Cognitive Vulnerability to Bulimia

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Clinicians (e.g., Pacht, 1984) and researchers (e.g., Flett & Hewitt, 2002) alike have linked perfectionism and psychological maladjustment. The role of perfectionism has been especially underscored in the development and maintenance of eating disorders (see Shafran & Mansell, 2001). For example, Goldner, Cockell, and Srikanth (2002) described the quest for the “perfect diet, perfect exercise regime, perfect body shape, or perfect weight” (p. 319) of individuals suffering from eating disorders. Indeed, the very nature of eating disorders—relentlessly striving toward an impossible standard of thinness—is perfectionistic. On the one hand, then, the link between perfectionism and eating disorders makes sense, especially for individuals with anorexia nervosa who are successful, albeit maladaptively, in their relentless pursuit of thinness. But what about individuals suffering from bulimia nervosa, an eating disorder characterized not only by strict dieting and extreme compensatory behaviors (e.g., self-induced vomiting) to prevent weight gain, but also by recurrent episodes of binge eating? There is a paradox here because the binge eating component of bulimia severely contradicts and undermines bulimic individuals' goals for bodily perfection. Why would a bulimic individual with highly
perfectionist goals for thinness engage in the very behavior—binge eating—that most profoundly sabotages these goals?

This chapter integrates work on bulimia with theories and research on self-regulation (e.g., Bandura, 1977; Carver & Scheier, 1998; Heatherton & Baumeister, 1991; Pyszczynski & Greenberg, 1987; Tice, Bratslavsky, & Baumeister, 2001) to resolve the intriguing paradox of perfectionism and binge eating among bulimic individuals. Ironically, for reasons outlined later in this chapter, individuals who are vulnerable to bulimia may be especially likely to resort to binge eating in a desperate attempt to decrease overwhelming negative emotion, aversive self-awareness, and self-loathing when they feel helpless to meet their perfectionistic standards. According to this view, binge eating among bulimic individuals represents a short-term strategy for attempting to regulate negative emotion and an aversive sense of self that is self-defeating over the long run (see Baumeister & Scher, 1988).

DESCRIPTIVE ASPECTS OF BULIMIA

Bulimia nervosa, a self-defeating eating disorder, consists of three key components: binge eating, during which large quantities of food are consumed uncontrollably in a short period of time (e.g., 2 hours); recurrent inappropriate compensatory behavior to prevent weight gain from calories consumed during a binge, such as self-induced vomiting, misuse of laxatives, diuretics, enemas, fasting, or excessive exercise; and excessive concern about body shape and weight (American Psychiatric Association, 2000).

Because the paradox of perfectionism and bulimia relates to the binge eating component of bulimia, it is useful to describe the characteristics of a typical binge (American Psychiatric Association, 2000). Binge eating usually occurs in secrecy or as inconspicuously as possible. The food consumed during a binge varies, often depending on what is available. Typically, binges contain sweet, high-calorie foods like ice cream and cookies, but the binge appears to be characterized more by the excessive amount of food eaten rather than by a craving for a specific type of food. Binges may be planned or spontaneous, but a common factor is the feeling of a lack of control. Many binge eaters describe being in a frenzied state while binging and feeling unable to stop. Another common feeling reported during a binge is dissociation. Often a binge eating episode ends only when the individual is painfully full or when there is an interruption (e.g., a family member comes home unexpectedly). Binge eating is a self-defeating behavior because, in addition to whatever good it serves, there are also distressing short- and long-term consequences (e.g., bloated feeling, movement away from dietary goals, and the negative consequences of compensatory behaviors such as vomiting to expel the calories consumed during a binge).

The following composite of illustrative quotations from different individuals (Fairburn, 1995) vividly illustrates the characteristics and contexts of typical binges:

It all starts with the way I feel when I wake up. If I am unhappy or someone has said something to upset me, I feel a strong urge to eat . . . and I automatically move toward food. . . . First of all it is a relief and a comfort to eat, and I feel quite high. But then I can't stop, and I binge. I eat and eat frantically until I am absolutely full. . . . The food I eat usually consists of all my "forbidden" foods: chocolate, cake, cookies . . . and improvised sweet food like raw cake mixture. . . . (Sometimes) I randomly grab whatever food I can and push it into my mouth, sometimes not even chewing it. . . . I eat really quickly, as if I'm afraid that by eating slowly I will have too much time to think about what I am doing. . . . And binge eating does numb the upset feelings. It blots out whatever it was that was upsetting me. The trouble is that it is replaced with feeling stuffed and guilty and drained. (pp. 3–17)

DEMOGRAPHIC CONTEXT OF BULIMIA

Bulimia typically begins in late adolescence or early adult life (American Psychiatric Association, 2000). Based on retrospective reports with clinical samples, the typical age of onset for clinically diagnosable bulimia appears to be 18–19 years (e.g., Fairburn & Cooper, 1984). However, the age of onset for the emergence of the subclinical components of bulimia (bingeing and purging) may be even younger. In this regard, Stice, Killen, Hayward, and Taylor (1998) conducted a prospective study of the age of onset of binging and purging among an initially asymptomatic sample of adolescents over a follow-up period from age 14 to 19 and found that the peak risk for onset of binge eating occurred at age 16 and peak risk for onset of purging occurred at age 18. Insofar as individuals exhibiting eating disorder symptoms at the outset of the study were excluded, it is possible that the modal age of onset of the components of bulimia is even lower than found in this study. Consistent with findings that disordered eating patterns are largely in place by late adolescence, Voyh, Heatherton, and Herrin (2001) reported that disordered eating symptoms and attitudes are established before college.

Although individuals meeting diagnostic criteria for bulimia are overwhelmingly female (about 90% female; American Psychiatric Association,
AN INCONSISTENT EMPIRICAL LINK BETWEEN PERFECTIONISM AND BULIMIA

As described earlier, there has been much interest in linking perfectionism to eating disorders. That a relation would exist between perfectionism and bulimia is intuitively compelling given the undue emphasis placed on body weight and shape by bulimic individuals. The bulimic individual’s relentless striving toward an impossible standard of thinness is inherently perfectionistic. Moreover, clinical researchers have linked perfectionism to bulimia and its components. As Fairburn (1995) put it, “Another common longstanding characteristic is perfectionism; many who binge tend to set unduly demanding standards for themselves” (p. 60). Finally, theoretical accounts of the development of eating disorders have featured perfectionism (e.g., Beebe, 1994; Goldner et al., 2002; Heatherton & Baumeister, 1991). For example, Levine and Smolak (1992) emphasized the importance of the “superwoman ideal” in the etiology of eating disorders.

Despite the plausibility of a link between perfectionism and bulimia, empirical work has revealed an inconsistent relation between the two. On the one hand, some work has indicated that bulimic individuals do exhibit high levels of perfectionism. For example, Joiner, Heatherton, and Keel (1997) reported that scores on the Perfectionism subscale of the Eating Disorders Inventory (EDI; Garner, Olmstead, & Polivy, 1983), a measure of global perfectionism, predicted DSM-based bulimic symptoms 10 years later (see also Rosch, Crowther, & Graham, 1991; Steiger, Leung, Puente-Neuman, & Gotthell, 1992, for positive findings). However, other studies have questioned the relation between perfectionism and bulimia (e.g., Blouin, Bushnik, Braaten, & Blouin, 1989; Fryer, Waller, & Kroese, 1997; Hurley, Palmer, & Stretch, 1990). Work in our own laboratory has highlighted the inconsistent relation between perfectionism and bulimic symptoms. Whereas Vohs, Bardone, Joiner, Abramson, and Heatherton (1999) found a positive relation between EDI-perfectionism scores and EDI-bulimia scores, Vohs, Voelz, et al. (2001) did not.

A TWO-FACTOR MODEL TO UNDERSTAND THE INCONSISTENT EMPIRICAL LINK BETWEEN PERFECTIONISM AND BULIMIA

Why is perfectionism only inconsistently related to bulimia? When a variable of interest (e.g., perfectionism) sometimes relates to another variable (e.g., bulimia) but other times does not, psychologists often look for “moderator” variables (Baron & Kenny, 1986; Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001). That is, perhaps perfectionism predicts bulimia only in some contexts or only for a subgroup of people. Consistent with this approach, Joiner, Heatherton, Rudd, and Schmidt (1997) proposed a two-factor vulnerability-stress model in which perfectionism (the vulnerability) predicts bulimia only if individuals feel that they are overweight (the stressor).

According to Joiner et al.’s two-factor model, perfectionism only leads to negative mental health outcomes when the perfectionist’s high standards go unmet. As Joiner et al. (1997) stated, “Perfection, if both desired and obtained, is a positive state of affairs” (p. 146). On this view, then, perfectionism is not necessarily a bad thing and it does not necessarily lead to psychological maladjustment. Supporting this general perspective, work on perfectionism as a vulnerability factor for depression has shown that perfectionistic people become depressed only when their standards were unmet (i.e., when negative life events occurred; Hewitt & Flett, 1993; Joiner & Schmidt, 1995).

