

## Binge Eating as Escape From Self-Awareness

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This article proposes that binge eating is motivated by a desire to escape from self-awareness. Binge eaters suffer from high standards and expectations, especially an acute sensitivity to the difficult (perceived) demands of others. When they fall short of these standards, they develop an aversive pattern of high self-awareness, characterized by unflattering views of self and concern over how they are perceived by others. These aversive self-perceptions are accompanied by emotional distress, which often includes anxiety and depression. To escape from this unpleasant state, binge eaters attempt the cognitive response of narrowing attention to the immediate stimulus environment and avoiding broadly meaningful thought. This narrowing of attention disengages normal inhibitions against eating and fosters an uncritical acceptance of irrational beliefs and thoughts. The escape model is capable of integrating much of the available evidence about binge eating.

Overeating has long been an accepted aspect of human behavior. The ancient Roman orgiastic binges are well known, and today's holiday feasts likewise reflect both the social norms favoring heavy eating and the frequent personal enjoyment of hypersatiety. Some individuals, however, eat prodigiously until they become obese or otherwise threaten their physical well-being. Recent conceptualizations of pathological overeating range from the disinhibited (or binge) eating of the chronic dieter to the voluminous eating of those suffering from bulimia nervosa. Although the patterns, motivations, and implications of underlying psychopathology may vary, these individuals do share the central characteristic of periodically consuming vast quantities of food.

In many cases, the overeating may be a paradoxical consequence of attempts at caloric restriction, including dieting (Abraham & Beumont, 1982; Polivy & Herman, 1985, 1987; Ruderman, 1986; Williamson, 1990). Losing weight is the most common motivation behind dieting, yet diets are rarely successful at achieving lasting weight loss (Heatherton, Polivy, & Herman, 1991; Polivy & Herman, 1983; Stunkard & Pennick, 1979; Wilson & Brownell, 1980). Many dietary failures occur because occasional bouts of disinhibited eating cancel out efforts at caloric restriction.

Although the environmental factors that trigger disinhibited eating are well-known (including emotional distress, caloric preloads, and cognitive persuasion; see Heatherton, Polivy, & Herman, 1990; Ruderman, 1986), little is known about the causal processes involved in disinhibition. The purpose of this article is to examine the view that binge eating may result from a motivated shift to low levels of self-awareness (Baumeister, 1990a; Carver & Scheier, 1981; Vallacher & Wegner, 1985, 1987).

### Definitions and Scope of Coverage

Bulimia nervosa refers to an eating disorder characterized by frequent bouts of overeating and the habitual use of vomiting or laxatives to compensate for the binges (Russell, 1979). Bulimia (literally, "ox hunger") is commonly believed to be a modern phenomenon, although there are occasional references to bulimic behaviors as early as A.D. 130, and reports of bulimia were relatively well known by the 1800s (Stein & Laakso, 1988). Still, the recent surge of bulimic behaviors surpasses anything recorded in past eras, and bulimia has been called the "disease of the eighties" (Polivy & Herman, 1985).

We use the term *bulimia* to refer specifically to the eating disorder identified in the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev., or *DSM-III-R*; American Psychiatric Association [APA], 1987). Its diagnostic criteria for bulimia nervosa include (a) recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time), (b) a feeling of lack of control over eating behavior during these eating binges, (c) regularly engaging in self-induced vomiting, use of laxatives or diuretics, strict dieting or fasting, or vigorous exercise in order to prevent weight gain, (d) a minimum average of two binge eating episodes a week for at least 3 months, and (e) persistent overconcern with body shape and weight.

We use the term *binge eating* to refer to eating that results from disinhibition of dietary restraints, regardless of whether it is part of a broader pattern of bulimia. Individuals who undertake restrictive diets have been shown to engage in disinhibited eating under a wide variety of circumstances (Heatherton et al., 1990; Polivy & Herman, 1985; Ruderman, 1986). The characteristic behavioral and personality traits of chronic dieters are in many cases similar to those of bulimics (Agras & Kirkley, 1986; Davis, Freeman, & Garner, 1988; Greenberg & Harvey, 1986; Kirkley, Burge, & Ammerman, 1988; Polivy & Herman, 1985, 1987; Polivy, Herman, Olmsted, & Jazwinski, 1984; Ruderman, 1985b; Ruderman & Grace, 1987, 1988; Vanderheyden, Fekken, & Boland, 1988). Still, not all binge eaters are bulimics, nor is the difference merely one of degree. Bulimics

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are more likely than other binge eaters to show signs of pathology apart from eating (Charnock, 1989; Polivy & Herman, 1987; Polivy, Herman, Olmsted, & Jazwinski, 1984; Ruderman & Grace, 1987, 1988), and there is general agreement that considerable discontinuity exists between bulimia nervosa and the binge eating of dieters (Charnock, 1989; Duchman, Williamson, & Stricker, 1989; Polivy, 1989; Polivy & Herman, 1987, 1989; Ruderman & Grace, 1988). This review draws on both studies of bulimics and studies of dieters, but we hasten to acknowledge that important differences (such as pathology) may exist between the two groups. Still, our interest is in binge eating, and insofar as both dieters and bulimics engage in binge eating, both are useful for evaluating our theory and hypotheses. The differences between dieters and bulimics are largely irrelevant to our hypotheses. One may make the analogy to testing hypotheses about courage with both firefighters and combat soldiers—both groups may provide useful information, despite their differences.

Colloquially, people may often refer to binge eating in reference to ordinary spurges of overeating, such as at holiday feasts. Although there are indeed some parallels between such indulgences and the problematic binge eating that is the focus here, we are reluctant to generalize between the two. It is plausible that common indulgences in overeating, when there is no context of chronic dietary restraint or any evidence of psychopathology, arise from a quite different set of motivations (such as norms for celebrations). Our focus is therefore limited to instances in which binge eating arises in response to a chronic pattern of restrained eating.

This article is not intended as a review of all the literature pertaining to binge eating or bulimia. (Indeed, such an exhaustive review may be impossible; the PsycLIT computer data base lists more than 1,000 journal articles on these topics published from 1983 to 1989.) Rather, it is focused on research studies relevant to our hypotheses regarding escape from self-awareness, and it does aim to be comprehensive with regard to those. (Readers seeking a comprehensive coverage of the eating literature are referred to Brownell & Foreyt, 1986; Johnson & Connors, 1987; Schlesier-Stropp, 1984; Williamson, 1990).

### *Prevalence of Bulimia and Binge Eating*

It is surprisingly difficult to estimate the prevalence of bulimia and binge eating because different studies have used different definitions and different sampling methods. Reports of the prevalence of binge eating behaviors have ranged between 3% and 90% of the female population and from 1% to 64% of the male population (Connors & Johnson, 1987). The prevalence of genuine bulimia is most likely between 4% and 8% of females (in their late teens or early twenties) and 2% or less of males (APA, 1987; Connors & Johnson, 1987; Schlesier-Stropp, 1984; Thelen, Mann, Pruitt, & Smith, 1987). Fairburn and Beglin (1990) have recently demonstrated that epidemiological studies that have used sophisticated research methods and more stringent criteria (i.e., the *DSM-III-R* rather than *Diagnostic and statistical manual of mental disorders* [3rd ed., or *DSM-III*; APA, 1980] criteria) have found the prevalence rate of bulimia to be around 1%.

Some populations may be especially vulnerable to bulimia

and therefore show higher rates than the 1%–8% figures. Herzog, Norman, Rigotti, and PePOSE (1986) concluded that 12% of female medical, business, and law students met the criteria for bulimia, and Killen, Taylor, Telch, Robinson, et al. (1987) reported that 10.3% of 10th-grade females in northern California met them. In the latter study, an additional 10.4% reported less serious purging behavior aimed at weight control. The typical bulimic has consistently been reported as a White, single, college-educated, middle-class or upper-class woman in her early to midtwenties (Johnson, Lewis, & Hagman, 1984). Recent evidence, however, has found increasing incidence of bulimia among lower classes, suggesting that the pattern may be spreading through the socioeconomic hierarchy (Gowers & McMahon, 1989; Gross & Rosen, 1988; Lachenmeyer & Munibrander, 1988; Pope, Champoux, & Hudson, 1987). Binge eating is undeniably more common than bulimia (Connors & Johnson, 1987).

Generally, women have been found to be more prone to bulimia than men (Lundholm & Anderson, 1986). Although this difference is probably caused by different sex role socialization and pressures (Polivy, Garner, & Garfinkel, 1986; Striegel-Moore, Silberstein, & Rodin, 1986), it may also reflect stronger tendencies for men (than for women) to underreport bulimic patterns (Pope & Hudson, 1986).

Binge eating often occurs in the context of dieting. Dieting has become so common in modern society that some consider it a normative pathology (see Polivy & Herman, 1987; Striegel-Moore, Silberstein, & Rodin, 1986). Dieting behaviors and pro-dieting attitudes are consistent and widespread (Connors & Johnson, 1987). For example, Huenemann, Shapiro, Hampton, and Mitchell (1966) found that twice as many girls believed they were overweight than actually were overweight, and by the 12th grade more than one half of the girls reported dieting to lose weight. More recent estimates of dieting behavior are even higher. Hawkins, Turell, and Jackson (1983) found that 80% of girls (but only 10% of boys) reported having been on a diet before age 13. Jakobovits, Halstead, Kelley, Roe, and Young (1977) found that up to 77% of college women described themselves as dieters. Thus, dieting behaviors are widespread among females and begin at very early ages.

In spite of the increased emphasis on dieting, the percentage of those who are obese has increased (slightly) from 1960 to 1980 (Foreyt, 1987). Part of the problem may be that dieters often display disinhibited binge eating (Polivy & Herman, 1987). In laboratory studies, chronic dieters have shown disinhibited eating in response to several factors (Heatherton et al., 1990; Ruderman, 1986). Because of ethical constraints, it is difficult to examine the determinants of eating in bulimic patients with any methods other than self-reports, and self-reports are subject to bias and distortion. For that reason, the laboratory behavior of chronic dieters may be the best available analog to understanding binge eating and bulimia, and we have relied on these studies at several points. It is, however, necessary to be cautious in generalizing between bulimics and laboratory samples drawn from the normal population.

### *The Puzzle of Binge Eating*

The remarkable aspect of both bulimia and dieting is that individuals who are attempting *not* to eat at all, or to eat only a

bare minimum, sometimes engage in binge eating that thwarts their efforts to restrain their eating. Although there are multiple theories about bulimia, most researchers would agree that dieting or restrained eating plays a central role in the initial expression of the bulimic syndrome (Abraham & Beumont, 1982; Agras & Kirkley, 1986; Davis et al., 1988; Garfinkel & Garner, 1982; Johnson & Connors, 1987; Polivy & Herman, 1985, 1987; Rosen, Tacy, & Howell, 1990; Russell, 1979; Wardle & Beinart, 1981; Williamson, 1990). Bulimics and other binge eaters are typically very concerned about their physical attractiveness and are actively trying to modify their body shape (APA, 1987). Despite their concern for their appearance, these individuals are more likely to overeat than are individuals who are less concerned with their body shape.

Another piece of the puzzle is that binge eating is a more common problem among women than among men. Women have generally been more likely to suffer from eating disorders than have men (cf. Gross & Rosen, 1988). Thus, any theoretical account of binge eating must be able to account for the apparent gender difference.

In short, binge eating is a paradoxical, self-defeating pattern of behavior. Most specifically, it occurs amid a general effort to restrict eating, so it contradicts and undermines the individual's current goals and projects. More generally, it may thwart the individual's attempt to make him- or herself attractive by achieving a slim figure. In addition, binge eating, especially in alternation with periods of severely restricted eating, is often regarded as medically unhealthy (Mitchell & Pyle, 1988). When abuse of laxatives or self-induced vomiting is involved in combination with binge eating, the medical effects may be sufficiently harmful that one may regard the pattern as self-destructive (Williamson, 1990).

