelihood of binge eating to restore tryptophan levels (Kaye, Gendall, & Strober, 1998). A study by Stice, Davis, Miller, and Marti (2008) also found that the incidence of fasting in middle school girls was a stronger predictor of recurrent binge eating and eating pathology onset than dietary restraint scales over the course of five years.

Another distinction between healthy and risky restraint arises in food planning styles. Otis and Pelletier (2008) examined women’s eating habits at a university and found approach planning, such as trying to eat more fruits and vegetables, was related to healthy eating, while avoidance planning, such as avoiding fried foods, was related to healthy eating, but also appeared related to dysfunctional eating. Fasting, as examined by Stice et al., (2008), may be a prototype example of food avoidance goals that are active in the absence of approach goals. Avoidance goals on their own may prove less functional because individuals employing avoidance strategies may attempt to move endlessly away from a certain state (e.g. carbohydrates, calories, fats) without knowing what they should be eating.

Comparing these studies to the weight suppression literature reviewed above, exclusive food avoidance may prove successful in an active “dieting to lose” phase of restraint, but once an individual’s energy reserve has been depleted, exclusive food avoidance will be ineffective. Individuals must successfully integrate
healthy avoidance and approach strategies to maintain a suppressed weight.

Integrating these strategies throughout a period of dietary restraint, an approach that is promoted in lab-based dieting interventions along with successful community programs, may prove the most effective strategy for long-term weight control.

In support of the idea that restrained eaters may be unable to maintain the level of restraint that they desire for long periods of time, one study enrolled a subset of restrained and unrestrained eaters for a period of six weeks and measured their weight everyday during this time. These investigators found that those with higher restraint scores had higher daily weight fluctuations and higher fluctuation of weight over the six-week period (Heatherton, Polivy, & Herman, 1991). Since a three-day fast indeed produces acute decreases in weight, individuals receive immediate positively reinforcement for their behavior. This approach to dieting ultimately proves unsustainable, producing acute weight fluctuations. A healthier approach to weight loss or weight maintenance likely includes more gradual trends that are less immediately paired with dietary restraint efforts, particularly for healthy weight and weight-suppressing individuals.

**Unsuccessful dieting promotes eating disorder risk**

Another important predictor of eating disorder risk may be the success of one’s dietary restraint efforts. Overall, restrained eaters who are successful show less risk for eating pathology over time compared with those who are unsuccessful at restraint. For example, one study found that a small subsample of middle school
girls evidenced an age-adjusted reduction in BMI over any of three sequential 1-year intervals (Stice, Martinez, Presnell, & Groesz, 2006). Most of these girls also scored higher than the median score on the dietary restraint scale. These girls were then compared with other girls in the sample who had similar initial BMI levels. They displayed similar dietary restraint, bulimic symptoms, and depressive symptoms at baseline compared to those who did not lose weight; however, follow-up analyses indicated decreased bulimic and depressive symptoms in these girls compared to others. This study suggests that successful weight-loss dieting does not induce bulimic symptoms.

A close look at those who report high levels of dietary restraint in the community shows that many of these individuals are not reaching a state of true negative energy balance. Batholon, et al. (2000) examined the predictive validity of self-reports of dietary restraint by examining individuals’ caloric intake over an eighteen-day period utilizing a biological marker of doubly-labeled water. These authors found that dietary restraint scores did not correlate with caloric intake. Thus, individuals who attempted to restrain their diet in some way showed similar caloric intake to nonrestrained eaters. Other studies have replicated these findings, which show that restrained eaters consistently consume a similar number of calories to nonrestrained eaters over time (Martin et al., 2005; Stice, Cooper, Schoeller, Tappe, & Lowe, 2007; Stice, Fisher, & Lowe, 2004). Another study found that many people report intake below minimal needs for survival, and that this tendency is most pronounced for obese individuals (Klesges, Klem, Epkins, &
The cognitive effort expended in order to restrain caloric intake, then, appears fruitless for many individuals.

