BINGE EATING DISORDER:
A LITERATURE REVIEW

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This literature review summarizes relevant literature on the subject of Binge Eating Disorder in six areas: definitional and diagnostic issues, assessment and measurement, foundations of behavior, applications to therapy, cultural considerations, relevant ethical and professional issues, and research challenges and needs.

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BINGE EATING DISORDER:
A LITERATURE REVIEW

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Currently, Binge Eating Disorder (BED) is not an official category of the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR; American Psychiatric Association, 2000). The first official acknowledgement of binge eating was in the DSM-III in 1980. Binge eating as a behavior was first described as a characteristic of bulimia. Later, in the DSM-III-R (American Psychiatric Association, 1987), the term was changed to bulimia nervosa (BN) and still held binge eating as a symptom. In 1994 the DSM-IV identified binge eating as a psychiatric problem separate from BN and anorexia nervosa (AN). BED is listed under Appendix B: Criteria Sets and Axes Provided for Further Study, meaning it was determined that there was insufficient information to justify its full inclusion as an official category. Since BED is not an official category, there are only provisional criteria intended to guide those interested in the study of this potential disorder.

Estimating the prevalence of BED is a very difficult task in view of the fact that studies that have investigated this phenomenon have used different definitions and types of samples. Just the difference in diagnostic criteria compromises not only generalizing findings, but also determining epidemiology. According to the DSM-IV-TR (American Psychiatric Association, 2000), BED affects 15% to 50% of samples drawn from weight-control programs, and has a prevalence rate of 0.7% to 4% in non-clinical community samples. DiAngelis (2002) reported that BED affects approximately 2% of the general population and 8% of people with obesity in the United States. A study examining the prevalence and correlates of eating disorders in the National Comorbidity Survey Replication (Hudson, Hiripi, Pope, & Kessler, 2007) pointed out that BED is potentially the most common eating disorder in the United States. Despite the fact that BED was identified as a potential psychiatric disorder over a decade ago it has not been given the same importance as other eating disorders. The importance of addressing BED is not
only due to the psychological distress that it brings to those who present it, but also because of the significant physical consequences it can have.

This paper constitutes a literature review on BED. Given the substantial amount of information and research on the subject of BED, the literature was selected in a way that provides sufficient information to be representative of the current literature on the topic, while covering seven research categories. The categories and subsections of this paper are: definitional and diagnostic issues, assessment and measurement, foundations of behavior, applications to therapy, cultural considerations, relevant ethical and professional issues, and research challenges and needs.

**Definitional and Diagnostic Issues**

The issue of clearly differentiating BED from other eating disorders is crucial in order to establish it as an eating disorder. In addition, the criteria have to be clear, meaning that it is necessary to know what the required frequency of binge eating is in order to make a diagnosis. It is also necessary to establish whether the occurrence of inappropriate compensatory behaviors would still allow for the diagnosis to be made and to what extent. Several authors have investigated both of these factors. Other questions pertaining to the validity and utility of BED as a clinical diagnosis are: Is BED an eating disorder, or is it obesity? Is it perhaps a variation of Bulimia Nervosa (BN), or is BED significantly different from other eating disorders?

Similar to other eating disorders, BED involves an excessive concern for food and body image accompanied by mood symptoms. Although being overweight and obesity tend to be comorbid conditions of BED, not every overweight or obese individual presents BED, and it is not necessary to be obese in order to present BED (Brownley, Berkman, Sedway, Lohr, & Bulik, 2007). According to the DSM-IV-TR (American Psychiatric Association, 2000) the provisional
criteria for BED consist of recurrent episodes of binge eating, which is characterized by “eating, in a discrete period of time…an amount of food that is definitely larger than most people would eat in a similar period of time under similar circumstances” (p. 787), and a sense of lack of control over the amount one is eating during the episode. Three or more of the following behaviors are present during the binge eating episode: “(1) eating much more rapidly than normal, (2) eating until feeling uncomfortably full, (3) eating large amounts of food when not feeling physically hungry, (4) eating alone because of being embarrassed by how much one is eating, (5) feeling disgusted with oneself, depressed, or very guilty after overeating” (p. 787). The binge eating behavior also causes clear distress to the individual.

In order for BED to meet the criteria, it has to occur at least two days a week for six months. The reason that its frequency is considered in number of days and not of episodes a week is that individuals with BED have difficulty discerning binge eating episodes, but they can recall relatively easily whether they engaged in binge eating on a specific day. Lastly, “the binge eating is not associated with the regular use of inappropriate compensatory behaviors (e.g., purging, fasting, excessive exercise) and does not occur exclusively during the course of Anorexia Nervosa or Bulimia Nervosa” (DSM-IV-TR; American Psychiatric Association, 2000, p. 787). As noted in the DSM-IV-TR, what is defined as regular use is not clear. Some studies suggest that compensatory behavior that occurs less than twice a week (which is the criteria for bulimia nervosa) can be diagnosed as BED, but others have excluded individuals who report any compensatory behavior.