Self-defeating or self-destructive behavior is paradoxical because it contradicts the presumed rationality of human behavior. One review of self-defeating behavior (Baumeister & Scher, 1988) concluded that normal people have not been shown to demonstrate a desire to harm or thwart themselves under any circumstances, so self-defeating behaviors that do occur must be understood as either counterproductive strategies (such as arising from misjudged contingencies) or inappropriate trade-offs such as accepting risks or harm while striving to achieve a short-term escape from an aversive awareness of self. In view of that evidence, it seems appropriate to examine binge eating for such motivations.

### *Escape Theory*

The central hypothesis of this article is that binge eating may often arise as part of a motivated attempt to escape from self-awareness. In this view, people sometimes find it burdensome and aversive to be aware of themselves, so they seek to escape (e.g., Duval & Wicklund, 1972; Wicklund, 1975). It is difficult, however, to simply turn off one's awareness of self. The common strategy is therefore to narrow the focus of attention to the present and immediate stimulus environment (e.g., Baumeister, 1989, 1990a, 1990b). This keeps self-awareness at a relatively low level and avoids meaningful thought about ongoing identity and the implications of various events.

Central to escape theory is the notion of multiple levels of

meaning, which are linked to multiple ways of being aware of oneself and one's activities (see Vallacher & Wegner, 1985, 1987; also Baumeister, 1990a; Carver & Scheier, 1981, 1982; Pennebaker, 1989). In this view, low levels of meaning involve narrow, concrete, temporally limited awareness of movement and sensation in the immediate present. High levels of meaning invoke broader time spans and broader implications. High levels also involve comparison of events (and the self) against broad standards such as norms and expectations (cf. Carver & Scheier, 1981; Duval & Wicklund, 1972). Attributions of enduring traits and dispositions are likewise broad, meaningful constructs that go beyond the present moment (Baumeister, 1990a). In contrast, one may be aware of self at low levels, where there is no meaningful comparison against general standards and no consideration of enduring traits (Vallacher & Wegner, 1985, 1987). At the lowest levels, self is reduced to body, experience is reduced to sensation, and action is reduced to muscle movement.

High levels of awareness are thus based on meaningful *constructs* that link immediate events to distal ones, whereas low levels of awareness may be considered as deconstructed. Indeed, a shift to low levels of awareness may be a means of removing long-range concerns and lasting implications from awareness. Deconstructing events strips them of their meaning or symbolism and leaves them as merely stimuli. The deconstructive process may be an appealing way to escape from worries, threats, and pressures.

Carver and Scheier (1981, 1982; see also Carver, 1979; W. T. Powers, 1973) applied the notion of multiple levels of meaning to self-awareness theory. In their account, people shift to lower levels of self-awareness when problems or setbacks arise, because problems are more easily corrected at lower levels. Otherwise, people prefer generally to be aware at high levels (see also Vallacher & Wegner, 1985, 1987). The shift to low levels may have benefits other than learning, however. By deconstructing events, low-level thinking removes any threatening or worrisome implications from awareness (Baumeister, 1990a), and so such shifts are exhibited by people who experience failure (Vallacher & Wegner, 1985, 1987) or other stresses (Pennebaker, 1989).

The notion of escaping the self by shifting levels of awareness has been applied to several other phenomena. Sexual masochism may accomplish escape by narrowing attention to immediate, intense sensations and by making the maintenance of normal identity temporarily impossible (Baumeister, 1988, 1989). Alcohol use may accomplish an escape from self-awareness by physically interfering with complex cognitive functioning, so that inhibitions and unpleasant implications are blotted out from awareness (Hull, 1981; Steele & Josephs, 1990). Even cigarette smoking may appeal to people as a low-level distractor that helps them to escape self-awareness (Wicklund, 1975). Suicidal behavior is often preceded by just such a period of narrow and rigid cognitive functioning that may well be sought as an escape from a highly aversive view of self brought on by recent setbacks or traumas (Baumeister, 1990b).

Of particular relevance is the effect on inhibitions. According to escape theory, inhibitions exist primarily at high levels of meaning. For example, the same muscle movements can be described as either making marks on paper (low level) or as cheating on an exam (high level); it is the latter that is objection-

able. A shift to low levels of awareness, therefore, deconstructs the troublesome meanings of such acts, thereby removing intrapsychic obstacles and making the person more willing to commit them (e.g., Wegner & Vallacher, 1986). Thus, the deconstructed cognitive state achieved during escape may be characterized by removal of various inhibitions (e.g., Baumeister, 1990a). Some evidence supports this view. Sexual masochists become more willing to engage in a wide variety of unconventional sexual acts, such as homosexuality (Baumeister, 1989). And the presuicidal state appears to overcome the individual's normal inhibitions against killing oneself (Baumeister, 1990b; see also Linehan, Goodstein, Nielsen, & Chiles, 1983).

The notion of escape from self-awareness can be applied to binge eating to furnish a series of predictions that can be tested against the available evidence. Specifically, each step in the escape model suggests one or more features that should be more true of binge eaters than of control subjects. We articulate these predictions in the following paragraphs.

The motivation to escape from self-awareness begins with a comparison of self against high standards or ideals. The higher the standards, the greater the likelihood of failure. A first prediction is therefore that binge eaters will be characterized by unusually high standards, including goals, perceived expectations, and ideals. These may refer specifically to expectations for body thinness, or they may encompass more general expectations for success, achievement, virtue, and popularity. They may also be either the person's own inner standards or the ones held by salient reference groups. Either way, the binge eater will feel that it will be difficult to live up to these standards.

Comparison of self against relevant standards is the essence of self-awareness (e.g., Carver & Scheier, 1981; Duval & Wicklund, 1972). Binge eaters should therefore show signs of high levels of self-awareness. Because these individuals evaluate themselves according to demanding criteria, they will tend to fall short periodically. As a result, their self-awareness will tend to be focused on personal inadequacies, faults, or other deficiencies, and it may be reflected in low self-esteem and in unflattering attributions about the self (such as blaming the self for failure). In short, the second prediction is that binge eaters should be characterized by high levels of aversive self-awareness.

The awareness of the self's shortcomings then creates negative affect, such as anxiety or depression (Higgins, 1987; also Carver & Scheier, 1981). Eating binges should therefore occur during or following a period of negative affect and unhappy moods, which are brought on by the comparison of self against standards.

To escape from the unpleasant feelings, the individual may resort to a cognitive shift designed to remove the troublesome thoughts and meanings from awareness. Cognitive narrowing (including deconstruction) uses a narrowed attention span focusing on the immediate present, concrete or low-level thinking, and a refusal of broadly meaningful thought (see Baumeister, 1989, 1990a; Pennebaker, 1989; Vallacher & Wegner, 1985, 1987).

The deconstructed state produces several consequences. Most relevant to binge eating are the removal of inhibitions and the proneness to irrational beliefs. The disinhibition occurs because stripping away meanings from possible actions (i.e., de-

constructing the acts) removes the inner obstacles to engaging in them. Irrational thought occurs because normal patterns of reasoning have been suspended, leaving a kind of mental vacuum. Because the person is reluctant to engage in meaningful thought, critical evaluation of novel ideas is less effective than usual.

In summary, binge eaters should be characterized by (a) high standards and expectations, (b) high and aversive self-awareness, (c) negative affect, (d) cognitive narrowing, (e) removal of inhibitions, and (f) irrational beliefs. We now examine the evidence about binge eating in relation to these predictions of escape theory.

## Review of Relevant Evidence

### *High Standards*

The first hypothesis is that binge eaters evaluate themselves in relation to high standards and demanding ideals. Accordingly, the prediction is that the goals, standards, and expectations of binge eaters should be unusually high. We first consider standards of bodily thinness and then turn to other standards.

*The stigma of obesity.* Dieting is often motivated by societal messages that it is undesirable to be overweight. It is necessary to begin our discussion with some evidence that society stigmatizes obesity and that binge eaters feel they need to be slim to be accepted socially.

Ample evidence suggests that modern Western society disparages the obese body shape. DeJong and Kleck (1986) reviewed the literature on body weight stereotypes and found that compared with slimmer peers, obese individuals are viewed as less intelligent, are less often chosen for friends, are thought to have fewer friends, and are stereotyped as lonely, shy, greedy for affection, and dependent on others. The link between an obese shape and social rejection is well established in their review (see also Allon, 1982).

Actual obesity is not a prerequisite for worrying about body-weight prejudice. The perception of a bias may be sufficient to alter self-perceptions (DeJong & Kleck, 1986; Striegel-Moore, McAvay, & Rodin, 1986). Mori, Chaiken, and Pliner (1987) have noted that women's eating behavior is affected by perceived social and cultural standards and interpersonal expectations in addition to personal, internalized standards about appropriate feminine behavior and appearance. P. S. Powers, Schulman, Gleghorn, and Prange (1987) found that bulimics, compared with controls, reported an intense fear of being obese and experienced feelings of being fat even though they were statistically underweight (see also Striegel-Moore, Silberstein, & Rodin, 1986).

The average woman would like to be thinner than she is and would even like to be thinner than the average man wants her to be (Fallon & Rozin, 1985; also see Polivy, Herman, & Pliner, 1990, and Wooley & Wooley, 1984). This tendency is especially strong among women with eating disorders; other women desire body sizes that are comparable to what they believe men prefer (Zellner, Harner, & Adler, 1989). Thus, abnormal eating patterns are associated with difficult and perhaps exaggerated standards of thinness.

Recent trends have accentuated the stigma of obesity, al-

though the reasons for these changes are obscure. Before the twentieth century, feminine beauty was often associated with a fuller figure; for example, the goddess of love (Venus) was invariably depicted as plump and curvaceous (Beller, 1977). The recent idolization of thinness has had the greatest impact on women (Gross & Rosen, 1988; Striegel-Moore, Silberstein, & Rodin, 1986). The reasons that society has moved away from its traditional preference for rounded, Rubenesque figures may include new notions of health and a new quest for youth by the higher social classes (Polivy, Garner, & Garfinkel, 1986). In short, modern society has expressed an increasingly strong preference for slim bodies, especially for women, and this preference may underlie the prejudice against obese individuals.

Striegel-Moore, Silberstein, and Rodin (1986) have argued that eating disorders are more frequent in females because society targets them specifically with the message that thin physiques are preferred. Females receive from multiple sources the message that beauty means thinness, and this message interacts with a "heightened sensitivity to sociocultural mandates as well as to personal opinions of others" (Striegel-Moore, Silberstein, & Rodin, 1986, p. 251). Women are taught to regard physical appearance as decisive for achieving popularity, social status, and male interest, including finding a husband (e.g., Mori et al., 1987).

According to the escape theory, eating disorders (and dieting) should be most prevalent among those with high standards of bodily thinness. Evidence supports the hypothesis that eating disorders are especially common among groups with strong requirements of thinness (Garfinkel, Garner, & Goldblum, 1987; Garner, Olmsted, Polivy, & Garfinkel, 1984; Johnson & Connors, 1987; Smead, 1988). Thus, ballerinas and other dancers have higher rates of eating disorders than do other women (Brooks-Gunn, Warren, & Hamilton, 1987), and they score higher on inventories of eating disorders (Garner et al., 1984). Cheerleaders are subject to comparable pressures to maintain an attractive body shape. Lundholm and Littrell (1986) found that among cheerleaders, the strongest desires to be thin were associated with higher scores on various measures of eating disorders. Similarly, Smead (1988) found that women who had tried hardest to lose weight (past and current weight-loss attempts) were the most likely to suffer from eating-related difficulties.

Relatively high rates of eating disorders are found in societies that have the strongest expectations about body shape (Polivy & Herman, 1983). Moreover, current social messages and pressures appear to be more potent than long-standing cultural differences. For example, Nasser (1986) found that 12% of female Arab students at London University met diagnostic criteria for bulimia, whereas none did in Cairo.<sup>1</sup>

Thus, it appears that many people fear being or becoming fat and that this fear is central to the initiation of dieting and bulimic behaviors. Such fears are especially strong and prevalent among bulimics (Bauer & Anderson, 1989; Johnson & Connors, 1987; P. S. Powers et al., 1987).