Drawing on the well-documented link between body dissatisfaction/weight concern and bulimia (e.g., Killen et al., 1994; Killen et al., 1996; Ruderman, 1986; also see Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004, for a review), Joiner et al. (1997) reasoned that the perception of being overweight would be a particularly potent stressor in their vulnerability (perfectionism)-stress model of bulimia. In two separate studies, Joiner et al. (1997) obtained support for this hypothesis. Perfectionism appeared to serve as a vulnerability factor for bulimic symptoms for women who perceived themselves to be overweight, but not for those who did not see themselves in that way. Specifically, women who were both perfectionistic and perceived themselves as overweight exhibited greater levels of bulimic symptoms than perfectionistic women who did not perceive themselves as overweight and nonperfectionistic women who either did or did not perceive themselves to be overweight. It is interesting to note that, among women who did not perceive themselves to be overweight, those who were perfectionistic exhibited similar levels of bulimic symptoms to those who did not exhibit this trait. In the study, only perceived weight, but not actual weight, interacted with perfectionism to predict
bulimic symptoms. Thus, it is perfectionistic individuals' perceptions of not meeting their weight standards, rather than an objective discrepancy in this domain, that best predicts when they will exhibit bulimic symptoms. Because Joiner et al.'s (1997) study was cross-sectional, a replication with a longitudinal design is needed to confirm the most plausible temporal interpretation of the findings; namely, perfectionism paired with the perception of being overweight provides risk for development of or increase in bulimic symptoms.

The vulnerability–stress model proposed by Joiner et al. (1997) and the results supporting it help explain why perfectionism has been linked to bulimia in some studies but not others. Presumably, the perfectionists in the studies obtaining positive results were more likely to have perceived themselves as overweight than the perfectionists in the studies failing to obtain a relation between perfectionism and bulimia.

PERFECTIONISM AND BULIMIA: A PARADOX

Although Joiner et al.'s two-factor vulnerability–stress model helps explain the empirical inconsistencies in the link between perfectionism and bulimia, it also highlights the paradox with which this chapter began: The binge eating component of bulimia severely contradicts and undermines perfectionistic goals for bodily perfection. Specifically, Joiner et al.'s model and supporting results suggest that perfectionists are especially likely to engage in bulimic behaviors, including binging when they perceive themselves to be overweight. This is maladaptive and self-defeating! For an individual with perfectionistic weight and body shape goals, the very worst time to binge would be when feeling overweight. Yet, Joiner et al.'s (1997) model and results suggest that this is precisely when perfectionists engage in bulimic bingeing. Clearly, there is a paradox to be explained here.

TOWARD EXPLAINING THE PARADOX OF BULIMIC BINGEING: A THREE-FACTOR MODEL

To help resolve the paradox of bulimic bingeing among individuals with perfectionistic bodily standards, it is useful to consider the possible response options of individuals with perfectionistic weight and body shape goals who perceive that they are overweight. Surely, there must be some perfectionists who would respond to this self–body standard discrepancy with instrumental behaviors to remedy the situation rather than with self-defeating bulimic bingeing. The two-factor model fails to account for the reasonable possibility of perfectionists who, upon perceiving themselves to be overweight, redouble their efforts to lose weight and approach perfection rather than engage in binge eating behavior, which is self-defeating for attaining "perfection" in appearance. More generally, some perfectionists likely do respond to perceived bodily flaws in an adaptive way. As an example, the combination of having perfectionistic bodily goals and responding adaptively to remedy perceived bodily flaws would seem to be critical for athletes to win the highest titles in bodybuilding such as Mr. and Ms. Olympia (see also Parker, 2002).

A case study of a highly visible celebrity, Arnold Schwarzenegger (the world-renowned bodybuilder and now governor of California), demonstrates that the combination of perfectionism and the perception that one falls short of an important bodily standard does not inevitably lead to a maladaptive behavior. Schwarzenegger's autobiography (Schwarzenegger & Hall, 1977) reveals that he exhibited the "vulnerability" of perfectionism, "One word was constantly on my mind: perfection... I wanted to be the best-built man in the world" (p. 68–69). Moreover, Arnold perceived that he had some serious bodily flaws, "I had weak points—glaring weak points—... in the beginning everybody said, 'Arnold has no calves... his calves aren't developed at all.' One look in the mirror told me they were right" (p. 68). Yet, unlike the perfectionists in Joiner et al.'s (1997) study who succumbed to maladaptive behaviors when confronted with a bodily discrepancy, Arnold responded adaptively to his "skinny calves" by developing an exercise program to build them up. Indeed, Arnold confronted many significant bodily discrepancies in his quest to be the "best-built man in the world." But, in each case, he developed new exercises, workout programs, and dietary changes to slowly overcome his "glaring weak points." It is likely that Arnold Schwarzenegger would have been a "bad data point" for Joiner et al.'s (1997) vulnerability (perfectionism)–stress (perceived overweight) hypothesis if he had been in their study. If the perfectionist Arnold had perceived himself to be overweight, then he likely would have focused on developing and following a program to lose weight rather than engaging in self-defeating behavior such as bulimic bingeing.

In fact, Arnold (Schwarzenegger & Hall, 1977) stated, "Before competition I would always walk into the gym to train with no shirt on. Why? Because the instant I sat down I'd see my stomach and say, 'Wait a minute, Arnold, you can't go into a contest with a stomach like that, with so much fat on it you get wrinkles.' So I would train my waist harder and stay on my diet" (pp. 161–162). There must be a third factor, an additional moderator, that identifies perfectionists, like Arnold Schwarzenegger as an extreme, who do not succumb to maladaptive behaviors (e.g., bulimic bingeing) when they are dissatisfied with their bodies.
The Third Factor: Low Self-Efficacy

What additional vulnerability factor distinguishes the perfectionist who responds to an unmet body standard with bulimic symptoms from the perfectionist who, when faced with the same unmet standard, persists in attempts to achieve the standard or positively accepts the situation? Building on Joiner et al.’s (1997) two-factor model, we (Barndone-Cone, Abramson, Vohs, Heatherton, & Joiner, 2004a, 2004b) hypothesized that low self-efficacy would function as such a vulnerability factor in a three-factor (i.e., high perfectionism, low self-efficacy, perceived overweight or body dissatisfaction) model of bulimia. Specifically, perfectionists who have low self-efficacy may be especially likely to succumb to self-defeating behaviors such as bulimic binge eating rather than respond adaptively when they perceive themselves to be overweight. In contrast, perfectionists who are not meeting their standards of body weight but who have high self-efficacy will respond to the discrepancy from their standards with goal-directed weight reduction strategies or perhaps self-acceptance (e.g., I can show people that a large woman can be the most beautiful of all).

Inclusion of low self-efficacy as the third factor in the model is consistent with a number of studies showing an association between low self-efficacy and bulimic behaviors (Eringen, Altmair, & Bowers, 1989; Gordon, Denoma, Barndone, Abramson, & Joiner, in press; Gormally, Black, Daston, & Rardin, 1982; Striegel-Moore, Silberstein, Frensch, & Rodin, 1989). Similarly, in the treatment outcome literature, a number of treatments for bulimia target low self-efficacy directly or appear to contribute to symptom reduction via improved self-efficacy (Garner & Garfinkel, 1997; Schneider, O’Leary, & Agras, 1987; Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002).

Because self-efficacy involves a cognitive appraisal of one’s abilities, it is particularly well suited to the scenario of being perfectionistic and failing to meet one’s standards (e.g., perceiving that one is overweight). According to Bandura and Cervone (1986), “Whether perceived discrepancies between personal standards and attainments are motivating or discouraging is likely to be determined by the strength of people’s perceived capabilities to attain the standards they have been pursuing. Those who distrust their capabilities are easily discouraged by failure, whereas those who are highly assured of their efficacy for goal attainment will intensify their efforts when their performances fall short and persevere until they succeed” (p. 93). Thus, Bandura and Cervone postulated that self-efficacy plays an important role in determining cognitive, affective, and behavioral responses to a discrepancy between standards and attainments.

Similarly, drawing on objective self-awareness theory (S. Duval & Wicklund, 1972), T. S. Duval, V. H. Duval, and Mulilis (1992) suggested that when people perceive a discrepancy between their goals and actual attainments, they are motivated to reduce either the discrepancy or the level of increased self-focus engendered by the perceived discrepancy. Attempts to reduce self-focus can include physical (e.g., moving away from a mirror) or mental (e.g., distraction) avoidance of the self-focusing situation. Self-regulation theorists (e.g., Carver & Scheier, 1981; Pyszczynski & Greenberg, 1987) have elaborated this line of thought by arguing that when people have high expectations that they can reduce the discrepancy, they will engage in behavior aimed at eliminating it. In contrast, when people believe that they will not be able to reduce the discrepancy, they quit trying to do so and instead attempt to minimize or escape self-focus because it has become an aversive reminder that they are not meeting their standards.