The estimation of caloric intake likely marks a major difference between restraint as practiced in the community and caloric restriction in controlled trials. Individuals who successfully lose weight often use self-monitoring skills to accurately record their food intake and adhere to caloric restrictions and increases in exercise (Klem, Wing, McGuire, Seagle, & Hill, 1997; Butryn, Phelan, Hill, & Wing, 2007). A consistent underestimation of caloric intake in restrained eaters indicates that many of these individuals do not accurately practice self-monitoring strategies.

In addition, a study by Presnell, Stice, & Tristain (2008) found more evidence that those who consider themselves on a weight loss diet were not achieving an energy deficit. This study randomly assigned self-reported chronic dieters to a “diet as usual” or a “eat as if you would if you were not dieting” condition. Those in the “dieting as usual” condition did not lose weight; however, those who were in the “no diet” condition actually gained more weight. These findings suggest that those who score high on restraint scales may simply be restricting in a sense by eating less than they would like, without achieving enough deficit in caloric intake to promote weight loss. Similarly, Lowe and Levine (2005) suggested that the brain has two systems that regulate eating – one related to physiological hunger when one is deprived of energy and another, which is activated by the presence of highly palatable food. Palatable food is abundant in many environments, creating the need for individuals to engage a restraint system in order to eat less than they desire.
Altogether, while naturalistic dieters may be eating less than they would like by avoiding some highly palatable foods, many individuals may not be consistently monitoring their caloric intake to produce effective long-term weight management. Periods of dysregulation may follow periods of acute caloric restriction for some individuals, creating an internal “restrained” state that does not promote long-term health. This type of restraint is not only unsuccessful in producing sustained weight loss, but it also may promote eating pathology. Successful dieting interventions, on the other hand, may be unrelated to eating pathology, or may even decrease its incidence.

From the studies reviewed here, it appears that unsuccessful dietary restraint, as opposed to all dietary restraint, may pose the most risk for predicting weight gain along with eating disorder symptoms. Healthy restrained eaters may include those who are restraining successfully, in a way that likely correlates with true long-term caloric restriction. Risky restrained eaters might include those who are restraining unsuccessfully. These individuals may restrict acutely through tactics such as fasting and skipping meals, though they are likely underestimating their overall caloric intake and may gain weight over time. This difference between reported restraint and actual restriction may prove a sensitive indicator of risk.

**Purpose of the current study**

Based on this information, the current study sought to examine self-reported dietary restraint and short-term weight loss in college students. We hypothesized that weight loss will moderate the effects of dietary restraint on eating pathology. In
particular, we expected that those who display high restraint scores without concurrent weight loss would be at the highest risk for eating pathology, while individuals who are successfully restraining their caloric intake would not display increased risk for binge eating and purging. Those who demonstrate low levels of restraint should show low levels of eating pathology, regardless of their recent weight trajectory.
Method

Participants and Procedure

College students (N = 249) were recruited from an Introductory to Psychology subject pool to participate in this study. Participants in this study ranged in age from 18-52 (M = 19.37, SD = 2.94). A total of 39% of participants were male, and 54% were female. Seven percent of participants did not report their gender. The average body mass index of participants was within a non-obese range (M = 23.06; SD = 3.83). Of the individuals in this study, 43.2% reported that they were currently dieting to lose weight. In a separate question, 57% of individuals in this study stated that they were currently watching their caloric intake in an effort to maintain their current weight. One third of participants (33.6%) reported that they had been overweight by at least 10 pounds at some point in their lives. Of those who reported dieting in the past, the average age of first diet was 16.4 (SD = 3.47), and the average weight lost on their first dieting attempt was 8.6 pounds. Participants attended an appointment in which undergraduate research assistants preformed an informed consent procedure, and participants completed surveys online. The study took approximately 30 minutes to complete.