*Other standards.* Although the escape theory of binge eating emphasizes the relevant standards of dieting and slimness, any high standards could conceivably give rise to escapist motivations and binge eating. Some evidence does suggest that binge eating can result from high standards that are not directly re-

lated to thinness. Thus, bulimia occurs with the greatest frequency among high-achieving women (Barnett, 1986). Herzog et al. (1986) were specifically concerned with the impact of high expectations for career success. They found that 12% of female medical, business, and law students met the criteria for bulimia, in contrast to 5% of the general population. Futch, Wingard, and Felice (1988) found greater indications of eating disorders (including bingeing) among women medical students than among women liberal arts graduate students. Butterfield and Leclair (1988) found bulimics to have unrealistic expectations for performance and achievement. Both Mizes (1988) and Katzman and Wolchik (1984) found that bulimics scored higher than control subjects on measures of irrational demand for approval and unrealistically high standards (see also Bauer & Anderson, 1989).

In general, then, the evidence supports the first prediction of the escape theory of binge eating. Eating disorders, especially bulimia and binge eating, appear to be most common among groups that have high standards and expectations. These standards feature bodily thinness but also may include career aspirations.

#### *Aversive High Self-Awareness*

According to escape theory, the high standards tend to make the self look bad in comparison. This results in an awareness of the self as deficient or unsatisfactory. The second prediction is, therefore, that binge eaters should be characterized by low levels of self-esteem and high levels of aversive self-focus. We divide this section of the review in two parts. The first focuses on negative views of self, and the second is simply concerned with high levels of self-attention.

*Low self-esteem and self-dislike.* It is well known that the self-perception of obesity is generally unpleasant: "The perception that one is overweight is a highly aversive state, particularly for females" (DeJong & Kleck, 1986, p. 65). Even many normal-weight women think they are overweight and therefore dislike their bodies (Polivy et al., 1990; Wooley & Wooley, 1984).

Important evidence suggests that women with eating disorders show a variety of effects consistent with the hypothesis. They hold negative evaluations of their bodies (Cash & Brown, 1987; Garner, Garfinkel, & Bonato, 1987; P. S. Powers et al., 1987; Williamson, 1990), and their general self-esteem is lower than average (Eldredge, Wilson, & Whaley, 1990; Garfinkel & Garner, 1982; Mayhew & Edelman, 1989; P. S. Powers et al., 1987). Bulimics in particular hold low self-esteem (e.g., Garner et al., 1984; Gross & Rosen, 1988; Katzman & Wolchik, 1984; Mizes, 1988; Schlesier-Stropp, 1984; Wolf & Crowther, 1983). Chronic dieters have also been shown to have lower self-esteem than nondieters (Eldredge et al., 1990; Polivy, Heatherton, & Herman, 1988; Ruderman & Grace, 1988; Wooley & Wooley, 1984). Unrealistically high expectations have been identified as a major cause of the bulimic's tendency to view herself as an inadequate failure (Bauer & Anderson, 1989; Butterfield & Le-

<sup>1</sup> This is not to say that abnormal eating patterns are absent in the Middle East. Nasser (1986) found that 12% of the Cairo sample reported some abnormal eating patterns, although again the figure was significantly higher (22%) in the London sample.

clair, 1988; Katzman & Wolchik, 1984). Even failures in non-weight-related domains make bulimics feel worse about their bodies (Striegel-Moore, McAvay, & Rodin, 1986).

Additional evidence links the negative views of self to disinhibited eating, consistent with the escape theory. Disinhibited eating patterns are found more commonly among dieters with low self-esteem than among those with high self-esteem. One laboratory study found that dieters with low self-esteem ate more ice cream after a diet-breaking preload than did dieters with high self-esteem (Polivy, Heatherton, & Herman, 1988).

Likewise, manipulations that threaten dieters' self-esteem have been shown to produce disinhibited eating (Herman, Polivy, & Heatherton, 1990). For example, being told that they have failed on a problem-solving task (Baucom & Aiken, 1981; Heatherton, Herman, & Polivy, 1991; Ruderman, 1985a) or that they must give a speech or perform in front of an evaluative audience (Heatherton et al., 1991; Herman, Polivy, Lank, & Heatherton, 1987) apparently reduces dietary restraints and increases the amount these subjects eat.

*High self-awareness.* The escape model of binge eating proposes that an aversive high sense of self-awareness comes from comparing the self with relevant standards. Thus, self-awareness ought to be heightened in binge eaters. The Restraint Scale (Herman & Polivy, 1980), which measures restrained eating behavior, has been shown to correlate with public self-consciousness, as measured by the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975; see Blanchard & Frost, 1983). Thus, chronic dieters are extremely attentive to how they appear to others. Heatherton (1991) gave subjects the Exner Self Focus Sentence Completion Task (Exner, 1973), a reliable measure of self-focus (cf. Scheier & Carver, 1977). Compared with unrestrained subjects (whose level of self-focus was normal), restrained eaters displayed a strong pattern of egocentric self-focus, comparable with that of psychopathic individuals. Other work has found the Restraint Scale and the Bulimia Test (M. C. Smith & Thelen, 1984) to be correlated with the Narcissistic Personality Disorder Scale (Ashby, Lee, & Duke, 1979), again suggesting that restrained eating patterns are associated with preoccupation with self (Ruderman & Grace, 1987, 1988).

Eldredge et al. (1990) have noted that failure in non-eating-related domains might lead to increased aversive self-focus. They stated that "Failure which induces negative affect in both bulimics and restrained eaters may set in motion a process of self-evaluation which taps into negative body perceptions (e.g., the experience of feeling fat), and subsequently fuels disordered eating behavior" (Eldredge et al., p. 48). Striegel-Moore, McAvay, and Rodin (1986) also noted that failure in non-eating-related domains can focus negative attention on one's body.

Some indirect evidence also links binge eating to self-focused attention. Pliner, Meyer, and Blankstein (1974) showed that obese subjects reported stronger affective responses to emotional slides than did other subjects. This pattern of intensified emotionality resembles what has been shown for highly self-focused individuals (Scheier & Carver, 1977). Polivy, Herman, and Warsh (1978) replicated the findings of Pliner et al. (1974), using dieting rather than obesity as the independent variable. Thus, dieters appear to resemble highly self-aware people in the intensity of their affective responses.

Systematic data on the degree of self-awareness among bu-

limics are relatively scarce. Many researchers have remarked, however, on the strongly egocentric biases found among bulimics (Bauer & Anderson, 1989; Johnson & Connors, 1987; Weisberg, Norman, & Herzog, 1987), for example, "Two people laughed and whispered to each other when I walked by. They were probably saying that I looked unattractive. I have gained three pounds." (Garfinkel & Garner, 1982, p. 157). Such biases, in which people assume events to be directed at them, have been shown to be a result of self-focused attention (Fenigstein, 1984). Ruderman and Grace (1988) concluded that narcissistic self-preoccupation is typical of bulimics.

It is important to note that the self-focus of bulimics apparently does not extend to heightened awareness of internal sensations and states. On the contrary, evidence suggests that both bulimics and dieters are relatively unresponsive to inner states (Garfinkel & Garner, 1982; Heatherton, Polivy, & Herman, 1989). Garner, Olmsted, and Polivy (1983) have used a lack of interoceptive awareness as one indication for measuring eating disorders. Thus, the self-focus of these individuals emphasizes sensitivity to how they appear to others and how they compare with cultural and personal standards, rather than inner states and feelings.

Thus, there is some evidence that binge eaters suffer from chronically high levels of self-awareness. Escape theory holds that binge eating is associated with the reduction of this aversive state. It therefore predicts that laboratory studies should find that manipulations of self-awareness would alter eating patterns. Unfortunately, the direction of this prediction is somewhat equivocal. One might suggest that manipulations that increase self-focus would increase escapist tendencies (at least, when self-awareness is aversive) and so should increase binge eating. Alternatively, one might predict that disinhibited eating is associated with the reduction of self-awareness, and so enforced high levels of self-focus should maintain restraints against eating.

Experimental manipulations that affect self-awareness have indeed been shown to influence eating behavior. One study found that dieters ate three times as much while watching an intensely absorbing film as when engaged in activities that permitted more awareness of self (Wardle & Beales, 1988). Similarly, Schotte, Cools, and McNally (1990) found that restrained eaters were much more likely to become disinhibited when watching an intensely absorbing (and distressing) film than when watching a more neutral film. Alcohol has been shown to reduce self-focus, and in stressful situations people will drink to avoid self-awareness (Hull & Young, 1983b). Polivy and Herman (1976b, 1976c) found that alcohol consumption resulted in disinhibited eating by restrained individuals. They also found that subjects who were falsely led to believe they were drinking alcohol (and whose self-awareness was therefore not reduced) failed to show the pattern of disinhibited eating. Similarly, Williamson (1990) noted that bulimics are more likely to binge and purge after a few drinks, and Abraham and Beumont (1982) found that 44% of their bulimic sample reported that drinking alcohol precipitated eating binges. Thus, reducing self-awareness either by distraction or by administering alcohol can lead to disinhibited eating.

Several studies have sought to increase self-attention to one's eating behavior in particular. Attending to one's eating appears

to prevent disinhibition and maintain eating restraints, both among dieters (Collins, 1978; Herman, Polivy, & Silver, 1979; Kirschenbaum & Tomarken, 1982; Pecsok & Fremouw, 1988; Polivy, Herman, Hackett, & Kuleshnyk, 1986) and among obese subjects (Pliner, 1976; Pliner & Iuppa, 1978). For example, being observed while eating results in behavior that conforms to societal standards and norms of self-restraint (Herman et al., 1979). In particular, if dieters are told to monitor their eating, their restraints become stronger and they become relatively immune to disinhibited eating (Pecsok & Fremouw, 1988; Polivy, Herman, Hackett, & Kuleshnyk, 1986).

Heatherton, Polivy, Herman, and Baumeister (1991) have recently demonstrated that self-awareness is an important determinant of disinhibited eating among restrained eaters. In this study, the eating of restrained subjects was disinhibited by emotional distress only when self-awareness was low; when high self-awareness was enforced, inhibitions against eating were heightened and dieters ate very little. Nondieters were less affected by the self-awareness manipulation. Thus, conditions that promote self-awareness inhibit eating among dieters, and escape from self-awareness is associated with increased eating.

Likewise, the presence of an audience makes bulimics less likely to overeat (Johnson & Larson, 1982; Larson & Johnson, 1985). Johnson and Larson (1982) found that bulimics most often engaged in bulimic behaviors when they were home alone, and they reported being able to avoid binge eating while at work. Larson and Johnson (1985) later found that bulimics experienced more negative mood at home than at work, suggesting that the bingeing and negative mood occur together.

In conclusion, binge eating is associated with negative views of self, and binge eaters have chronic tendencies to be highly aware of themselves as social beings. The binge itself may often depend on a loss of self-focus, for overeating is inhibited if the high self-awareness is maintained. Binge eaters appear to suffer from an intense sensitivity to other people's opinions and evaluations, and public scrutiny or enforced self-monitoring makes them restrain their eating. Binges are therefore more likely to occur when the individual can escape from the presence of others and cease to monitor his or her food intake.

### *Anxiety, Depression, and Negative Affect*

Thus far, we have suggested that binge eaters hold high standards and expectations and are acutely aware of their failure to meet these standards. This aversive awareness of the self's failures and shortcomings should generate negative affect, which will be the immediate factor motivating the desire to escape. Accordingly, there should be evidence of states of negative affect among binge eaters.

*Depression.* Depression is well documented among bulimics. Many researchers have noted the pervasiveness of negative affect and clinical depression in the bulimic syndrome (P. J. Cooper & Fairburn, 1986; Devlin & Walsh, 1989; Hatsukami, Mitchell, & Eckert, 1984; Hinz & Williamson, 1987; Laessle, Kittl, Fichter, & Pirke, 1988; Mitchell, Hatsukami, Pyle, & Eckert, 1986a, 1986b; Mizes, 1988; Russell, 1979; Schlesier-Stropp, 1984). In their review, Hudson and Pope (1987) found that between 30% and 77% of bulimics are currently experiencing or have experienced a major affective disorder. Rosen, Gross, and

Vara (1987) found that depression was correlated with high scores on restrained eating. Eldredge et al. (1990) found that restrained eaters scored higher on the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) than did unrestrained eaters.