Also underscoring the importance of people’s beliefs about their abilities to reduce discrepancies, Higgins, Vookles, and Tyckoski (1992) reported that the extent of people’s distress when they perceive discrepancies between their current self and their standards for themselves depends on whether they believe that they will be able to attain the standard in the future (i.e., future self). Finally, an extensive body of work on learned helplessness (Seligman, 1975) echoes the importance of belief in one’s capabilities in influencing response to discrepancies. Both animal and human studies have found that organisms who expect to control outcomes persist in their endeavors, whereas those who do not expect to have control give up (Abramson, Seligman, & Teasdale, 1978).

According to the three-factor model, then, for perfectionists with high self-efficacy, perceptions of being overweight will be resolved by effectively engaging in activities aimed at achieving their weight goal or perhaps finding a way to positively accept the weight discrepancy. High self-efficacy perfectionists who feel overweight would not resort to a maladaptive response like bulimic binge eating because they are likely to view an unmet goal as a temporary, changeable situation rather than as an uncontrollable failure. In contrast, for low self-efficacy perfectionists, perceptions of being overweight will be resolved in less productive and less goal-directed ways because they are likely to view the situation as an uncontrollable devastating reality. Low self-efficacy perfectionists will doubt that they can rectify the situation and perhaps succumb to bulimic binge eating.

To go back to our case study, Arnold Schwarzenegger’s autobiography (Schwarzenegger & Hall, 1977) underscores his extraordinarily high sense of self-efficacy, “Never was there even the slightest doubt in my mind that I would make it…. I knew I had what it took” (pp. 67–68). Thus, accord-
ing to our three-factor model, Arnold's high sense of self-efficacy led him to develop and implement effective strategies to overcome his "glaring weak points" in his quest for bodily perfection. In contrast, the logic of the three-factor model would suggest that a bodybuilder with equally high perfectionism but low self-efficacy would succumb to self-defeating behaviors when confronted with body standard discrepancies.

In sum, the three-factor model specifies two cognitive/personality vulnerability factors (high perfectionism and low self-efficacy) that, when paired, identify who will exhibit bulimic symptoms, given a requisite "occasion setter." The additional factor of perceiving that one is overweight or being dissatisfied with one's body is the occasion setter that marks when such vulnerable individuals actually will engage in bulimic behaviors.

Empirical Tests of the Three-Factor Model

The core prediction of the three-factor model is straightforward: The three factors of high perfectionism, low self-efficacy, and perceived overweight/body dissatisfaction should interact (high perfectionism \times low self-efficacy \times perceived overweight/body dissatisfaction) to predict bulimic symptoms. Specifically, individuals with the profile of high perfectionism, low self-efficacy, and perceived overweight or body dissatisfaction should exhibit the highest level of bulimic symptoms.

In early tests of the three-factor model, self-esteem was used in place of self-efficacy because self-esteem and self-efficacy are strongly related conceptually and empirically (Judge, Erez, Bono, & Thoresen, 2002). In addition, investigators have emphasized that self-esteem is a multifaceted construct that includes self-efficacy as an integral component (Bardone, Perez, Abramson, & Joiner, 2003; Tafarodi & Swann, 1995; Vohs & Heatherton, 2001). The initial study (Vohs et al., 1999) used a longitudinal design to test whether late adolescent females who were high in perfectionism and low in self-esteem would be especially likely to show an increase in bulimic symptoms during the transition from high school to college if they also perceived themselves to be overweight. Consistent with the three-factor model, we found a three-way interaction among perfectionism, self-esteem, and perceived weight status in predicting increases in bulimic symptoms over the prospective follow-up period (average length of follow-up = 9 months). Young women high in perfectionism who perceived a self-standard weight discrepancy exhibited bulimic symptoms only if they also had low self-esteem. Women who had high self-esteem were buffered from bulimic symptoms even if they were high in perfectionism and felt overweight.

To examine the robustness of the three-factor model and the replicability of Vohs et al.'s (1999) findings, an additional longitudinal study (Vohs, Voelz, et al., 2001) was conducted with a different sample, time frame, and measures. First, whereas Vohs et al. (1999) conducted their study with a sample of young women attending a selective northeastern college, Vohs, Voelz, et al. (2001) employed a sample of young women from a southern state university. Testing the three-factor model on a different sample of participants provides information about the model's generalizability. Second, Vohs et al. (1999) examined change in bulimic symptoms from participants' senior year of high school to first year of college. In contrast, Vohs, Voelz, et al. (2001) assessed change in bulimic symptoms over 5 weeks during a college semester. Testing the model's ability to predict change over only 5 weeks is a strong test of the model's sensitivity. Third, Vohs, Voelz, et al. (2001) utilized different measures of the predictor variables in the three-factor model. For example, the original Vohs et al. (1999) study operationalized the stressor variable as perceived overweight, whereas Vohs, Voelz, et al. (2001) looked at body dissatisfaction as the stressor. Finally, Vohs, Voelz, et al. (2001) tested the specificity of the three-factor model to bulimia. Given the comorbidity of bulimia with both depression (e.g., Lee, Rush, & Mitchell, 1985) and anxiety (e.g., Brewerton, Lydiard, Ballenger, & Herzog, 1993), as well as the role of perfectionism in depression and anxiety (Hewitt & Flett, 1991), Vohs, Voelz, et al. (2001) tested whether the interaction of perfectionism, low self-efficacy, and body dissatisfaction predicted increases not only in bulimic symptoms but also in depression and/or anxiety symptoms.

Consistent with the three-factor model and the results of Vohs et al. (1999), Vohs, Voelz, et al. (2001) found that the three-way interaction of perfectionism, low self-esteem, and body dissatisfaction predicted increases in bulimic symptoms. Of great interest, this interaction also predicted increases in depression, but not anxiety, symptoms. Thus, perfectionistic individuals with low self-esteem who were dissatisfied with their bodies showed increases in both depressive and bulimic symptoms. These results suggest that the well-documented comorbidity between bulimia and depression may, in part, be due to overlapping causal factors.

Denoma et al. (in press) further tested the generalizability of the three-factor model to a sample of women of diverse ages (mean age approximately 45 years). Replicating Vohs et al. (1999) and Vohs, Voelz, et al. (2001), Denoma et al. (in press) used a longitudinal design and found that the three-way interaction of perfectionism, low self-esteem, and perceived overweight predicted increases in bulimic symptoms in this sample over 2½ years. The form of the interaction was as expected (perfectionistic women with low self-esteem who perceived themselves to be overweight were the most likely to show increases in bulimic symptoms over the follow-up period). These results are important because they show that the three-factor model holds over different parts of the life span among
women. Moreover, the results support the conclusions of Cosford and Arnold (1992) that bulimic symptom presentation of women over age 50 is similar to that of adolescents and young women.

Similarly to Vohs, Voelz, et al. (2001), Denoma et al. (in press) examined the specificity of the three-factor model for predicting bulimic symptoms versus symptoms of depression and/or anxiety. In contrast to Vohs, Voelz, et al. (2001), Denoma et al. (in press) found specificity with respect to depression, but not anxiety, symptoms. Specifically, in Denoma et al.’s older sample, perfectionistic women with low self-esteem who perceived themselves to be overweight were especially likely to show increases in bulimic and anxiety, but not depression, symptoms over the 2½-year follow-up. Taken together, the findings of Vohs, Voelz, et al. (2001) and Denoma et al. (in press) show that the three-factor model consistently predicts bulimic symptoms and negative affect, but the form of the negative affect, depression versus anxiety, varies from one study to the next. Future work is needed to illuminate when the three-factor model predicts depression versus anxiety.

In the studies testing our three-factor model presented so far, we used low self-esteem in place of low self-efficacy because the two constructs are highly related (Bardone et al., 2003; Judge et al., 2002; Tafarodi & Swann, 1995; Vohs & Heatherton, 2001) and the data sets available included measures of self-esteem. However, given that low self-efficacy is featured as the “third factor” in the model, it is important to see if it indeed “works” as hypothesized. Do perfectionists with low self-efficacy respond to an unmet body standard with self-defeating bulimic symptoms, whereas perfectionists with high self-efficacy do not? A second question not answered by the studies presented so far concerns whether or not the three-factor model predicts both components of bulimia: bingeing and inappropriate compensatory behaviors such as vomiting. This is an especially important question because it is the bingeing component of bulimia that is so paradoxical in the context of the bulimic’s perfectionism. Although inappropriate compensatory behaviors like vomiting following a binge are highly maladaptive in many ways, it does not seem paradoxical for individuals with perfectionist goals for weight and body shape to engage in drastic measures to rid their body of the excess calories consumed in a binge.