Measures

Independent variables in this study included dietary restraint and recent weight loss. The restraint subscale of the TFEQ (Stunkard & Messick, 1985) was used as a measure of dietary restraint. This questionnaire includes a series of true false questions about the degree to which individuals purposefully restrict their
intake. We also assessed participants’ recent weight trajectory by asking them to report how many pounds they had lost and gained in the past four weeks. Overall, dietary restraint did appeared only moderately correlated with recent weight-loss, and this tendency was more pronounced for men, \( r = .46, p < .05 \), than women, \( r = .21, p < .05 \), in our sample.

Dependent variables included body dissatisfaction, binge eating, purging, and a composite measure of eating pathology. Participants completed the Body Satisfaction Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987) to assess body dissatisfaction, a risk factor for the development of eating pathology (Fairburn, Welch, & Doll, 1997). Participants also completed The Eating Disorder Examination – Questionnaire (EDE-Q; Fairburn & Beglin, 1994), a self-report version of the Eating Disorders Examination (Fairburn & Cooper, 1993), to assess eating behaviors and attitudes over one-month.

**Analytic Plan**

All analyses in this study examined men and women separately. We were first interested in whether restraint and recent weight loss independently relate to binge eating and purging. Binge eating and purging were dichotomized as present or absent over the past three months, and a logistic regression examined whether these variables could be predicted by the TFEQ-restraint and 4-week weight loss.

In addition to bulimic behaviors, we also examined whether dietary restraint and weight loss relate to risk for the development of eating pathology. While binge
eating and purging are measured categorically in this study, eating disorder risk variables, as measured by the BSQ and EDE-Q, are continuous. In addition to evaluating restraint and weight loss as independent predictors of each outcome variable, we examined whether weight loss moderates the relationship between restraint and eating disorder risk. In order to evaluate this hypothesis, we first centered restraint and weight loss variables. We evaluated these variables as predictors of body dissatisfaction and eating pathology, and, in a second stage, we added the interaction between restraint and weight loss variables to the regression equation.
Results

Overall, 55.2% of women and 29% of men reported binge eating. Fifty three percent of women and 54% of men reported purging. With regards to bulimic behaviors, restraint predicted both binge eating, $\beta = .12$, Wald = 4.74, $p < .05$, Exp (B) = 1.13, and purging, $\beta = .24$, Wald = 14.64, $p < .05$, Exp (B) = 1.27, in men, while weight loss over the past four weeks did not significantly predict binging or purging. For women, dietary restraint predicted purging, $\beta = .13$, Wald = 12.00, $p < .05$, Exp (B) = 1.14, though it did not predict binging. Recent weight loss did not predict either binging or purging in women.

For the continuous measures, men’s dietary restraint showed a significant relationship to eating pathology, $\beta = .70$, $t (98) = 8.24$, $p < .05$. Recent weight loss was not related to eating pathology, and the interaction between dietary restraint and weight loss did not improve the model. With regards to body dissatisfaction, a similar pattern of results emerged. Restraint significantly predicted body dissatisfaction, $\beta = .61$, $t (98) = 6.32$, $p < .05$, while weight loss and the interaction between weight loss and restraint did not improve this model. Overall, restraint, but not weight loss, showed a significant relationship to eating disorder risk in men.

For women, the pattern of results differed slightly. Women’s dietary restraint significantly predicted eating pathology, $\beta = .59$, $t (132) = 8.58$, $p < .05$. Recent weight loss also showed a significant relationship to eating pathology, $\beta = .21$, $t (132) = 3.05$, $p < .05$. The interaction between dietary restraint and recent weight loss did not reach significance. Only dietary restraint, $\beta = .56$, $t (132) = 7.11$, $p < .05$, 19
and not weight loss, predicted women’s body dissatisfaction. In addition, weight loss did not moderate the effect of dietary restraint. Overall, no interaction appeared in any of the analyses, indicating that individuals practicing successful restraint did not show differential eating disorder risk compared to unsuccessful restrained eaters.
Discussion

The results from this study suggest that cognitive restraint and dietary restriction may relate to eating pathology through independent pathways, and that weight loss does not relate strongly to eating pathology. For men, measures of cognitive restraint only, and not recent weight loss, show the most consistent relationship to eating pathology and body image issues. For women, while recent weight loss did not relate to body satisfaction in women, it did show a small positive relationship to women’s eating pathology, suggesting that women who were successfully restricting their caloric intake over the past four weeks showed slightly higher risk for eating pathology, though they did not show increased rates of two key symptoms, binge eating and purging.