In fact, "depressed mood and self-deprecating thoughts following binge eating" was one of the diagnostic criteria of the *DSM-III* account of bulimia (APA, 1980, p. 71), and it is also mentioned in the revised *DSM-III-R* criteria (APA, 1987). Polivy and Herman (1976a) noted that dieters tend to gain weight when they become clinically depressed, whereas nondieters tend to lose weight. The pervasiveness of depression among bulimics has led some to hypothesize that bulimia is a variant of depression (Herzog, 1982; Hudson & Pope, 1987; Kasset et al., 1989; Pope & Hudson, 1985a, 1985b, 1989). Recent work has criticized and rejected this view, however (Hinz & Williamson, 1987; Levy, Dixon, & Stern, 1989; Strober & Katz, 1987). We return to this view in our discussion of alternative theories. For now, the important point is simply that there are clear and strong links between bulimia and depression.

*Anxiety.* Bulimia is also associated with chronic anxiety (Johnson et al., 1984; Mizes, 1988; Mitchell, Hatsukami, Eckert, & Pyle, 1985; Schlesier-Stropp, 1984) as are measures of abnormal eating (Rosen et al., 1987). Johnson et al. (1984) concluded from a review of the literature that bulimics are more anxious than men and women with normal eating patterns.

Recent reviews have suggested that much of the anxiety experienced by bulimics is due to psychosocial factors (Cattanach & Rodin, 1988). Interpersonal rejection or exclusion from social groups, in particular, has been indicated as a central cause of anxiety (e.g., Baumeister, 1990a; Baumeister & Tice, 1990; Bowlby, 1969, 1973), and this fear of social rejection has been cited as a central feature of bulimia. For example, Strober and Humphrey (1987) argued that bulimia often derives from "an unfulfilled craving for nurturance and a remedy for intensely painful feelings of rejection and loneliness" (p. 605). Chiodo's (1987) case study exemplified how the desire for thinness was motivated by fears of social rejection, of negative evaluations, and of criticism.

In the same vein, social anxiety has been found to correlate with bulimia (Gross & Rosen, 1988) and with measures of restrained eating (Blanchard & Frost, 1983; Rosen et al., 1987). The latter finding indicates that dieters, like bulimics, are more socially anxious than normal controls.

*General emotional distress.* As predicted by escape theory, there is ample evidence that dieters report greater emotional responses to experimentally produced distress than do nondieters (Frost, Goolkasian, Ely, & Blanchard, 1982; Herman & Polivy, 1975; Herman, Polivy, Pliner, Threlkeld, & Munic, 1978).

In particular, several studies have tracked mood and eating by means of periodic self-monitoring, a methodology that avoids the dangers and biases of retrospective self-reports. Johnson and Larson (1982) randomly paged subjects in 2-hr periods and questioned them about current mood and behavior. They found that bulimic subjects were generally more sad and lonely than control subjects. They also found that binge-purge episodes were preceded by heightened negative moods. Davis et al. (1988) followed a similar procedure by having sub-

jects fill out a short questionnaire every hour, and they too found that bulimics reported more negative moods in the hour preceding a binge. Lingswiler, Crowther, and Stephens (1989a) had subjects complete a questionnaire following each eating episode and found that both bulimics and binge eaters experienced greater negative moods than control subjects before non-binge episodes. Additionally, bulimics reported significantly more negative moods before binges than did nonclinical binge eaters.

Both self-reports and laboratory data point to an important role for emotional distress in the eating of bulimics and dieters. There is compelling evidence about the importance of emotion in triggering binge eating by bulimics (Abraham & Beumont, 1982; Cattanach, Malley, & Rodin, 1988; J. L. Cooper et al., 1988; P. J. Cooper & Bowskill, 1986; Crowther, Lingswiler, & Stephens, 1984; Davis et al., 1988; Johnson & Larson, 1982; Larson & Johnson, 1985; Lingswiler, Crowther, & Stephens, 1989a, 1989b; Schlundt, Johnson, & Jarrell, 1985) and dieters (Grilo, Shiffman, & Wing, 1989; Heatherton et al., 1991; Herman et al., 1990).

Baucom and Aiken (1981) manipulated distress by means of a concept-formation task that subjects could either solve easily (success condition) or not solve at all (failure condition). They found that dieters ate significantly more after failure than after success, whereas nondieters showed a nonsignificant trend in the opposite direction. These findings were replicated by Ruderma (1985a), using the same concept-formation failure task; by Frost et al. (1982), using the Velten (1968) mood induction procedure; and by Herman et al. (1987), using the threat of embarrassment (i.e., of being videotaped while singing an advertising jingle).

Heightened distress may also be linked to a worsening of eating disorders over time. Striegel-Moore, Silberstein, Frensch, and Rodin (1989) examined changes in affect and in disordered eating patterns for 947 college students during their freshman year at college. They found that high perceived stress was associated with a worsening of disordered eating among female (but not male) students. A worsening of eating disorders was also related to increased feelings of dysphoria about weight, decreased ratings of attractiveness, and decreased feelings of self-efficacy.

Lacey, Coker, and Birtchnell (1986) have noted that difficult interpersonal relations, emotional distress, and being teased about being fat are common social stressors for bulimic subjects. Additional evidence suggests that bulimics and dieters may indeed respond to stress with escapist responses. In particular, these individuals tend to use avoidant coping strategies (such as withdrawal) rather than problem-solving or other approaches. Shatford and Evans (1986) found that bulimics were more likely to use avoidance than active coping strategies. Mayhew and Edelmann (1989) found that high scorers on the Eating Disorders Inventory (Garner et al., 1983) were more likely than low scorers to report using avoidant coping strategies. Thompson, Berg, and Shatford (1987) stated that "the use of food as a way of escaping discomfort of a negative emotion can be seen as a form of avoidance coping" (p. 218). Lehman and Rodin (1989) found that bulimics derived a greater percentage of their self-nurturance from food-related sources, whereas dieters and nondieters derived greater self-nurturance from non-food-re-

lated sources. Grilo et al. (1989) found that dietary relapse episodes occurred 100% of the time when dieters reported using inadequate coping strategies to deal with stress.

Avoidance is similar to escape, and so the preference for avoidant coping styles among bulimics and dieters provides indirect support for the escape theory. Apparently these individuals do respond to personal problems and unhappy emotional states with escapist tendencies.

*Mood and eating regulation.* Why do dieters and bulimics overeat in response to stress? Many bulimia theorists have proposed that bulimics engage in binge-purge episodes as a way to regulate their moods (cf. Rosen & Leitenberg, 1982, 1985). Purging may make bulimics feel momentarily better, perhaps because it enables them to feel they are getting away with something or have succeeded in their efforts at mastering their appetites (J. L. Cooper et al., 1988; Johnson & Larson, 1982). Other authors have challenged the specific role of purging in mood regulation, however. Steere and Cooper (1988) reported five cases in which bingeing continued in the absence of purging. They concluded that some other mechanism must be maintaining the binge behavior. Elmore and de Castro (1990) have shown that binge eating reduces anxiety whether purging occurs or not. Katzman (1989) found the greatest reduction in distress among bulimics just before eating. Kaye, Gwirtsman, George, Weiss, and Jimerson (1986) found that anxiety decreased after both bingeing and purging. Taken together, these recent findings raise the possibility that anxiety is reduced by bingeing rather than, or in addition to, purging.

Davis et al. (1988) and Herman and Polivy (1980) have argued that distress interferes with the cognitive control of eating. This impaired control releases tendencies to overeat that are normally held in check. The exact manner in which distress interferes with cognitive control has not been elucidated, however (Heatherton et al., 1991; Herman et al., 1990). Davis et al. (1988) proposed that negative moods may alter the appraisal of successful dietary maintenance. In other words, distress makes keeping the diet seem unimportant or unobtainable.

Johnson et al. (1984) proposed that the function of the binge-purge episode is to control or cope with external demands: "If at any point they feel overwhelmed by external demands, they can call upon the structure of binge eating to organize their thoughts and behavior because of the highly ritualized and repetitive nature of the action" (p. 261). This implies that the narrowing of attention into routinized patterns helps distract the individual from broader concerns. (Indeed, the hypothesis of cognitive narrowing is an important part of escape theory and is covered in the next section.) The notion that binge eating appeals as a strategy for taking one's attention off of other, more threatening issues has been proposed in several contexts (Fairburn, Cooper, & Cooper, 1986; Hawkins & Clement, 1984; Herman & Polivy, 1988; Orleans & Barnett, 1984; Russell, 1979; G. T. Smith, Hohlstein, & Atlas, 1989; Thompson et al., 1987). For example, Fairburn and Cooper (1987) stated that when control over eating is lost, the factors that promote overeating "include the pleasure which results from eating 'banned' foods; short-lived distraction from other current problems; and a temporary alleviation of feelings of depression and anxiety" (p. 286).

*Role of self.* Not all forms of emotional distress are equally

likely to trigger binge eating (Herman et al., 1990). Experimental manipulations of physical fear (such as threat of electrical shock or blood sampling) fail to increase the eating by obese or dieting individuals, although these manipulations do reduce the eating by control subjects (Herman & Polivy, 1975; McKenna, 1972; Schachter, Goldman, & Gordon, 1968). In contrast, manipulations that involve ego threat or negative mood inductions do significantly increase the eating by obese or dieting subjects, whereas controls are unaffected (Baucom & Aiken, 1981; Frost et al., 1982; Herman et al., 1987; Ruderman, 1985a; Schotte et al., 1990; Slochower, 1976, 1983; Slochower & Kaplan, 1980, 1983; Slochower, Kaplan, & Mann, 1981).

A direct test of the hypothesis that different types of stressors have different effects on eating was recently conducted by Heatherton et al. (1991). Restrained and unrestrained eaters were subjected to either a physical fear-inducing stress (i.e., threat of shock) or one of two forms of ego threat (i.e., failure at an easy task or speaking in front of an evaluative audience) before an ad-lib taste task. The dieters increased their eating in response to the ego threat, but they showed no significant change in response to the fear manipulation. Control (normal, unrestrained) subjects showed no eating changes in response to either of the ego threats but ate less under fear (presumably because the autonomic correlates of distress mimic satiety).

These results underscore the importance of self-evaluation in binge eating, consistent with escape theory. Only those distress manipulations that threaten the dieter's or bulimic's self-esteem produce disinhibited eating. Fear, which should not increase the aversive quality of self-perceptions, does not produce over-eating.

To summarize, it is clear that binge eating is associated with emotional distress. Bulimia has been strongly linked to anxiety and depression, and there is some evidence associating these aversive emotions with more ordinary dieting. Emotional distress apparently is most likely to be accompanied by binge eating if it is associated with threats to self-esteem. Last, some evidence suggests that individuals may embark on an eating binge in response to acute affect or bad moods and that the eating binge may help alleviate this emotional distress.

### *Escape Through Cognitive Narrowing*

The central feature of the escape hypothesis is that awareness is refocused and narrowed during the binge episode. This shift involves moving to a low level of action identification (Vallacher & Wegner, 1987), that is, thinking in terms of short-term movements and sensations rather than long-term concerns and meaningful actions. This process of cognitive deconstruction is evidenced by concrete thinking, immediate proximal goals, cognitive rigidity, and constricted temporal focus (Baumeister, 1990a).

The evidence is not extensive, but it does support the escape hypothesis's account of the mental state during a binge. Black-and-white thinking, which is characteristic of rigidity and rejection of meaning, has been found among bulimics and dieters during a binge (Bauer & Anderson, 1989; Bemis, 1985; Fairburn & Cooper, 1987; Polivy & Herman, 1985, 1987; Thompson et al., 1987; Williamson, 1990). For example, Lingswiler et al. (1989a) had subjects complete a questionnaire following each

eating episode over a 1 week period. They found that bulimics and subclinical binge eaters reported greater dichotomous cognitions before binge episodes than did control subjects for all of their eating episodes. Similarly, dieters regulate their eating around a dichotomous diet boundary (Herman & Polivy, 1984), so that they regard their diet as either intact or "blown for the day." Cognitive rigidity is also evident in dieters' tendency to label foods as good or bad or as guilt-producing versus not guilt-producing (King, Herman, & Polivy, 1987; Knight & Boland, 1989; Polivy & Herman, 1985). Bulimics likewise tend to believe that foods are "good" or "bad" (Bauer & Anderson, 1989) and that eating small amounts of forbidden foods can lead to eating binges.