Bardone-Cone, Abramson, Vohs, Heatherton, and Joiner (in press) conducted a study to address these two questions. A methodological advantage of this longitudinal study is that symptoms of bulimia were assessed weekly over an 11-week interval, thereby reducing recall difficulties and providing more accurate responses; prior work has been limited to two time points of data collection. This study found that the three-factor model predicted the binge eating component of bulimia. Young college women who exhibited the profile of high perfectionism, low self-efficacy, and perceived overweight scored highest on binge eating measures over the 11-week prospective follow-up. Women with the opposite profile (low perfectionism, high self-efficacy, no perception of overweight) exhibited some of the lowest levels of binge eating in the sample.

A strikingly different pattern of results emerged for the inappropriate compensatory behaviors component of bulimia. Bardone-Cone et al. (in press) assessed three inappropriate compensatory behaviors—two purging behaviors (vomiting and laxative use) and one nonpurging behavior (fasting). The three-factor model did not predict inappropriate compensatory behaviors, whether assessed separately (e.g., vomiting alone) or as a group. Although no main effect was significant across all analyses to predict inappropriate compensatory behaviors, the perception of being overweight was most consistently related to vomiting, and perfectionism was most consistently related to fasting. However, nonsignificant findings for predicting inappropriate compensatory behaviors with the three-factor model could be due to predicting behaviors with low base rates (base rates of vomiting, laxative use, and fasting were 6%, 1%, and 4%, respectively). Future studies should use a larger sample size of individuals engaging in inappropriate compensatory behaviors (to avoid low base rates) and an even more comprehensive assessment of various kinds of inappropriate behaviors (e.g., excessive exercise) to investigate the predictive value of the three-factor model for the inappropriate compensatory behavior component of bulimia.

Perhaps most importantly, the binge eating and inappropriate compensatory behavior components of bulimia were examined independently. It is likely that some women exhibited inappropriate “compensatory” behaviors in the absence of binge eating. For example, some women with an anorexic profile likely exhibited vomiting, laxative use, or fasting while never engaging in binge eating (American Psychiatric Association, 2000). The predictors of inappropriate “compensatory” behaviors not accompanied by binge eating (as in some cases of anorexia) may differ from the predictors of such behaviors accompanied by binge eating (as in bulimia). Indeed, for a bulimic who always exhibits inappropriate compensatory behaviors following a binge and never in the absence of a binge, there is a perfect correlation between bingeing and engaging in inappropriate compensatory behaviors. In such cases, the predictors of binge eating should be identical to those of inappropriate compensatory behaviors. Thus, in future studies, it will be important to look separately at the predictors of inappropriate compensatory behaviors “comorbid” with binge eating (the bulimic pattern) versus such behaviors not comorbid with binge eating (an anorexic pattern). In this regard, it is useful to note that only 3% of Bardone-Cone et al.’s (in press) sample (young adult female Introductory
Psychology students) reported both binge eating and inappropriate compensatory behaviors (vomiting, laxative use, or fasting) during the 11-week follow-up period.

Summary of Empirical Tests of the Three-Factor Model

Previously, four longitudinal studies were presented providing consistent and strong support for the three-factor model of bulimia. Perfectionistic women with low self-efficacy or low self-esteem were especially likely to exhibit bulimic symptoms when they perceived themselves to be overweight or were dissatisfied with their bodies. Across diverse samples and follow-up intervals, the three-factor model proved to be robust and generalizable. All four studies obtained the critical three-way interaction (perfectionism × low self-efficacy/low self-esteem × body dissatisfaction/perceived overweight), which is impressive given that detecting moderator effects is very difficult, especially in prospective field research (McClelland & Judd, 1993). We are aware of only one prospective study (Shaw, Stice, & Springer, 2004) that failed to obtain this three-way interaction in predicting bulimic symptoms. Moreover, levels of bulimic symptoms were quite stable across the various prospective follow-up periods used in the studies obtaining the three-way interaction (e.g., the correlation of Time 1 and Time 2 bulimic symptoms in Vohs, Voelz, et al., 2001, was $r = .63$), making prediction of increases in such symptoms potentially difficult. Insofar as we controlled for initial levels of bulimic symptoms in predicting subsequent bulimic symptoms, tests of the three-factor model were conservative (see Alloy, Abramson, Raniere, & Dyllier, 1999). Although the effect sizes for the predicted three-way interaction across the studies were not large, inspection of the figures from the studies shows that the effect was nonetheless dramatic.

A limitation of these studies is that we measured perceived weight status/body dissatisfaction as if it were “traitlike.” That is, we measured this factor, along with the hypothesized cognitive/personality vulnerability factors of perfectionism and low self-efficacy, at the outset of the follow-up interval in each study. However, greater fidelity to the three-factor model would be obtained if perceived weight status/body dissatisfaction were measured frequently during the follow-up interval. Obviously, bulimic individuals do not engage in a chronic binge lasting the whole follow-up interval. Instead, such individuals go for a period without bingeing and then something triggers a binge. According to the three-factor model, it is the perception of being overweight or body dissatisfaction that triggers a binge among vulnerable women. Thus, better temporal sequencing would be obtained if both perceived weight status/body dissatisfaction and bulimic behaviors were assessed frequently over the follow-up interval. Such an assessment strategy would enable a test of whether the perception of being overweight or being dissatisfied with her body is a proximal trigger of an episode of binge eating among highly perfectionistic women with low self-efficacy. Of course, the possibility exists that some women do exhibit chronic perceptions of being overweight or feeling dissatisfied with their bodies. We suspect that, among such women, a binge is triggered by an event that brings these body dissatisfaction to mind (e.g., getting on the scale, seeing a beautiful model on TV, etc.).

We are intrigued by Bardone-Cone et al.’s (in press) result that the three-factor model predicted the binge eating, but not the inappropriate compensatory behaviors (e.g., vomiting), component of bulimia. Although the finding is preliminary and may have been influenced by the low base rates of inappropriate compensatory behaviors in the sample, we suspect that the main reason for the failure to find support for the three-factor model in predicting compensatory behaviors was that we looked at compensatory behaviors separately from binge eating. The three-factor model always may predict binge eating, regardless of whether or not it is accompanied by compensatory behaviors. In contrast, the predictors of “compensatory” behaviors not accompanied by binge eating (an anorexic profile) may be different from the predictors of true compensatory behaviors accompanying binge eating that are in the service of undoing the damage of a binge. In the latter case, the compensatory behaviors are linked to the binge in a one-to-one fashion and should be predicted by the same factors. Over time, as the binge and inappropriate compensatory behaviors become inextricably linked in the bulimic cycle, prediction of the two components should become more and more similar. It will be important for future research to look at the predictors of compensatory behaviors comorbid with binge eating separately from “compensatory” behaviors not occurring in the wake of binge eating.

Two studies (Denoma et al., in press; Vohs, Voelz, et al., 2001) examined whether the three-factor model predicted negative affect (depression and anxiety) and bulimic symptoms. Although the form of negative affect (depression vs. anxiety) predicted differed across the studies, it is noteworthy that in each case negative affect was predicted by the same model predicting bulimic symptoms. As argued later, this is important because the negative affect engendered by the confluence of perfectionism, low self-efficacy, and body dissatisfaction may set the stage for the self-defeating binge eating of women exhibiting these three factors.

In sum, the three-factor model goes a long way in resolving the paradox of perfectionism and binge eating. In fact, perfectionism per se does not reliably predict binge eating. Women with high perfectionistic goals for themselves do not necessarily engage in binge eating. Moreover, even when perfectionistic women perceive themselves to be overweight or are
dissatisfied with their bodies, they do not necessarily binge (Denoma et al., in press; Vohs, Voelz, et al., 2001). Instead, perfectionistic women binge when they perceive they are overweight or are dissatisfied with their bodies and feel that they cannot resolve the discrepancy between their high standards and their current state. Consistent with work on self-efficacy (Bandura & Cervone, 1986), self-regulation (e.g., Carver & Scheier, 1981; Pyszczynski & Greenberg, 1987), self-discrepancies (Higgins et al., 1992), and learned helplessness (Seligman, 1975; Abramson et al., 1978), it becomes less paradoxical that a perfectionistic woman would binge precisely when she perceives herself to be overweight if she also has low self-efficacy. The low self-efficacy of the woman prevents her from engaging in what would seem to be a more adaptive response to the discrepancy, such as redoubling her efforts or changing her strategy to lose weight or positively accepting the situation as might a woman with higher self-efficacy.

But the three-factor model, as presented so far, provides only a partial resolution to the paradox. Why doesn’t a perfectionistic woman who perceives that she is overweight but feels helpless to reduce this discrepancy between her high standards and current self simply become depressed, anxious, or passive as might be predicted by learned helplessness theory (Abramson et al., 1978; Abramson, Metalsky, & Alloy, 1989; Seligman, 1975)? Depression or passivity in the situation, albeit distressing, does not seem paradoxical given the low self-efficacy of the woman. Indeed, Vohs, Voelz, et al. (2001) and Denoma et al. (in press) showed that perfectionistic women who have low self-efficacy do become depressed or anxious when they are dissatisfied with their bodies or perceive that they are overweight. But why do these women go the next step of engaging in the very behavior, binge eating, that so effectively sabotages their perfectionistic goals for weight and shape? We now turn to this final issue in resolving the paradox.