Overall, this study provides further evidence that cognitive restraint, which measures a struggle with dieting, is not an adequate measure of caloric restriction. In addition, cognitive restraint, rather than an individual’s actual caloric intake, relates most accurately to risk for eating pathology. This investigation also suggests that successful weight management, as measured by self-reported weight loss over four weeks, does not relate strongly to eating pathology, particularly for men.

The struggle that restrained eaters face implies that these individuals face difficulty in controlling their caloric intake. Subjective loss of control is a key component to many types of psychopathology, including episodes of binge eating (Fairburn & Wilson, 1993; Morgan et al., 2002). Restrained eaters may have difficulty managing their weight and feel a loss of control which may produce stress
and places these individuals at further risk for disinhibition. One study suggests that restrained eaters demonstrate elevated cortisol levels compared with non-restraining individuals (Anderson, Shapiro, Lundgren, Spataro, & Frye, 2002), indicating that the struggle with dieting that restrained eaters experience can create stress. However, if individuals can restrict calories with fewer struggles, they may lose weight successfully without risk of eating pathology.

Many forms of restraint, including those that lead to successful dietary restriction and negative energy balance in overweight individuals, may actually decrease the incidence of binge eating along with eating disorder risk. The types of dieting which lead to a long-term, negative energy balance in an overweight individual may increase this individual’s self-efficacy for weight maintenance. In addition, normal weight individuals that learn successful long-term weight management strategies may also benefit from interventions promoting some forms of dietary restraint.

One important goal for future restraint research should include refining restraint scales so that they will successfully differentiate healthy and risky restraint. An interesting variable to examine, in addition to lifetime weight suppression, may be weight fluctuation over a one-year period. Those who score high on restraint scales and who have successfully lost weight in a linear fashion over 3, 6, 9, or 12 months may be least at risk for pathology, whereas those who report high restraint along with weight gain or weight fluctuation may be most at risk. The current study is limited in that it did not capture daily or weekly weight
fluctuations, and we used retrospective self-reports of weight loss and gain. Evaluating weight at more frequent intervals and over a longer period of time may prove important for elucidating the relationship between weight status, restraint, and eating pathology. It is quite possible that individuals could not accurately report their weight trajectories. In addition, our time frame may have been too short to capture effective long-term restriction. Individuals who report weight loss in this study may have relied on unsustainable strategies to induce this weight loss, and they not maintain their new, lower weight. On the other hand, when avoidance goals are coupled with healthy approach goals (e.g. make sure to intake daily amounts of fiber, fruits, vegetables, and protein), dietary restraint may actually promote healthy eating. This sustainable diet likely leads to weight stabilization and decreases in eating disorder risk.

Another possibility includes that several moderators differentially impact the risk level of dietary restraint among individuals. Similar to how different people have differing biological vulnerabilities to dependence on particular drugs, research suggests that individuals have different biological responses to dieting. Those with a history of Anorexia Nervosa, for example, evidence high serotonin levels, and these individuals may restrain as a way to decrease anxiety associated with these high levels of serotonin (Kaye et al., 1998). Other possible moderators of response to dietary restraint include weight-status status along with an individual’s level of self-esteem and self-efficacy for restraint. Although many people engage in dietary
restraint, only few develop full syndrome eating disorders, highlighting the importance of identifying potential risk factors for poor response to dieting.

New measures of restraint could determine what types of dietary restraint predict overweight and eating pathology, along with which types of restraint may predict healthy weight loss or maintenance. The use of dietary restraint strategies to maintain a healthy weight seems increasingly important in Western culture, and some forms of restraint likely promote psychological and physical health. Taking this into consideration, future measures of dietary restraint should seek to differentiate between individuals who are practicing healthy and risky restraint strategies.
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