The deconstructed state is essentially a refusal of meaningful thought. The Avoidance of Existential Confrontation Scale (Thaulberger & Sydiaha, 1977) is one useful and valid measure of rejection of meaning. Bulimics have been shown to score unusually high on that scale (Keck & Fiebert, 1986), suggesting that they are motivated to avoid confronting broadly meaningful issues. According to the escape hypothesis, an eating binge occurs in a state in which the individual has successfully managed to shut all such broader concerns and considerations out of awareness (or has at least approached this goal). In their review, Cattanach and Rodin (1988) found that bulimics were likely to use avoidance strategies to deal with life stress (cf. Shatford & Evans, 1986).

The focus on the immediate present may be evident in an increased susceptibility to salient external cues. Bulimics and dieters have been shown to be especially susceptible to these; for example, following a highly caloric preload dieters display disinhibition only when the food is good tasting (Woody, Costanzo, Leifer, & Conger, 1981). Furthermore, bulimics tend to choose "fattening" or "forbidden" foods during a binge (Abraham & Beumont, 1982; APA, 1987; Johnson & Connors, 1987; Rosen, Leitenberg, Fisher, & Khazam, 1986), including pastries, breads, cookies, and other junk foods such as potato chips and chocolate bars (Mitchell & Pyle, 1988; Rodin & Reed, 1988). More generally, the pleasurable qualities of food (such as taste) may be enhanced among people who have recently been deprived because of dieting, and so the cognitive narrowing that occurs during a binge may be facilitated by an absorption in the taste sensations. "Eating may provide a pleasurable experience, which, in the short run, minimizes the negative emotional experience" (Rosenthal & Marx, 1981, p. 97).

There is some evidence that bulimics will eat unpleasant foods during a binge (Abraham & Beumont, 1982). Garfinkel and Garner (1982) noted that although bulimics prefer to binge on fattening foods, they will sometimes eat whatever is available (such as a jar of honey or frozen pastries). Similarly, Williamson (1990) has noted a "night-bingeing" pattern in which bulimics describe binge eating while in a dreamlike state (where they have little awareness of their actions). Williamson noted that eating in these binges is quite bizarre, such as eating loaves of bread or frozen fish sticks. In these cases, it is possible that bulimics are even less focused on themselves and more focused on the mere mechanics of biting or chewing. Alternatively, they might simply be eating whatever food is most available.

Anecdotal evidence supports the hypothesis that cognitive narrowing occurs among dieters and bulimics during a binge.

For example, Johnson and Pure (1986) described the bulimic binge as involving a narrowed attentional focus: "They use bingeing to refocus or narrow their field of cognitive concern" (p. 437). Johnson et al. (1984) observed that bulimics experience a pleasurable sense of loss of control: "More obsessive, overcontrolled patients use binge eating to temporarily be out of control or have the phenomenologic experience of 'letting go' or 'spacing out'" (p. 261). These authors suggested that binge eating offers an outlet for sexual feelings. The suggestion that bulimia includes narrowed focus, loss of control, and eroticization resembles a recent account of another form of escape, namely sexual masochism (Baumeister, 1989).

According to the escape theory, the main motivation for narrowing one's focus is to escape from aversive emotionality that is linked to high self-awareness. G. T. Smith et al. (1989) reported that those with eating disorders express food-related expectancies such as "Eating can help me bury my emotions when I don't want to feel them" and "Eating helps me forget or block out negative feelings like depression" (L. A. Hohlstein, personal communications, August 21, 1989). Thompson et al. (1987) stated that "food may be used to avoid or cope with anger" (p. 218).

Some evidence fits the view that binges are associated with such downward shifts in affect (Steinberg, Tobin, & Johnson, 1990). For example, Johnson et al. (1984) compared the binge state with an altered state of consciousness and with a dissociative experience, insofar as it causes one's perception of events and one's memory to be somewhat "blurred" (p. 251). Likewise, Abraham and Beumont (1982) found that 75% of bulimics reported feelings of depersonalization and derealization during eating binges. They also reported that 72% of their bulimic sample experienced a reduction in negative mood states while bingeing (and all of their patients described pleasure in eating, especially during the binge).

Other researchers have also reported a reduction of anxiety during the binge. Kaye et al. (1986) examined 12 hospitalized bulimics who binged and vomited the day after hospital admission. Multiple mood measures indicated that anxiety decreased during and after the bingeing and vomiting. Elmore and de Castro (1990) also found that anxiety was reduced following bingeing whether purging occurred or not. Others have reported that the mood is negative during the binge but improves substantially with the purging (J. L. Cooper et al., 1988; Johnson & Larson, 1982). Either way, the episode appears to have some link to a successful reduction of anxiety.

A variety of evidence is thus consistent with the hypothesis of cognitive narrowing, although further research and direct tests are needed. Binge eaters appear to be motivated to avoid broadly meaningful thought. They show some signs of cognitive rigidity. They appear to be oriented toward immediate stimuli and sensations, especially during the binge itself. There is some evidence of passivity or avoidance of control, although more systematic data would be desirable. According to the escape hypothesis, the cognitive narrowing is motivated by a desire to escape from negative affect, and there is some evidence that the binge does accomplish this goal.

### *Disinhibited Eating*

The escape theory holds that the cognitive narrowing of the binge state will remove inhibitions against eating. Specifically,

the deconstructed state casts experience in terms of movements and sensations rather than meaningful actions, plans, or comparisons against standards. The person may become absorbed in the process of eating and may fail to evaluate eating against standards, norms, or guidelines. In simpler terms, attention is focused on the taste and feel rather than the calorie count and dietary plan.

Disinhibited eating is of course central to a binge. This process is sadly familiar to many dieters. Herman and Mack (1975) demonstrated the paradoxical effect of "counterregulatory" eating among dieters. In that study, nondieters ate most when deprived of food, ate somewhat less after preloaded with one milkshake, and ate least when preloaded with two milkshakes. Dieters, however, showed the opposite pattern of eating most after the preloads. The key, apparently, is the subjective perception of whether one's diet is still intact or has been broken, and the latter is associated with the breakdown of all restraints (see Ruderman, 1986, for review).

The importance of subjective perception is shown by the fact that actual caloric content of preloads is irrelevant, whereas perceived content is highly influential. If the subject believes he or she has violated the diet, eating becomes disinhibited (Herman & Polivy, 1980; Spencer & Fremouw, 1979; Woody et al., 1981). Thus, Spencer and Fremouw (1979) found that dieters (unlike nondieters) ate more ice cream following a preload that they had been told was high in calories than after an allegedly low-calorie preload, even though the preloads were actually equal in calories. Knight and Boland (1989) have recently shown that food type might be more important than calories in the disinhibition of dietary restraints. They found that milkshakes were more likely than cottage cheese to disinhibit restrained eaters. Moreover, anticipating a 400-calorie milkshake was more disinhibiting than anticipating a 400-calorie chef's salad.

Polivy's (1976) results are of special interest because they provide some insight into the cognitive processes. After a preload manipulation, subjects were permitted to eat as many sandwich quarters as they wanted. Later, subjects were asked to recall how many they had eaten. Nondieters were extremely accurate in recall, as were dieters who had not broken their diets. Dieters who had broken their diets were much less accurate in their recall, however—indeed, their mean error was almost 50 times as large as that of dieters who had not broken their diets! Clearly, once the person had broken the diet, he or she ceased to monitor eating in a meaningful fashion.

Thus, there is some evidence that a binge is associated with a removal of inhibitions against eating. Furthermore, it appears that the binge is facilitated by a cognitive shift that ceases to keep track of food intake in an accurate, meaningful fashion. The available evidence pertains mainly to dieters; confirmation of these patterns with bulimic subjects would be desirable.

It is also worth noting that there is some evidence of disinhibited behavior beyond binge eating among these individuals. Bulimics are well known for their general impulsivity (Polivy, Herman, & Garner, 1988), including substance abuse, suicide, stealing, and promiscuous sexual activity (cf. Garfinkel & Garner, 1982). For example, compared with restricting anorexics, bulimics are much more likely to have misused street drugs, to have stolen food or money, to have attempted suicide or per-

formed self-mutilation, and to have engaged in transient and nonsatisfying sexual activities (Garfinkel & Garner). Crisp (1967) noted that this group "rushed into one relationship after another . . . in the mistaken belief that they would then feel secure and wanted" (p. 128). This general pattern of impulsive behavior fits the hypothesis that these individuals periodically act without reflecting on all the meanings and implications of their actions, which makes them more willing to engage in behaviors that run counter to prevailing norms and standards.

In short, there is a variety of evidence to support the escape theory's hypothesis that the deconstructed mental state associated with binge eating produces a reduction in inhibitions. Dieters show the irrational pattern in which initial eating produces increased subsequent eating, which is perhaps the essence of the binge. In laboratory analogs to eating binges, dieters appear to cease monitoring their food intake as soon as they believe their diet has been broken. More broadly, bulimia has been linked to a broad range of impulsive and norm-violating behaviors.

### *Irrational Beliefs*

A last consequence of cognitive narrowing is greater susceptibility to irrational beliefs. The effort to avoid meaningful thought makes the person less rational and critical, and so he or she may fail to see the implausibility of certain beliefs or conclusions.

Many researchers have observed that bulimics are prone to have irrational cognitions (Bauer & Anderson, 1989; Butterfield & Leclair, 1988; Fairburn & Cooper, 1987; Garner & Bemis, 1982; Johnson & Pure, 1986; Mayhew & Edelman, 1989; Mizes, 1988; Polivy, Herman, & Kuleshynk, 1984; Polivy, Herman, & Garner, 1988; Ruderman & Grace, 1987; Thompson et al., 1987). For example, Mizes (1988) found that bulimics scored higher than control subjects on six of the nine subscales of the Irrational Beliefs Test (Jones, 1968). It is noteworthy that several of these scales reflect beliefs that might well create a desire to escape. Bulimics scored high on helpless beliefs that one's past cannot be overcome and on overanxious anticipation of future misfortune. Thus, both past and future are aversive, and so an escape into the narrow present would be strongly desirable. And, indeed, bulimics scored higher than controls on problem avoidance, which directly indicates escapist tendencies.

Johnson and Connors (1987) outlined a number of common cognitive distortions found in bulimics (see also Bauer & Anderson, 1989). These distortions include faulty attributions, personalization, magnification, dichotomous thinking, filtering, overgeneralization, and magical thinking.

Bulimics are also less than rational in how they view their bodies. They have a strong desire to be thinner than would be either considered desirable by the opposite sex or healthy (Zellner et al., 1989). This desire to be thinner extends across all body weights, except for those bulimics weighing less than 80 pounds (Williamson, Davis, Goreczny, & Blouin, 1989). The desire to achieve a condition that is unattractive and unhealthy can be considered irrational.

Dieters have irrational beliefs too. Ruderman (1985b) found that dieters scored significantly lower than nondieters on a measure of rational behaviors (Shorkey & Whiteman, 1977).

Dichotomous reasoning is also evident in dieters' responses to various foods. For example, dieters will be disinhibited by cake or ice cream more than by salads even if the two are equal in calories (Knight & Boland, 1989; Polivy, Herman, & Kuleshynk, 1984). Those with eating disorders also have misperceptions and irrational thoughts about food: The idea that 1,000 calories per day is excessive consumption or that they will gain weight after eating small amounts of food underlies a general obsession regarding caloric intake (Bruch, 1973).