BINGE EATING AS A SELF-DEFEATING ATTEMPT TO REGULATE NEGATIVE EMOTION AND AVERSIVE SELF-AWARENESS

Giving Priority to Short-Term Emotion Regulation

Tice et al. (2001) presented theory and evidence suggesting that when people are distressed, they may indulge immediate impulses (e.g., eating) to make themselves feel better. That is, when people are not distressed, they direct their behavior to attaining their long-term goals. For example, when not distressed, individuals with perfectionistic goals for weight and body shape will engage in behaviors to achieve their ideal body (e.g., not eating fattening foods). However, Tice et al. suggested that when people are overwhelmed with negative emotion, they strategically may divert their behavior away from achievement of their long-term goals to the more immediate goal of reducing negative emotion. In essence, in such situations, people are giving short-term emotion regulation priority over other self-regulatory goals. It is important to emphasize that Tice et al. were not suggesting that emotional distress impairs the ability or the motivation to regulate oneself. Instead, the idea is that when people are distressed, the immediate self-regulatory goal of decreasing negative emotion may conflict with and win out over more long-term goals (e.g., eating “comfort foods” such as cheesy macaroni to feel better conflicts with adhering to a healthy diet to reduce long-term weight and body shape goals; Baumeister & Heatherton, 1996). People are still self-regulating when they indulge immediate impulses to make themselves feel better. In this situation, however, the goal of self-regulation has changed from long-term attainment of ideals to short-term improvement of mood. Thus, people may engage in behaviors such as overeating that are self-defeating in the long run but possibly functional in reducing negative emotion in the short run.

Particularly pertinent to the paradox of binge eating among bulimics, Tice et al. (2001) presented an experiment demonstrating that people will eat fattening, unhealthy foods that taste good as a strategy to regulate negative emotion even though ordinarily they would refrain from eating such foods. In the study, college students had either a negative or positive mood induced in the laboratory. Further, half of the participants were told that eating would not improve their moods, whereas the other participants were given no information about the supposed effects of eating on mood. Insofar as our culture promotes the belief that eating can reduce emotional distress (e.g., drowning one’s sorrows in a chocolate bar), participants not given any information about the supposed effects of eating on mood should be more likely to eat unhealthy foods (e.g., chocolate chip cookies) when distressed than participants given information debunking the popular idea that eating can make a bad mood go away. Results supported Tice et al.’s hypothesis. In the experimental condition similar to everyday life in which participants were not disabused of the belief that eating can make you feel better, emotional distress led participants to increase their consumption of snack food. In contrast, those participants who were instructed that eating does not make people feel better did not show increased consumption of unhealthy food when distressed. These results show that negative emotion does not necessarily impair regulation of behavior to achieve long-term goals (even though distressed, participants instructed that, contrary to popular lore, eating doesn’t improve moods did not overeat). Overeating occurred when participants were dis-
tressed and believed that eating could make them feel better. Thus, giving in to immediate impulses (e.g., overeating) when distressed appeared to reflect a strategic shift from pursuit of long-term goals to the immediate goal of emotion regulation rather than a breakdown of regulation per se.

**Escape Theory**

Tice et al.’s (2001) hypothesis that people may engage in behaviors that are self defeating in the long run in order to control negative emotions in the short run is consistent with the “escape” theory proposed by Baumeister (1991; Baumeister & Scher, 1988). In brief, Baumeister (1991) suggested that many apparently self-defeating behaviors such as alcoholism, drug abuse, binge eating, self-mutilation, and even masochism may represent attempts to escape from aversive self-awareness and negative emotion. Although such behaviors may sabotage an individual’s long-term goals, they may serve the short-term purpose of providing an escape from distressing thoughts and images of the self. According to Baumeister, the common denominator across these apparently self-defeating behaviors is that they enable a state of “cognitive deconstruction.” In a state of cognitive deconstruction, a person’s focus is on the immediate present rather than the past or the future, on movements and sensations rather than broad thoughts and emotions, and on immediate goals rather than more long-term goals. Heatherton and Baumeister (1991) suggested that the essence of this deconstructed state is the abandonment of the kind of higher level thought necessary to compare oneself negatively to one’s standards or to others and to consider the negative implications of failure. In short, a state of cognitive deconstruction provides an escape from aversive self-awareness. For example, a woman motivated to escape bad thoughts and feelings about herself after a perceived failure to meet a body standard (i.e., seeing cellulite on her thighs in the mirror) may focus on some concrete, physical activity that will prevent her mind from drifting to meaningful thought about her flawed appearance, self-loathing, and associated negative emotion.

Heatherton and Baumeister (1991) suggested that binge eating may provide a particularly potent form of escape because it affords reduction of awareness to the immediate, concrete motions and sensations of tasting, chewing, and swallowing. A deconstructed cognitive state of low self-awareness in which meaningful (negative) thoughts about the self are banished can arise from the absorbing activity of eating. Thus, at least for some individuals, eating may indeed provide, or at least promise, emotional comfort. Integration of Baumeister’s (1991) original escape theory with his more recent work on the diversion of regulatory behaviors from the achievement of long-term goals to the reduction of immediate over-whelming negative emotion (Tice et al., 2001) suggests that individuals for whom food is particularly “reinforcing” or who believe that eating can make you feel better may be particularly prone to overeat when emotionally distressed.

**Integration**

Recall that Duval et al. (1992) drew on objective self-awareness theory (S. Duval & Wicklund, 1972) to suggest that when people perceive a discrepancy between their goals and actual attainments, they are motivated to reduce either the discrepancy or the level of self-focus engendered by the perceived discrepancy. Self-regulation theorists (e.g., Carver & Scheier, 1981; Pyszczynski & Greenberg, 1987) further indicated that people who believe they can reduce the discrepancy (high self-efficacy) will engage in behaviors aimed at eliminating it. In contrast, people who feel inadequate to reduce the discrepancy (low self-efficacy) will give up and instead attempt to escape self-focus because it has become aversive.

Consistent with this view, Steenbarger and Aderman (1979) reported that individuals who were led to perceive large self-discrepancies on the dimension of “self-expression” and told that such discrepancies were not remediable (low self-efficacy) exhibited negative emotion and sought to avoid a self-focusing cue (an audio recording of themselves giving a speech). In contrast, individuals who were told to perceive an equally large discrepancy in self-expression but told that they could effectively remedy the discrepancy (high self-efficacy) did not show any more negative emotion or avoidance of the self-focusing cue than individuals who were not led to perceive self-discrepancies. Carver, Blaney, and Scheier (1979) presented similar results from an experiment in which the self-focusing cue was a mirror. Moreover, Carver et al.’s (1979) results further suggested that self-focus actually increases attempts to reduce discrepancies when people believe they can reduce the discrepancy (high self-efficacy). Taken together, these two studies demonstrate that people find self-awareness (e.g., listening to a tape of oneself giving a speech, seeing one’s reflection in a mirror) especially aversive and seek to escape from it when they are confronted with a discrepancy that they feel inadequate to reduce. However, self-awareness in the face of a discrepancy that is perceived as reducible is not so aversive and may facilitate attempts to reduce the discrepancy.

According to this line of reasoning, a highly perfectionistic woman with high self-efficacy who perceives herself to be overweight is likely to redouble her efforts to lose weight or find a way to positively accept the situation. For such a woman, self-focus or self-awareness should not be highly aversive because she believes that she will meet her goals in one
way or another. In contrast, a highly perfectionistic woman with low self-efficacy who similarly perceives herself to be overweight is more likely to be focused on escaping from negative emotion and aversive self-awareness than her high self-efficacy counterpart because she believes that she will not be able to remedy her current overweight problem. Thus, women exhibiting the maladaptive profile featured in our three-factor model (high perfectionism, low self-efficacy, perceived overweight or body dissatisfaction) may be particularly prone to divert behavior away from achievement of the long-term goal of weight regulation to try to reduce the immediate negative emotions and aversive self-awareness engendered by their failure to meet perfectionistic body standards. If food were particularly reinforcing for such a woman or if she believed that eating can reduce distress, then it would not be surprising if she overate or even engaged in an eating binge. Indeed, Heatherton and Baumeister (1991) argued that binge eating is motivated by a desire to escape aversive self-awareness.

Consistent with this line of reasoning, our case study of Arnold Schwarzenegger reveals that a perfectionistic individual with high self-efficacy does not engage in dramatic attempts to escape aversive self-awareness when confronted with a discrepancy between perfectionistic bodily standards and a body that falls short of such standards. To the contrary, Arnold sought out situations that would promote self-focus in order to facilitate reducing his body discrepancies. For example, in his autobiography (Schwarzenegger & Hall, 1977), Arnold said, “Personally, I prefer to train in as few clothes as possible so I can see my faults. I try to see the specific areas that have fallen behind or that I’ve neglected. I like to expose them so I have to look at them all the time. For instance, in the beginning my calves were underdeveloped. When I understood how really weak they were, I cut the bottoms off my pants so everybody would see. And that made me eager to train hard and build them up. . . . It’s very important that you expose your weaknesses, that you constantly point them up to yourself. Let the mirror be your reminder” (pp. 161–162). Given Arnold’s extraordinarily high sense of self-efficacy, his advice to seek out self-focusing cues, such as a mirror, to be a reminder of your weaknesses is wholly consistent with Carver et al.’s (1979) results that self-awareness in the face of a discrepancy that is perceived as reducible is not so aversive and may facilitate attempts to reduce the discrepancy.

This anecdote vividly illustrates that far from avoiding self-focus, an individual with high self-efficacy actually may seek it out when perceiving bodily flaws, even “glaring weaknesses,” in order to remedy the flaws and thereby attain perfectionistic bodily goals. In contrast, a perfectionistic individual with low self-efficacy who is dissatisfied with her body may try to avoid self-awareness or self-focus at all costs because it is so aversive. The last thing such an individual would want is to seek out a mirror to be a reminder of bodily flaws. Such an individual may divert behavior to trying to reduce the overwhelming negative emotion and aversive self-awareness engendered by falling short of her high bodily standard that she believes she never can attain. Ironically, such an attempt to escape from aversive self-awareness and negative emotion may take the form of an eating binge for a bulimic individual. Is there evidence that negative emotions and aversive self-awareness do precipitate eating binges among bulimic individuals?

Aversive Emotional States and Binge Eating

Considerable empirical and clinical evidence suggests that negative emotional states do precipitate eating binges (e.g., Abraham & Beaumont, 1982; Beebe, 1994; Herman & Polivy, 1975; Johnson, Stuckey, Lewis, & Schwartz, 1982; Schotte, Cools, & McNally, 1990). For example, Johnson et al. (1982) surveyed by mail women who met binge eating criteria for bulimia and who had contacted a medical center because of disturbed eating. They found that 40% of the 316 women in their sample attributed the onset of bulimia to problems coping with negative emotions such as depression, loneliness, boredom, and anger. Abraham and Beaumont (1982) interviewed 32 binge eating patients and found that all of them reported typically feeling anxious and tense before a binge. Internal feelings of tension, boredom, and loneliness were endorsed as precipitants to binge eating episodes by at least 59% of the patients. Finally, in a series of laboratory studies, Heatherton, Streepe, and Wittenberg (1998) found that negative mood states implicating the self-promoted excessive eating among chronic dieters.

The emotion regulation (Tice et al., 2001) and escape (Heatherton & Baumeister, 1991) theories suggest that people engage in behavior that is self-defeating over the long run in order to decrease current aversive mood states, so it is important to additionally know whether or not binge eating reduces negative emotion and aversive self-awareness. Beebe’s (1994) summary of studies of self-reported affective changes across the binge–purge cycle indicates that the high levels of anxiety and general emotional distress that appear to precipitate eating binges often are alleviated temporarily during the binge episode. Similarly, in their study of the temporal changes in affective states associated with bulimic behaviors, Tachi, Murakami, Murotsu, and Washizuka (2001) reported that irritation, frustration, and depression were alleviated during binging. Further, Abraham and Beaumont (1982) found that the majority of their bulimic subjects reported feelings of depersonalization and derealization during eating binges. Finally, most of these bulimic individuals also reported ex-
experiencing a reduction in negative emotion during the binge. Thus, initial evidence based mainly on self-report suggests that binge eating may indeed provide relief, albeit temporary, from negative emotions and aversive self-awareness for bulimic individuals. However, future research employing other methods will be important to more fully characterize the mental state during a binge and to determine if binge eating truly leads to a state of cognitive deconstruction and, in turn, a reduction in aversive self-awareness as featured in Heatherton and Baumeister’s (1991) escape theory of binge eating (see Curtin & Fairchild, 2003, for the ingenious use of event-related potential, ERP, measures to assess cognitive functions following alcohol intoxication, another hypothesized form of escape).

The Choice of Binge Eating as an Escape Route

But why would a bulimic individual select the very behavior, binge eating, that so conflicts with her long-term perfectionistic bodily goals to try to escape aversive self-awareness and emotion? Given that there are multiple ways to escape from aversive self-awareness and negative emotion, why wouldn’t such an individual select a form of escape that does not undermine attainment of her long-term perfectionistic weight goals? Consider six factors that may increase the likelihood of choosing binge eating as an escape route and how these factors likely characterize bulimic individuals (see Bardone-Cone et al., 2004).

First, differences in the reward value of food and eating may partly explain the choice of binge eating. That is, individual differences in the degree to which eating “soothes” negative feelings and promotes a state of cognitive deconstruction are relevant to the choice of escape. For example, individuals who are relatively indifferent to food (i.e., enjoy it in a natural way and don’t “get into” food or eating), binge eating may not be an effective escape route because eating likely would not lead to cognitive deconstruction and reduction of distress. In contrast, individuals who greatly enjoy food and find food highly reinforcing in reducing negative feelings/thoughts may be especially likely to turn to food in response to these aversive states. Bulimic individuals often diet (Heatherton & Polivy, 1992), which suggests that they do find food reinforcing (which may be why they need to diet). In this regard, Stice (2001) speculated that the reinforcement value of food may be especially high for bulimic individuals (possibly mediated by dopaminergic or serotonergic systems). An interesting avenue for future research would be exploration of activity in regions of the brain implementing approach behavior (e.g., Davidson, Jackson, & Kalin, 2000) in bulimic and nonbulimic individuals when food is presented.

Second, individual differences in expectancies that eating will provide a temporary escape from thinking about the self and feeling badly ought to influence choice of escape route. Those who expect that eating can soothe emotional distress should be especially likely to overeat to regulate negative emotion. Accordingly, recall that Tice et al. (2001) manipulated people’s beliefs about the potential comfort value of food and found that distressed people overate when they believed that eating would alleviate their distress but not when they had been disabused of this belief by the experimenter. Evidence suggests that bulimic individuals indeed hold expectancies that eating can reduce distress. For example, Smith, Hohlstein, and Atlas (1989) reported that individuals with eating disorders held food-related expectancies such as “Eating can help me bury my emotions” and “Eating helps me forget or block out negative feelings like depression.” In addition, Bardone, Jaffee, Krahn, and Baker (1996) found that approximately 60% of their clinical sample of bulimics reported “very typically” using a binge to numb their feelings.

Third, modeling may affect the choice of escape method. Individuals from families in which children observed a parent turn to food for emotional relief may be likely to select eating as the escape route from negative emotions. In this regard, Pike and Rodin (1991) found that mothers of eating disordered daughters were more eating disordered themselves than mothers of noneating disordered daughters. However, there currently are no studies looking directly at parental modeling above and beyond or separate from genetic influences (e.g., adoption studies). Studies investigating peer modeling find some evidence that peers’ disordered eating is associated with individuals’ bulimic symptoms (Crandall, 1988; Stice, 1998).

Fourth, in contrast to alcohol and illicit drugs, food does not involve legality issues. Also, compared with excessive alcohol and drug use (which could increase risk for unwanted sexual experiences, accidents, etc.), binge eating is less likely to put one in harm’s way. The subset of women who are high in harm avoidance and low in general impulsivity, but seeking escape from aversive self-states, would be more likely to choose binge eating than other forms of substance use as an escape behavior. Significant comorbidity exists between bulimia and substance abuse (Herzog, Nussbaum, & Marmor, 1996), and it may be that individuals who both binge eat and drink excessively are those who are less harm avoidant and more impulsive or who are especially desperate to escape.

Fifth, dieting may stack the deck in favor of choosing binge eating as an escape behavior. Supporting this hypothesis, Polivy and Herman (1985) argued that dieting increases the likelihood of binge eating based on evidence that dieting precedes binge eating in diverse study designs including studies of binge eaters (e.g., Pyle, Mitchell, & Eckert, 1981), human starvation (Keys, Brozek, Henschel, Mickelsen, & Taylor, 1950), and animals (Coscina & Dixon, 1983). Dieters place themselves in a constant state of deprivation, especially from attractive foods that they consider “bad”
or "forbidden" (e.g., desserts). In a state of deprivation and self-imposed hunger, food can become even more appealing and salient. It also may be that for many dieters, food and eating have a high reward value to begin with (which is why they need to diet), making food that much more appealing. In addition to the other factors likely to promote selection of binge eating as a means to escape negative emotion and aversive self-awareness, bulimic individuals also exhibit dieting. For example, bulimic individuals typically engage in dieting between binges (American Psychiatric Association, 2000; Heatherton & Polivy, 1992). Moreover, studies have shown that dieting predicted onset of bulimic symptoms (e.g., Stice, Killen, Hayward, & Taylor, 1998).