Perhaps the epitome of escapist motivation is the irrational wish to be someone else. The fantasy of changing one's identity has been noted as a central aspect of sexual masochism (Baumeister, 1988, 1989), and suicidal individuals are significantly more likely than others to express the wish to be someone else (Maris, 1981). The bulimic's or dieter's wish to achieve a new body can be regarded as similar to a struggle to become someone new. In fact, the widely used Eating Disorders Inventory (Garner et al., 1983) uses a question that specifically asks about wishing to be someone else entirely, and positive responses are associated with eating disorders. The desire to be someone else is thus highly typical of people with eating disorders. Johnson and Connors (1987) noted "transformational fantasies" in their bulimic patients, such as the beliefs that a small weight loss would improve all aspects of their lives (see also Baumeister, Kahn, & Tice, 1990, on dieters). This desire to be someone else has been associated with irrational beliefs and thoughts, including fantasies about how successful transformation of one's body shape will solve the majority of one's personal problems (Bauer & Anderson, 1989; Polivy & Herman, 1983).

To summarize, the evidence does appear consistent with the escape theory's hypothesis that the deconstructed mental state associated with binge eating tends to make the individual more vulnerable to irrationality. Binge eaters have been shown to endorse a wide variety of irrational beliefs. These include distorted ideas about food and about their own bodies, as well as broader perceptions that life is dangerous and uncontrollable. There is even some evidence linking binge eating to a desire to become someone else, which is an extreme and literal form of escape from self.

### *Relation to Other Escapes*

We have sought to portray binge eating as one consequence of the cognitively narrow state that is achieved in the effort to escape from meaningful, aversive, affectively unpleasant self-awareness. Because several other forms of psychological escape have been identified, it is worth examining whether there are indeed some relationships between binge eating and these other forms of escape.

*Substance abuse.* Recent investigations have uncovered a high incidence of alcohol abuse, drug abuse, or both among bulimic women (Beary, Lacey, & Merry, 1986; Brisman & Siegal, 1984; Bulik, 1987; Butterfield & Leclair, 1988; Garfinkel & Garner, 1982; Hatsukami, Eckert, Mitchell, & Pyle, 1984; Hatsukami, Mitchell, Eckert, & Pyle, 1986; Herzog, 1982; Jonas, Gold, Sweeney, & Pottash, 1987; Lacey & Mourelis, 1986; Mitchell et al., 1985; Mitchell, Hatsukami, Pyle, & Eckert, 1988; Yager, Landsverk, Edelstein, & Jarvik, 1988). For example, Garfinkel and Garner (1982) reported that 18.3% of their bu-

limic patients reported weekly alcohol use, and 21.2% reported frequent drug use. Mitchell et al. (1985) found that 34.4% of their sample of bulimic patients had a history of drug or alcohol problems, and of this group 23% reported serious alcohol abuse. They also found that 17.7% of their bulimic patients reported a history of treatment for chemical dependency. Killen, Taylor, Telch, Saylor, et al. (1987b) found that female 10th graders who purged were more likely to report daytime drinking than nonpurgers. Additionally, purgers were more likely to report using alcohol to control stress than were their nonpurging peers.

An intensive survey of 628 women who reported eating disorders on a magazine survey was conducted by Yager et al. (1988). In their sample, 38% of the bulimic respondents reported weekly alcohol use, and 22.7% reported daily alcohol use. They also reported surprisingly high levels of daily drug use, ranging from hallucinogens (4.1%) to marijuana (11.5%). A subdiagnostic group showed similar patterns of substance abuse. A 20-month follow-up showed that levels of substance abuse remained stable or increased in nearly all categories.

The close correspondence between eating disorders and substance abuse problems has led some to propose that they are variants of the same disorder (e.g., Brisman & Siegel, 1984). In support of this proposal, researchers have found a high incidence of eating disorders among samples of drug users. For example, Jonas et al. (1987) found that 32% of their sample of cocaine users met *DSM-III* criteria for anorexia, bulimia, or both. Beary et al. (1986) found similarly high rates among a sample of alcoholics. Butterfield and Leclair (1988) found cognitive similarities between drug-abusing women and bulimics. Johnson et al. (1984) speculated that binge eating may be a relatively safe choice because it "does not carry significant moral, legal, or medical complications in the same way that promiscuity, delinquent behavior, or drug abuse do" (p. 260).

Alcohol is especially relevant because research has established its effectiveness as an escape from meaningful thought and aversive self-awareness. Hull and his associates (Hull, 1981; Hull, Levenson, Young, & Sher, 1983; Hull & Young, 1983a, 1983b) have proposed that the escape from self-awareness is a central aspect of alcohol consumption, and that it is often an important aspect of alcohol's appeal. Alcohol reduces negative self-evaluations following failure (Hull & Young, 1983b), and it impairs higher order cognitive processes, thereby decreasing the correspondence between actual behavior and abstract standards of conduct (Hull et al., 1983). The latter may help explain the disinhibiting effects of alcohol (see also Steele & Southwick, 1985).

Recent work by Steele and Josephs (1988, 1990) has accentuated the resemblance of alcohol use to the deconstructed state of cognitive escape (see Baumeister, 1990a). Steele and Josephs argued that alcohol use produces a narrowing of perception to immediate cues, reduction of cognitive abstraction abilities, and a restriction of attention to the most salient and immediate aspects of experience. Furthermore, they argued that this cognitive immediacy may help block distress-eliciting thoughts out of awareness, thereby reducing anxiety.

The selective appeal of binge eating to women may derive partly from the fact that alcohol is less effective at reducing anxiety among women than among men (Wilson, 1988).

Hence, women who might be drawn to alcohol abuse may sometimes turn to binge eating as a relatively convenient, safe, and effective means of escaping from aversive self-awareness.

*Suicide and self-harm.* Suicide may be considered the ultimate form of escape, and the cognitive processes of the presuicidal state conform to the general model of escape from self-awareness (e.g., Baumeister, 1990a, 1990b).

Like substance abuse, rates of suicide are high among bulimics. Indeed, estimates of suicide attempts by bulimics range from 9% to 20%, a much higher prevalence than in the general population (Garfinkel & Garner, 1982; Hatsukami, Mitchell, & Eckert, 1984; Hatsukami et al., 1986; Johnson, Connors, & Tobin, 1987; Mitchell et al., 1986a; Viessleman & Roig, 1985; Yager et al., 1988). In a large sample of magazine survey respondents, almost three quarters of bulimics had considered or attempted suicide within the previous 18 months (Yager et al., 1988). Abraham and Beumont (1982) found that 70% of their sample of bulimic subjects reported wanting to commit suicide after binge-purge episodes and 22% had attempted to do so at that time. Subdiagnostic binge eaters also had high levels of recent attempted suicides.

Self-inflicted injury is a complex and poorly understood pattern, but it is plausible that some people are drawn to it for its ability to focus attention narrowly on immediate sensations. The appeal of pain in masochism may derive from such attentional effects (Baumeister, 1989), and self-injury might conceivably have some analogous appeal. Estimated rates of self-injury among bulimics are quite high (Garfinkel & Garner, 1982). Yager et al. (1988) and Mitchell et al. (1986a) found that roughly one third of their samples of bulimic subjects had some history of intentionally self-injurious behavior. Moreover, a recent examination of 240 self-mutilators (typical behaviors included skin cuts, burns, and self-hitting) revealed that 61% had previously had an eating disorder (Favazza & Conterio, 1989).

Thus, there is indeed some evidence linking binge eating to other forms of escape. Bulimics and other binge eaters have elevated rates of alcohol abuse, drug use, suicide, and self-injury. These correlations make it plausible that binge eating conforms to the patterns and motivations of escape that characterize these other behaviors.

## Discussion

This article has proposed a process model of binge eating as a form of escaping from aversive self-awareness, and it has reviewed the research literature on both normal dieters and pathological bulimics to test the steps in the model. This final section summarizes the main findings and evaluates the evidence about escape theory, discusses alternative theoretical approaches to binge eating, and considers implications for research and therapy.

### *Recapitulation of Findings*

The escape model begins with high standards and expectations. Ample evidence indicates that binge eaters do suffer from unusually, even unrealistically high expectations, including both their own standards and their perceptions of what other people expect of them. This pattern is well established for stan-

dards of physical thinness and attractiveness, and some evidence also indicates that it applies to other standards such as achievement expectations.

In view of the difficulty of reaching these standards, some degree of failure and shortfall is to be expected, resulting in awareness of self as inadequate or deficient. There is rather clear evidence that binge eaters tend to have negative views of themselves. The hypothesis that binge eaters tend to be highly self-focused has received some support but further research is desired. Current evidence appears to indicate that binge eaters suffer most from acute *public* self-awareness, that is, awareness of how they are seen by others, rather than private, inward direction of attention. Also, it appears that situational factors that maintain high self-focus will prevent binge eating, so the onset of a binge is apparently linked to a reduction of (or escape from) this high self-awareness.

The awareness of self as falling short of standards is associated with negative affect (e.g., Duval & Wicklund, 1972; Higgins, 1987). Binge eating has been linked to both depression and anxiety, and there is some evidence of more general emotional distress as well. The emotional distress that provokes binge eating appears to be linked to evaluative self-perceptions, which testifies to the importance of self-views in motivating the escapist response. In addition, some findings indicate that the binge itself (or the ensuing purge) is associated with a reduction in negative affect. This is parallel to the findings regarding high self-awareness, in that the actual binge is associated with a reduction in some aversive, subjective state.

The available evidence about cognitive processes during a binge is consistent with escape theory's hypothesis of cognitive narrowing, although more research is needed. It appears that an eating binge is accompanied by focus on immediate stimuli, low-level or deconstructed thinking (i.e., short-term focus on movements and sensations), and rejection of meaningful thought (resulting in concrete, rigid, and dichotomous thinking).

Two hypothesized consequences of cognitive narrowing are especially relevant to binge eating. The first is disinhibition, and evidence confirms that binge eaters are both generally prone to disinhibition and likely to be disinhibited during the binge. In particular, some evidence suggests that the person ceases to monitor his or her food intake at the start of a binge, which is consistent with several aspects of escape theory, including lack of self-attention and cognitive narrowness. The second consequence is vulnerability to irrational thinking, and a variety of sources confirm that it is characteristic of binge eaters.

Taken together, these findings suggest that escape theory is a viable approach to understanding binge eating. There is evidence to support each of the six steps in the model, and there do not seem to be any major sets of findings that are incompatible with escape theory.

### *Comparison With Other Theories*

A variety of theories have been posited to account for bulimia, restrained eating, and related phenomena. Rather than rejecting these as flawed or fallacious, we suggest that these often contain valid and important insights, and we see them as

consistent with various parts of escape theory. Therefore, escape theory is proposed not as an alternative or rival theory but rather as a more general and comprehensive theory that integrates many contributions made by other theorists. In addition to this integration, we suggest that the novel contribution of escape theory is its effort to explain the *process* of bingeing, for other theories have often focused on predisposing factors and possible consequences rather than on the binge itself.

A particular area of theoretical controversy concerns the use of physiological as opposed to psychological mechanisms to explain binge eating. Physiological explanations of binge eating and bulimia have centered around notions of set point, affective disorders, or neurochemical imbalances (cf. Fava, Copeland, Schweiger, & Herzog, 1989; Garfinkel & Garner, 1982; Hudson & Pope, 1987; A. S. Kaplan & Woodside, 1987; Keeseey, 1986; Pope & Hudson, 1985a, 1989; Wurtman, 1989), whereas psychological explanations have focused on the role of cultural pressures to obtain thinness, familial influences, compensation for low self-esteem by attempting to attain a perfect body, depressed mood and anxiety, poor assertive skills and lack of social facility, distorted cognitions about health and nutrition, rewarding properties of vomiting, and poor eating or weight control habits (cf. Johnson & Connors, 1987; Leitenberg, Rosen, Gross, Nudelman, & Vara, 1988; Strober & Humphrey, 1987; Williamson, 1990). Most theorists, however, consider both psychological and physiological factors to be important (cf. Agras & Kirkley, 1986; Johnson & Connors, 1987; A. S. Kaplan & Woodside, 1987; Polivy, Herman, Olmsted, & Jazwinski, 1984; Williamson, 1990). Escape theory undertakes to furnish a theoretical account of the psychological processes, but it is compatible with many physiological hypotheses regarding mechanisms and predisposing factors.