Finally, because bulimia and binge eating are predominantly experienced by women, it is important to ask why women would choose binge eating over other escape routes such as alcohol abuse. Wilson, Brick, Adler, Cocco, and Breslin (1989) indicated that alcohol did not reduce self-awareness nor reliably reduce anxiety for female social drinkers. They suggested that alcohol may be a less effective means of escaping negative emotion and aversive self-awareness for women than men, thus making alcohol a less appealing escape route for women. However, some evidence suggests that women may turn from binge eating to alcohol for escape if they reduce the behavior of binge eating without developing more adaptive ways to cope with the aversive emotional states that motivate some sort of escape (i.e., "symptom substitution"; Yager, Landsverk, Edlestein, & Jarvik, 1988).

In sum, these six factors may increase an individual's likelihood of choosing binge eating as a preferred route to escape from negative emotions: high reward value of food, high expectancies that eating can assuage negative emotional states, exposure to models who eat to assuage negative emotional states, legality of obtaining and eating food, dieting, and being female. Many, if not all, of these factors characterize bulimic individuals. Thus, the deck seems to be stacked against bulimic individuals when they are overwhelmed with negative emotion and they want to escape. Such individuals exhibit the very characteristics likely to make eating, and even binge eating, the preferred escape route from negative emotion, even though it so profoundly sabotages their long-term perfectionistic body standards.

Three Patterns of Eating to Reduce Negative Emotion and Aversive Self-Awareness

Whereas some individuals seeking to escape from negative emotion and aversive self-awareness by eating may embark on a full-blown eating binge right off, others initially may begin to eat in a way that is qualitatively different from mealtime eating (i.e., eating to distract or zone out instead of to satisfy hunger) but not yet quantitatively equal to a binge. For this latter group of individuals, the initial "distractive" eating to relieve negative emotion and aversive self-awareness may escalate into a full-blown binge. Specifically, through this distractive eating, awareness is reduced to the immediate, concrete motions and sensations of tasting, chewing, and swallowing. More importantly, meaningful thoughts about the self are banished. In short, the deconstructed cognitive state of low self-awareness will emerge from the absorbing activity of eating. Although low self-awareness will provide relief from negative emotion and cognitions, it also will further interfere with self-regulation of eating because an individual in a state of cognitive deconstruction no longer will be comparing current behaviors to standards. Individuals who normally inhibit eating (i.e., restrained eaters; Herman & Mack, 1975) may experience the removal of restraints and the disinhibition of eating in this state of cognitive deconstruction. Such disinhibited eating may escalate into a full-blown binge among restrained eaters. In contrast, binge eating should not be disinhibited among unrestrained eaters (i.e., individuals who are not inhibiting eating) who engage in distractive eating to escape from aversive self-awareness and negative emotion. Instead, for these individuals, distractive eating may provide an escape, although perhaps only temporary, from negative emotions that does not escalate into a full-blown binge.

Thus, three distinct patterns of eating to escape from negative emotions and aversive self-awareness may exist. In the first, individuals respond to negative emotion with a full-blown binge. In the second, individuals, particularly restrained eaters, respond to negative emotion with distractive eating that escalates into a full-blown binge. Finally, in the third, individuals respond to negative emotion with distractive eating that does not escalate into a binge. The first two patterns may be particularly troublesome.

RESOLUTION OF THE PARADOX OF PERFECTIONISM AND BULIMIA: A RECAPITULATION

Our integration of work on bulimia with theories and research on self-regulation provides a resolution of the intriguing paradox of perfectionism and binge eating among bulimic individuals. We first presented the three-factor theory and evidence supporting it suggesting that highly

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1To our knowledge, "distractive" is not a proper word, but it captures our intended meaning of eating in order to distract.
perfectionistic individuals with low self-efficacy are especially likely to exhibit bulimic symptoms when they perceive themselves to be overweight or are dissatisfied with their bodies. Then to explain why such individuals engage in bulimic behaviors, we expanded on Heatherton and Baumeister’s (1991) escape theory of binge eating and suggested that individuals exhibiting the cognitive/personality profile associated with bulimia in the three-factor model (high perfectionism paired with low self-efficacy) may become overwhelmed by negative emotion, aversive self-awareness, and self-loathing when they believe they cannot meet their perfectionistic standards (e.g., when they perceive themselves to be overweight or are dissatisfied with their bodies). In these situations, such individuals are so distressed that they temporarily may abandon pursuit of their long-term goals (e.g., pursuit of the perfect body weight and shape) to divert behavior to the immediate goal of trying to decrease their negative emotion and aversive self-awareness (Tice et al., 2001). If such individuals exhibit factors biasing them to select binge eating as a preferred escape route (e.g., high reward value of food, high expectancies that food will assuage negative emotions, etc.), then they will turn to eating, and even overeating, to relieve distress. According to this view, then, binge eating among bulimic individuals represents a short-term strategy for attempting to regulate negative emotion and an aversive sense of self that is self-defeating over the long run (see Baumeister & Scher, 1988).

When Does the Three-Factor Profile Not Lead to Bulimia?

The resolution of the paradox of perfectionism and bulimia implies that there will not be a perfect mapping between the three-factor profile (high perfectionism, low self-efficacy, perceptions of being overweight or body dissatisfaction) and display of bulimic symptoms. As described earlier, an individual with this profile might not exhibit the factors biasing toward selection of binge eating as a preferred route to escape negative emotion (e.g., high reward value of food). Instead, some individuals with the three-factor profile may be biased to select another type of escape from negative emotion. For example, an individual who finds the effects of alcohol pleasant and grew up in a home with alcoholic parents who drank when stressed may turn to alcohol to escape negative emotion. Of course, the possibility exists that some individuals exhibiting the three-factor profile may be biased toward more than one escape behavior (e.g., binge eating and drug abuse). This scenario is consistent with the significant comorbidity of bulimia and other maladaptive behaviors, such as substance abuse and self-mutilation, that have been hypothesized to provide temporary escape (e.g., Dansky, Brewerton, & Kilpatrick, 2000; Garfinkel & Garner, 1982; Holderness, Brooks-Gunn, & Warren, 1994).

Also consider that not all individuals exhibiting the three-factor profile may be motivated or able to divert behavior to the short-term goal of affect regulation when distressed. In this regard, Abramson and Alloy (1981) speculated that depressed individuals may suffer from a breakdown or absence of the motivation to maintain self-esteem. Following this line of reasoning, there may be a subset of individuals exhibiting the three-factor profile who become depressed (or anxious) but who do not go the additional step of engaging in some behavior to escape their negative emotions. Such individuals would suffer from "pure" more persistent depression or anxiety. Perhaps these individuals are less impulsive than their counterparts who engage in dramatic attempts such as binge eating, substance abuse, or self-mutilation to escape their negative emotions.

Alternative Accounts of Bulimic Symptoms in Response to Negative Emotions

It is worth noting that two alternative accounts exist of why bulimic symptoms tend to occur in the presence of negative emotion. Although related, each is different in important ways from the expanded escape theory view presented here. One account, the disinhibition theory, suggests that negative emotion serves to inhibit dietary restriction (e.g., Herman & Polivy, 1980; Stice, 2001). According to this theory, negative emotion interferes with the cognitive control of eating such that impulses to eat no longer are held in check. Although similar to the expanded escape theory in highlighting the role of negative emotion as a proximal cause of binge eating, the two theories differ because our expanded escape theory further posits that individuals prone to bulimia binge eat in order to reduce distress. In contrast, binge eating serves no strategic function in disinhibition theory. It has been argued elsewhere (Bardone-Cone et al., 2004) that Heatherton and Baumeister’s (1991) original escape theory of binge eating actually is a hybrid escape–disinhibition theory. Note that the hypothesis that distracting eating may escalate into a full-blown binge among restrained eaters relies on disinhibition of eating due to cognitive deconstruction. However, the escalation of distracting eating to a full-blown binge is in the escape theory genre because the initial distracting eating is a strategic attempt to relieve negative emotion and aversive self-awareness.

Related to the disinhibition idea, Baumeister and Heatherton (1996) invoked the concept of self-regulatory strength as a limited resource to provide another explanation of why emotional distress may precipitate episodes of self-regulatory failure (e.g., binge eating by a person with highly perfectionistic weight and body shape goals). According to this idea, when people are emotionally distressed, they deplete their regulatory resources dealing with their distress, which in turn leaves them unable to ef-
fectively regulate behavior to achieve their long-term goals (e.g., a slim body). Thus, this theory suggests that emotional distress reduces the capacity for self-regulation in the service of long-term goals. As with the disinhibition theory, binge eating serves no strategic function in this depleted capacity account of self-regulation failure.

A challenge for future research will be to empirically distinguish among our expanded escape theory and the disinhibition and depleted capacity accounts of binge eating among individuals exhibiting the three-factor profile. The results presented supporting this model do not distinguish among the three theories. None of the studies tested whether binge eating, in fact, was a strategic attempt to reduce distress as opposed to being the result of disinhibition or depleted self-regulatory capacity due to the distress. Work disentangling these theories promises to be important.

CLINICAL IMPLICATIONS

Identification of the three-factor profile (high perfectionism, low self-efficacy, perceptions of being overweight or body dissatisfaction) predictive of bulimic symptoms has implications for the treatment and prevention of bulimia. The fact that these three factors interact (i.e., a three-way interaction) to predict bulimic symptoms suggests that altering any of them will alter the likelihood of bulimic symptoms. This provides flexibility in where to focus therapeutic and preventive efforts (Bardone-Cone, Vohs, Abramson, Heatherton, & Joiner, 2000).

However, we suggest that modification of some of the targets may be more defensible than modification of others. In particular, as the anecdotes from Arnold Schwarzenegger's autobiography vividly illustrated, the high standards inherent in perfectionism, in and of themselves, may not be bad, which is a harder stance to argue for low self-efficacy. Decreasing perfectionism may have the undesirable side effect of putting a ceiling on achievement and accomplishments. As emphasized in this chapter and argued elsewhere (Abramson et al., 2002), perfectionism may be a problem only when it is paired with low self-efficacy and/or low ability. When perfectionism is paired with high self-efficacy and/or high ability, it may be an asset. Thus, it may be more appropriate to focus therapeutic and preventive efforts on increasing self-efficacy and abilities rather than on decreasing perfectionism, unless the perfectionism is extremely rigid or completely unrealistic (but who is to say whether an individual's standards are unrealistic?). This approach to intervention is consistent with the general argument of Kraemer et al. (2001) that selection of appropriate targets of intervention must be based on knowledge of how risk factors work together (e.g., perfectionism is a problem only in the context of other risk factors such as low self-efficacy). From this perspective, it would be inappropriate, and prohibitively expensive, to target all perfectionistic adolescent females in a prevention program for bulimia because perfectionism only predicts bulimia when it is paired with low self-efficacy and perceptions of being overweight or body dissatisfaction.

The expanded escape theory that we have developed has additional therapeutic implications related to the escape component itself (Bardone-Cone et al., 2004). Specifically, the following interventions should reduce the likelihood that individuals will engage in binge eating to escape from negative emotion and aversive self-awareness: increase the repertoire of skills to cope with negative emotions and cognitions to include more effective problem-solving skills and/or healthy distractions/escape behaviors; increase ability to tolerate negative emotion so that a dramatic escape like binge eating is not required; decrease the tendency to give priority to short-term emotion regulation over other more long-term self-regulatory goals; educate about the association between chronic dieting and binge eating, encourage moderate eating, and discourage the mentality of good versus bad foods; and provide family therapy to address family modeling and dynamics that may be supporting binge eating. Interventions promoting increases in both perceived and actual self-efficacy will likely have the desirable consequence of promoting the goals described in the first three interventions. As individuals increase their perceived and actual self-efficacy, they will feel and be empowered to resolve discrepancies and, thus, will suffer less negative emotion, aversive self-awareness, and self-loathing when encountering discrepancies. In turn, they should be less motivated to give priority to short-term emotion regulation over other more long-term goals and less motivated to seek dramatic, maladaptive escapes from negative emotion and aversive self-awareness.

According to our theoretical perspective (see Bardone-Cone et al., 2004), interventions that seek only to decrease binge eating (e.g., strictly behavioral therapies) but fail to address the factors giving rise to binge eating (e.g., low self-efficacy, inability to tolerate negative emotion, etc.) might encourage "symptom substitution." If the same pre-conditions for a binge remain following therapy focused on binge eating per se, individuals theoretically still would be motivated to escape and may turn to other means of escape, benign or maladaptive (Yager et al., 1988). Such "at risk" individuals who do not choose substitute escapes like drug abuse because they are low in harm avoidance likely would remain in aversive states longer and may develop more severe, persistent symptoms of anxiety and depression. Thus, interventions that do not address the factors giving rise to binge eating will leave individuals likely to seek
alternative maladaptive escapes from negative emotion or more depressed and anxious.

This chapter has integrated work on bulimia with theories and research on self-regulation to resolve the intriguing paradox of perfectionism and binge eating among bulimic individuals. The resolution emphasized that perfectionism is not always bad and does not inevitably lead to bulimia or maladjustment. Instead, the three-factor model and empirical work testing it showed that it is the combination of high perfectionism and low self-efficacy that provides risk for bulimic symptoms when perfectionistic standards (e.g., for weight and body shape) are not met. Individuals with high perfectionism and low self-efficacy may be especially likely to resort to binge eating in a desperate attempt to decrease overwhelming negative emotion, aversive self-awareness, and self-loathing when they feel helpless to meet their perfectionistic standards. According to this view, binge eating among bulimic individuals represents a short-term strategy for attempting to regulate negative emotion and an aversive sense of self that is self-deceiving over the long run.

The view that perfectionism is not necessarily maladaptive, and indeed can be very adaptive, is consistent with emerging work in clinical (e.g., Alden, Ryder, & Mellings, 2002) and social (e.g., Campbell & Di Paula, 2002) psychology, suggesting that the context in which perfectionism occurs determines whether it is deleterious. The profile of high perfectionism and low self-efficacy/low abilities is psychologically toxic, whereas the profile of high perfectionism and high self-efficacy/high abilities is not and may well fuel superior achievement. Consistent with the perspective that perfectionism sometimes is psychologically beneficial and other times deleterious, some writers have distinguished between “good” and “bad” perfectionism—for example, normal versus neurotic perfectionism (Hamberek, 1978); positive achievement strivings versus maladaptive evaluation concerns (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993); positive versus negative perfectionism (Terry-Short, Owens, Slade, & Dewey, 1995); healthy versus unhealthy perfectionism (Terry-Short et al., 1995); and satisfied versus dissatisfied perfectionism (Slade & Dewey, 1996).

Early views emphasizing that perfectionism is inherently bad and almost inevitably linked to psychopathology (e.g., Pacht, 1984) were likely grounded in clinical observation without benefit of research on “normal” and “superior” individuals. Indeed, many patients with psychological disorders, especially eating disorders, do exhibit high levels of perfectionism (see Shafran & Mansell, 2001), so it is not surprising that clinicians would come to vilify perfectionism. What is understandably harder for clinicians to see, given that they rarely do therapy with individuals who do not have problems, is that it is the context in which perfectionism occurs that determines whether it is deleterious to psychological health. As the case history of Arnold Schwarzenegger so vividly illustrated, perfectionism paired with high self-efficacy and high abilities may promote high, and even extraordinary, achievement with no maladjustment. The clinician does not have the opportunity to observe high achieving, well-adjusted perfectionists because such individuals do not seek treatment (see Dykman & Abramson, 1990, and Dykman, Abramson, Alloy, & Harklage, 1989, for a discussion of parallel “baseline” problems in early clinically based formulations of information-processing biases and depression that were not informed by relevant basic work in psychology on normal human cognition). This chapter has shown that the paradox of perfectionism and bulimia can be resolved by integrating work on bulimia with contemporary theory and research in social and personality psychology.

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13. BULIMIA


Cognitive Vulnerability to Anorexia Nervosa

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Anorexia nervosa has been a psychiatric diagnosis for many years; however, it was not until the past two decades that it commanded widespread interest in mainstream psychology, psychiatry, and allied professions (Theaner, 2004). One reason for this interest is recognition of its significant health consequences. Anorexia nervosa is estimated to be the third most common chronic medical illness in girls age 15–19 (Lucas, Beard, O’Fallon, & Kurland, 1991). It is associated with significant medical complications (Becker, Grinspoon, Kibanski, & Herzog, 1999) and mortality rates exceed the expected incidence of death from all causes among women age 15–24 by 12-fold (Sullivan, 1995).

Early conceptualizations of anorexia nervosa from a cognitive perspective were based on clinical literature indicating that abnormal attitudes toward food and weight are common and persistent features in anorexia nervosa, greatly interfering with full recovery from the disorder. Dally and Gomez (1979) observed that “these attitudes are the most distressing and long-lasting features of anorexia nervosa . . . and are likely to continue or recur in situations of crisis for many years” (pp. 134–135). Theaner (1970) reported that virtually no patients in his follow-up study were free from “neurotic fixations” on body weight. Awareness of these earlier observations, as well as clinical experience, led to the proposal of an approach to cognitive behavioral therapy for anorexia nervosa (Garner & Bemis, 1982, 1985) following Beck’s (1976) model for other emotional disorders.