*Weight suppression and set point.* One important view holds that each body has its own natural weight that it strives to achieve and maintain (see W. I. Bennett, 1984; Keeseey, 1986). When weight falls below this *set point*, the body may change metabolically so as to resist further weight loss and facilitate weight gain; the opposite occurs if the body weight should increase above this set point (see Keeseey, 1986, for a review of this literature). According to this theory, binge eating may be one natural response by the body to the individual's attempts to lose weight.

Set point theory is supported by evidence that people find initial weight loss rather easy but further weight loss rapidly becomes almost impossible (Keys, Brozek, Henschel, Mickelson, & Taylor, 1950) and by the well-documented and extremely pervasive tendency to regain weight that is shed during dieting (W. I. Bennett, 1984; Brownell, Greenwood, Stellar, & Shrager, 1986; Levitsky, Faust, & Glassman, 1976; Marcus, Wing, & Hopkins, 1988; Stunkard & Pennick, 1979; Wilson & Brownell, 1980). Most bulimics appear to be at normal weight, which poses a problem for set point theory, but this problem can be resolved by suggesting that bulimics happen to have a set point that would be higher than that of other people. This suggestion is consistent with evidence that bulimics often have a history of obesity (Abraham & Beumont, 1982; Agras & Kirkley, 1986; Johnson & Connors, 1987; Mitchell et al., 1985; Turnbull, Freeman, Barry, & Henderson, 1989; Williamson, 1990) and often come from families with high rates of obesity (Pyle, Mitchell, &

Eckert, 1981), which could indicate a genetic predisposition toward obesity (Stunkard, Foch, & Hrubec, 1986). Thus, this theory regards the seemingly normal weight bulimic as someone who is genetically programmed to be obese and is therefore below set point when not obese.

Set point theory is also consistent with evidence that severe bulimics have lower resting metabolism rates than less severe bulimics or normals (S. A. Bennett, Williamson, & Powers, 1989), which could mean that severe bulimics are below some biological set point, causing the body to respond by lowering metabolic rate in the effort to conserve calories. Lastly, bulimics (although not dieters; see Esses & Herman, 1984) show patterns of taste responsiveness that are consistent with the effects of caloric deprivation; specifically, sweet foods continue to taste good as one approaches satiety (Rodin, Bartoshuk, Peterson, & Schank, 1990). This too is consistent with set point theory, because it may indicate an attempt by the body to increase consumption of sweet foods.

In spite of the intuitively appealing nature of set point theory, several findings suggest that factors other than set point play an important role in binge eating and bulimia. Lowe and Kleifield (1988) found that successful weight suppression was related to a *reduction* in eating following a preload. They argued that individuals who successfully reduce and suppress weight are less likely than others to show binge eating.

It is also difficult for set point theory to account for the importance of cognitive factors in dietary disinhibition. A variety of evidence suggests that cognitive factors may be more important than physiological factors in promoting disinhibition (Heatherton et al., 1989; Knight & Boland, 1989). That is, chronic dieters and bulimics binge when they believe that they have surpassed some caloric limit or eaten a forbidden food. These effects occur whether the preload was actually high in calories or not. Thus, a strict interpretation of the set point theory suggests that bingeing should occur as a function of overriding hunger, but the available evidence contradicts this. For example, Elmore and de Castro (1990) reported that bulimics reported less hunger before binges than they did before regular meals.

More important, one of the major problems with set point theory is that set points must be inferred rather than measured (Lowe, 1987). Hence, just because bulimics now weigh less than their highest weight, it is impossible to determine if their highest weight was above or below their set point. It seems plausible that the initial effect of binge eating would be to increase body weight. That is, without the benefit of purging, binge eaters are likely to become obese. There are data showing that the onset of episodes of binge eating typically precedes the onset of purging by as much as a year (Turnbull et al., 1989), suggesting that purging may develop as a means to deal with increasing weight gain. In any case, one cannot say that bulimics are below set point simply because they are below their highest weight. Indeed, the successful regulation of weight by bulimics (despite fluctuations in intake) could be construed as evidence that they are close to their set point rather than substantially below it.

Although there are considerable problems with a pure set point perspective (for a cogent criticism of set point theory, see Lowe, 1987), it cannot be denied that the physiological effects

of attempted weight suppression play an important role in both the onset and maintenance of eating disorders. The metabolic effects attributable to set point prevent dieters from easily achieving weight loss and promote fast weight gain from eating binges. Moreover, foods may taste better for longer to the binge eater because of the changes in taste responsiveness, and the appealing taste may promote binge eating. The psychological consequences of weight suppression are also important to the onset and maintenance of eating disorders. Inadequate caloric intake promotes emotional lability, irritableness, and obsessions with food (see Keys et al., 1950). These may play important roles in the degree to which bulimics and binge eaters overreact to normal daily stressors or hassles and the extent to which they develop an aversive sense of self-awareness. Continued obsessions with food and feelings of fatness motivate the dieter to narrow attentional focus to block out these undesired thoughts.

Thus, a loose form of the weight suppression theory can easily be incorporated into the escape model of binge eating. Weight suppression exacerbates negative self-awareness by promoting affective instability and negative self-appraisals. In addition, the influence of biological set points makes weight loss difficult, so that relatively few dieters will achieve significant or permanent weight loss. Continual dietary failures have negative consequences for self-esteem and affect. These influences act to increase the motivation to escape self-awareness and thereby increase the likelihood of binge eating. Taste patterns and preoccupation with food may reflect cognitive narrowing.

*Binge eating as an affective disorder.* One of the most controversial etiological theories is that bulimia is a variant of depression (Herzog, 1982; Hudson & Pope, 1987; Kasset et al., 1989; Pope & Hudson, 1985a, 1985b). Proponents of this view point out that bulimia resembles depression in symptoms and biological etiology (Devlin & Walsh, 1989). Several lines of evidence suggest that bulimia and depression share a common diathesis. First, many bulimics suffer from major depression (P. J. Cooper & Fairburn, 1986; Hatsukami, Mitchell, & Eckert, 1984; Hinz & Williamson, 1987; Hudson & Pope, 1987; Laessle et al., 1988; Mitchell et al., 1986a, 1986b), and there are also reports that a minority of bulimics developed affective disorders before the onset of their eating disorders (Devlin & Walsh, 1989; Hudson & Pope, 1987).

Second, many bulimic symptoms are improved with the use of antidepressant medication (e.g., imipramine [cf. Pope, Hudson, Jonas, & Yurgelun-Todd, 1983], phenelzine [cf. Walsh, Stewart, Roose, Gladis, & Glassman, 1984], and desipramine [cf. Hughes, Wells, Cunningham, & Ilstrup, 1985], or combinations of antidepressants [cf. Mitchell et al., 1989]; for detailed reviews see Hudson & Pope, 1987; Pope & Hudson, 1989), and bulimics have been shown to have abnormal results on the dexamethasone suppression test (DST), with 20%–60% of normal-weight bulimics showing abnormal results (Hudson & Pope, 1987; A. S. Kaplan, Garfinkel & Brown, 1989; A. S. Kaplan & Woodside, 1987).

Third, the rates of affective disorders among first-degree relatives of bulimics are high, ranging from 34% to 60% (cf. Hatsukami, Mitchell, Eckert, & Pyle, 1986). This high incidence of affective disorders in the families of bulimics would suggest that there is a biological—and affective—basis for bulimia

(Hinz & Williamson, 1987), which resembles the apparent genetic basis for affective disorders (Devlin & Walsh, 1989; Lickey & Gordon, 1983).

In spite of the impressive amount of evidence, a number of recent reviews have concluded that bulimia and depression are distinct entities that do not share a common biological diathesis (Hinz & Williamson, 1987; Levy et al., 1989; Strober & Katz, 1987). P. J. Cooper and Fairburn (1986) found substantial differences between bulimic patients and affective disorder patients. In particular, bulimic patients tended to have more obsessions and anxiety, whereas true depressive patients were sadder and more suicidal. These researchers concluded that depression is a consequence rather than a cause of bulimia. Weisberg et al. (1987) noted that although bulimics and depressed individuals shared a number of common characteristics, bulimic subjects were more likely to experience dysphoria as diffuse and undifferentiated, whereas depressed subjects were likely to engage in self-examination. Bulimic subjects were also found to display greater egocentrism, narcissism, anger, and negativity than depressed subjects.

Furthermore, very few of the studies that found high rates of depression in first-degree relatives of bulimics used control samples for comparisons (Hinz & Williamson, 1987). Stern et al. (1984) did use an appropriate control group, and they found the prevalence of depression in relatives to be 9% for bulimics and 10% for controls. On the other hand, a recent study by Kasset et al. (1989) found higher rates of major affective disorders among relatives of bulimics than among relatives of control subjects. In short, the current evidence is conflicting as to whether bulimics come from depression-prone families.

Even if the families of bulimics do have a high rate of genuine affective disorders, it is unclear whether this represents biology or disturbed family dynamics. For example, Mitchell et al. (1986b) compared 111 bulimics with a family history of depressive illness with 164 bulimics without a family history of depression. They found that the bulimics with a family history of depression were more likely to have been treated previously for depression, but both groups had similar scores on the Hamilton Rating Scale, suggesting equal levels of affective disturbance. Thus, the greater tendency to have been treated for depression could be due to a greater familial awareness of the disorder rather than due to a genetic link.

Although impressive, the biochemical demonstrations of a link between depression and bulimia have also fallen short of providing definitive conclusions about the relation between depression and eating disorders (A. S. Kaplan & Woodside, 1987). For example, antidepressant medications have been shown to be effective in treating a variety of psychological disorders (e.g., panic disorder, school phobia, cocaine addiction, posttraumatic stress disorder, and enuresis; see Devlin & Walsh, 1989, or Levy et al., 1989). Thus, a positive response to antidepressant medication does not in itself confirm the depression-bulimia relation. Similarly, DST results can be affected by abnormal feeding patterns or chronic undernourishment (A. S. Kaplan & Woodside, 1987; A. S. Kaplan, Garfinkel, & Brown, 1989). For example, A. S. Kaplan, Garfinkel, and Brown (1989) found that bulimic DST nonsuppressors were significantly thinner than bulimic DST suppressors. Furthermore, other neuroendocrine indicators of depression (such as thyroid releasing hormone

blunting, A. S. Kaplan, Garfinkel, & Brown, 1989; and the clonidine challenge test, A. S. Kaplan, Garfinkel, Warsh, & Brown, 1989) are not apparent in bulimics. Finally, Strober and Katz (1987) pointed out that clinical and physiological correlates of depression and bulimia are quite distinct.

Thus, depression is not a fully satisfactory explanation for binge eating. The hypothesized connection refers to only some binge eaters (i.e., some bulimics but not dieters), and current evidence has questioned the nature of that connection. There are important differences between binge eating and depression, and not all binge eaters are depressed (nor do all depressives engage in binge eating). Furthermore, even if binge eating always involved depression, important questions would still remain unanswered, insofar as psychology does not yet fully understand depression.

There is, however, clear evidence that some connection exists between bulimia and depression. The notion that many binge eaters are often depressed is quite compatible with escape theory. For example, depressed individuals are described as being intensely and aversively self-focused (Pyszczynski & Greenberg, 1987), which may be due to discrepancies between self-expectancies and current standings on important dimensions (Higgins, 1987). Escape theory does propose that binge eating is motivated by the desire to escape from unpleasant emotional states that are associated with unflattering views of self, and so evidence of depression in many binge eaters is quite consistent with escape theory.

*Carbohydrate craving.* Wurtman and Wurtman (cf. Wurtman, 1989; Wurtman & Wurtman, 1984) have speculated that some individuals may overconsume specific foods (i.e., carbohydrates) because of neurochemical deficiencies. In their view, individuals can "self-medicate" by using foods rather than drugs to modulate emotion. For example, Wurtman (1989) wrote that the "Tendency for obese people to overconsume carbohydrates might represent a kind of 'self medication,' that is, that they use foods as though the foods were drugs, to make themselves feel better." (p. 31). This theory requires that obese or bulimic individuals maintain abnormal serotonin levels that allow carbohydrates to have particularly potent anxiolytic effects. It is currently unclear whether abnormal levels of neurochemicals are attributable to innate physiological differences or are better attributed to side effects of dieting (A. S. Kaplan & Woodside, 1987). Furthermore, researchers have indicated that bulimics do not consume a greater proportion of carbohydrates during binges as compared with what they normally eat (Rosen et al., 1986), and bulimics will sometimes eat whatever food is available, leading Abraham and Beumont (1982) to conclude that "an invariably high carbohydrate intake during binges appears to be a myth" (p. 634). Thus, the evidence for carbohydrate craving is currently insufficient. To the extent that carbohydrate intake promotes a reduction in anxiety, it might explain food choice during a binge, although it does not clearly explain how binges actually occur.

*Purging and mood regulation.* At first glance, the theory that stands in greatest contrast to escape theory is the proposition that purging is the motivating force behind binge eating (see Leitenberg et al., 1988; Rosen & Leitenberg, 1985). This theory speculates that it is vomiting rather than bingeing that serves as an anxiety reducer. Thus, according to this theory, it is vomiting

that drives bulimic behavior. In contrast, escape theory speculates that it is binge eating that is associated with decreased negative affect. The role of purging, according to this view, is to deal with the negative feelings that arise following the binge when self-awareness returns.

An examination of the relevant literature indicates there is support for both views. For example, some researchers have found reductions in affect and anxiety during the binge (Elmore & de Castro, 1990; Katzman, 1989; Kaye et al., 1986), others have found reductions in affect and anxiety during the purge (J. L. Cooper et al., 1988; Johnson & Larson, 1982; Willmuth, Leitenberg, Rosen, & Cado, 1988), and others have found reductions in affect and anxiety during both the binge and purge (Kaye et al., 1986; Steinberg et al., 1990). Additionally, there have been some reports of increased anxiety during the binge (J. L. Cooper et al., 1988; Johnson & Larson, 1982; Willmuth et al., 1988), contrary to the escape model. Finally, in all cases, mood is significantly worse between the binge and purge (J. L. Cooper et al., 1988; Johnson & Larson, 1982; Lingswiler et al., 1989b).

There are two major problems with all of these data. First, some studies (J. L. Cooper et al., 1988; Steinberg et al., 1990) have relied on retrospective reports that are unlikely to capture momentary changes in self-awareness and affect. Instead, individuals might remember only the most salient aspects of the binge. Even when subjects complete the questionnaires immediately after the binge (Elmore & de Castro, 1990; Kaye et al., 1986; Lingswiler et al., 1989a, 1989b), it is likely that self-awareness has changed. Second, even in those studies that have used concurrent monitoring, there is a natural confounding between affect and self-awareness. Escape theory requires that individuals operate at low levels of thinking, which are motivated by attempts to avoid thinking about oneself. Requiring subjects to monitor their affect (by beeping them during the binge [Johnson & Larson, 1982] or by using thought sampling techniques [Willmuth et al., 1988]) requires self-reflection of higher cognitive processes. Thus, even though the bulimic may have been operating at low levels of self-awareness (and therefore had attenuated affect), the intrusion of the experimental procedure may have had the effect of increasing self-awareness and forcing the bulimic to reflect on his or her current bingeing. There do not appear to be any satisfactory solutions to this confounding between self-reports and self-awareness. Instead, the theories need to be evaluated on different criteria.

In our view, the purging theory may have some useful insights but is inadequate as a comprehensive account of binge eating. First, many binge eaters do not purge (Steere & Cooper, 1988), so the purging hypothesis does not explain what motivates or produces binge eating. This includes the large number of obese binge eaters who frequently experience bingeing but seldom purge (Loro & Orleans, 1981; Marcus et al., 1988; Orleans & Barnett, 1984). Second, even among those who do purge, bingeing precedes purging by at least 1 year (Fairburn & Cooper, 1982; Turnbull et al., 1989), which suggests that the onset of purging might be related to a different set of motivations. More specifically, the binge eater may be forced to engage in purgative behavior if he or she is to suppress body weight successfully. Over time, purging may take on learned qualities that can reduce anxiety in the absence of a binge (the empty sensations

experienced by purgers can be taken as evidence of their success at dieting).

Thus, the escape theory and the purge theory are not in conflict. It is likely that different motivational forces drive bingeing and purging. Bingeing, according to the escape hypothesis, occurs following a motivated shift in self-awareness. On the other hand, purging may serve to reduce anxiety associated with caloric intake during the binge. The evidence is clear that bulimics who do not purge are much more likely to be obese than are purgers (Williamson, 1990; Willmuth et al., 1988). Given that binge eaters feel miserable when the binge ends and self-awareness returns, they must adopt some strategy to cope with the distress associated with breaking their diets. Some will try to go on even more restrictive diets and will eventually fail; others will purge and have an immediate reduction in dysphoria and anxiety. Thus, for these people, purging is an important way of dealing with postbinge distress. However, it is unclear whether this release is the primary motivator of future binge episodes. We believe that the mechanism outlined in this article might explain why individuals binge, but that other theories may be needed to explain why individuals purge.

*Biopsychosocial theories.* Recognizing that bulimia and binge eating are multidetermined entities, many theorists have proposed models that incorporate both psychological and physiological factors. For example, the biopsychosocial model proposed by Johnson and Connors (1987) stressed that some women may have a biological vulnerability to affective disturbances. Affective instability is worsened by conflictual or chaotic family environments and transitional social roles for women. These factors contribute to low self-esteem and self-regulatory difficulties. Under cultural pressure toward thinness, the bulimic (or binge eater) undertakes dieting to increase self-esteem. Paradoxically, the physiological and psychological side effects of semistarvation exacerbate affective instability and low self-esteem (Keys et al., 1950). Binge eating is thought to occur as a reaction to a "psychobiological impasse" and because it serves a number of adaptive functions (such as stress reduction or as a way to act out aggressive feelings). Purging is also believed to have adaptive functions (including tension regulation and reassertion of control). Williamson (1990) proposed a fairly similar model for binge eating.

These biopsychosocial theories share many features with escape theory, including some key dispositional and situational determinants of binge eating. In our view, the value of escape theory relative to biopsychosocial theories is its effort to explain the binge process itself; biopsychosocial theories have concentrated on other issues, especially an effort to explain predisposing factors. For example, Johnson and Connors (1987) noted the adaptive functions of the binge, but they did not specify the actual mechanisms responsible for disinhibition. Most other biopsychosocial accounts simply describe the binge episode rather than offering a theoretically based process model. Thus, again, escape theory is compatible with insights developed in other theoretical contributions, but it adds insight into the binge process.

*Psychosomatic theory versus externality.* A self-awareness interpretation of binge eating allows for an integration of two views that have often been regarded as rivals, namely the psychosomatic hypothesis of obesity and the externality hypothe-

sis. This is important because many binge eaters are obese (Williamson, 1990), and obese people are particularly prone to binge eating (Marcus et al., 1988). The psychosomatic theory of obesity (Bruch, 1961; H. I. Kaplan & Kaplan, 1957) proposes that some obese individuals overeat in an attempt to reduce anxiety. The externality hypothesis suggests that eating by obese individuals is largely dependent on external forces, so that binge eating is more likely if there are salient eating cues (Schachter, 1971). The escape theory of eating predicts externality and anxiety reduction, thus incorporating both—previously conflicting—theories. A shift to low levels of thinking will result in a reliance on immediate, external cues as well as a dampening of affect. This view suggests that food does not necessarily decrease affect (as theorized by the psychosomatic hypothesis), but rather that reduced affect and eating co-occur following escapes from self-awareness.

### *Implications for Research*

Past research has not been directly concerned with testing the escape model, and so this review has relied on post hoc interpretation. On the other hand, the escape model may be considered predictive insofar as it was developed to explain other patterns of behavior, notably masochism and suicide, and so its application to binge eating is novel. In view of how well the available evidence fits the escape hypothesis, it seems worthwhile for research to begin to test it directly.

It seems particularly important to examine the mental states associated with binge (and purge) episodes in greater detail. The escape model proposes that cognitive narrowing and immediacy, concrete and rigid thinking, and similar features will characterize this state. The amount of evidence available about this state, although it does fit the escape model, is quite limited, and it must be regarded as the highest priority for empirically testing the escape model of binge eating.

The role of self-awareness in binge eating, although amply suggested, needs more thorough and systematic study. According to escape theory, a high (and aversive) focus on self will be the state that will motivate the person to seek an escape, and the escape itself will be linked to a reduction in self-awareness.

A particular ambiguity in the evidence is whether the binge eating is a cause, or merely a consequence, of the escape from self-awareness. It does seem apparent that reductions in self-awareness are important in removing inhibitions against eating and therefore fostering the binge. It may also be, however, that the process of eating can absorb the person's attention and therefore facilitate the narrowing of attention and resultant escape from broad self-awareness. If that is correct, then the relationship between binge eating and reduced self-awareness may be one of reciprocal causality.

This review has drawn on both studies of bulimic subjects and studies of dieters (and other restrained eaters). The implicit assumption is that the binge process is similar in those two groups, or at least that differences involve simply extremity (or frequency) rather than true differences in process. Any evidence that binges follow different causal pathways in bulimics as opposed to dieters could indicate the need for revising the escape model.

### *Implications for Therapy*

In view of the clinical problems posed by binge eaters, especially bulimics, it is worth considering the implications of the escape model for treating them. In our view, an eating binge occurs as a result of processes that temporarily override the cognitive self-control of eating. Treatment must therefore focus on the cognitive processes and causes that set the escapist pattern in motion, rather than focusing on the binge behavior per se. Indeed, if therapy is focused solely on stopping the bingeing, the person may be left with the same motivations and aversive self-awareness, which could cause him or her to turn to other, possibly more destructive, forms of escape. This danger is implied in the findings of Yager et al. (1988), who found that over a 20-month period a reduction of disordered eating patterns was accompanied by an increase in alcohol and drug abuse among bulimics and binge eaters.

Clinical interventions could in principle be based on modifying any of the causal steps preceding the onset of the eating binge. One approach would therefore be to try to alter the high standards and perceived expectations that place great pressure on the individual. Promoting self-acceptance might relieve the binge eater's belief that he or she is held up to impossibly difficult standards, and it might also shift the evaluative locus from external to internal.

A second approach would focus on the aversive awareness of self that precedes the binge. As long as bulimics have low liking, respect, and esteem for themselves, awareness of self will tend to be aversive. (Indeed, high self-esteem may be the single most important predictor of positive outcomes in therapy for bulimia; Fairburn & Cooper, 1987.) Reducing self-hatred and raising self-esteem may therefore be effective intervention goals.

A third approach would be to reshape the individual's intrapsychic cognitive responses (see Fairburn & Cooper, 1987). The goal here is to break the escalating cycle of negative thoughts about the self (and the attendant negative affect). The extensive overlap between binge eating and other forms of escape, notably alcohol and drug abuse, suggests that these individuals are searching for some effective means of stopping unwanted thoughts and controlling their mental processes. Cognitive therapy may attempt to create an effective but less harmful strategy for the client to escape from the accumulating burden of aversive thoughts and implications about the self.

### *Conclusion*

In many respects, binge eating appears to be a pattern of motivated escape from meaningful self-awareness. Binge eating may occur in connection with a narrowed, unreflective focus on immediate sensations. This focus is sought as an escape from the acute awareness of self as failing to live up to high standards and expectations and from the negative affect associated with that state.

The escape model appears to be capable of integrating and explaining a wide range of empirical findings about binge eating. Also, there appears to be little evidence that directly contradicts the escape model, although there are areas of ambiguity and inadequate evidence. Direct tests of the escape model seem warranted in view of the good fit between it and past evidence.

Although modern culture has a powerful and abiding fascination with the individual self, this fascination can compound subjective distress when the person regards him- or herself as unattractive, incompetent, or unsuitable. Such aversive awareness of self may provoke a powerful set of motivations to escape from this awareness. This desire to escape from self may prove a useful framework for making sense of the paradoxical pattern of binge eating.

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Received July 17, 1989

Revision received June 5, 1990

Accepted December 17, 1990 ■