In a literature review on the subject of BED, Tuchen-Caffier and Schlüssel (2005) have argued that BED is a clinical disorder, is different from BN, and is different from obesity or non-BED obesity. Two of the studies that confirmed their assumption were those by Wilfley, Wilson,
and Agras (2003) and Streigel-Moore, Cachelin, Dohm, Pike, Wilfley, and Fairburn (2001), in which it was observed that BED involves concern about body shape and weight. This characteristic is also found in BN and AN. They also found that “body image disturbances are more pronounced in obese binge eaters than in obese non-binge eaters” (Tuchen-Caffier & Schlüssel, 2005, pp. 142-143). In a study by Hilbert, Tuschen-Caffier, and Vögele (2002), 30 subjects presenting BED and 30 control subjects were exposed to their physical appearance in a mirror, both groups had comparable Body Mass Indexes (BMI). Self-reported mood, appearance, self-esteem, and frequency of negative conditions were assessed. Both groups had lower appearance self-esteem after the experiment, but subjects presenting BED showed significantly more depressed mood and would described themselves as “fatter.” Although body image and weight concerns are not included in the provisional criteria, the studies cited by Tuchen-Caffier and Schlüssel (2005) draw attention to the further consideration of these symptoms.

Wilfley et al. (2000) analyzed comorbidity on Axes I and II in 162 subjects diagnosed with BED. The results showed that 33% of the sample presented at least one current comorbid Axis I diagnosis; most of these were mood disorders. Lifetime Axis I comorbidity was significantly higher, at 77%. Over half of the diagnoses were mood disorders, with Major Depressive Disorder (MDD) as the most common one. For Axis II disorders, 37% of the subjects met criteria for a personality disorder. Although Axis I disorders were not significantly related to BED severity at baseline, Axis II disorders were. Moreover, the authors found that Cluster B disorders predicted higher binge eating frequency at one-year follow-up than other personality disorder clusters.

Focusing on the distinction between BN and BED, Walsh and Boudreau (2003) compared the behavior of subjects presenting BED to that of subjects presenting BN in a
laboratory. One of the differences highlighted was that the size of the average binge meal was greater in patients with BN. Second, subjects with BN have a “more disturbed pattern of food consumption during a binge meal than patients with BED” (Tuchen-Caffier & Schlüssel, 2005, p. 144). Third, during non-binge meals subjects presenting BN ingested fewer calories than the control group and fewer than subjects presenting BED. None of these differences pertain to the provisional diagnostic criteria; however they do reflect an important difference in behavior patterns.

Finally, Tuchen-Caffier and Schlüssel (2005) affirmed that non-BED obesity and BED are different, given that several studies have concluded that psychopathology is significantly more prominent in individuals with BED when compared with obese non-BED subjects. They stressed that body image distortion is much more pronounced when BED is present. It appears that the impairment and distress experienced by those who meet criteria for BED is clinically different from individuals who just present obesity or overweight.

Along the same lines, in a literature review on BED, Wonderlich, Gordon, Mitchell, Crosby, and Engel (2009) examined evidence on how BED differentiates itself from other eating disorders and non-BED obesity. The authors included findings across a variety of areas, including laboratory-based studies, ecological momentary assessment-based studies, longitudinal studies of diagnostic status, studies of brain function in BED, and ten other areas. The empirical research reviewed showed clear differences between BN and AN, but studies differentiating non-BED obesity from BED were limited. BED differentiated itself from AN and BN in important ways such as “recovery rates, diagnostic stability, age of onset, gender distribution, Body Mass Index (BMI), dietary restraint, relative age of onset of dieting and binge eating, psychiatric
comorbidity, and binge characteristics” (Wonderlich et al., 2009, p. 699). The authors came to
the conclusion that BED has clinical validity and utility as a diagnosis.

Focusing specifically on the frequency criteria for BED, Wilson and Sysko (2009)
examined the validity and utility of the criterion of twice-a-week binge eating established in the
DSM-IV. In order to evaluate the frequency criteria, the authors reviewed published studies and
their frequency criterion. Nine studies examining differences in eating disorder symptoms and
the frequency of binge eating among patients with BED were identified. Several studies
identified compared subjects who met the criteria established in the DSM-IV to subjects who met
a sub-threshold, which was binge eating at least once a week. The results showed that subjects
with BED or sub-threshold did not differ significantly; however, the BED groups did tend to
present more prominent psychopathology, such as higher levels of sadness and lower self-
esteem. When the sub-threshold groups were compared against control groups, a significant
difference was found. The authors concluded that there was “little if any evidence of the validity
or utility of the DSM-IV frequency criterion of twice a week binge eating” (Wilson & Sysko,
2009, p. 607). Moreover, the authors stated that the optimal cutoff for binge eating frequency has
yet to be determined, and so far there is limited data available on which to base it.

Assessment and Measurement

Semi-Structured Interviews

There are several methods for assessing eating disorders; many of them can be used to
measure eating psychopathology in general instead of assessing a specific eating disorder. Some
instruments have been specifically designed to assess BED, but many assessment measures that
do not focus specifically on BED can be very effective. According to Garner (2002) the most
common assessment methods for eating disorders in general are “semistructured clinical
interviews, self-monitoring, and self-report measures” (p. 143).

Several semi-structured clinical interviews have been standardized and have proven to be
a valid method of assessment. Garner (2002) reports that the best validated interview is the
Eating Disorder Examination (EDE or EDE-12), which was developed by Fairburn and Cooper
in 1987. The responses are organized in four subscales: restraint, eating concern, shape concern,
and weight concern. The EDE assesses fullness, calorie limits, subjective loss of control, urge to
eat, guilt about eating, among other variables that are important when assessing binge eating. As
described by Garner, some of the qualities of the EDE are its utility for diagnosing and being
sensitive to treatment changes. Perhaps one of the most positive aspects concerning the
measurement of BED is that it defines different forms of overeating and also assesses the lack of
control over food intake; in addition, it allows the investigator to clarify the subject’s responses,
including binge eating. This interview can take more than an hour and is administered by a
trained interviewer.

An adaptation of the EDE for children (ChEDE) was elaborated by Bryant-Waugh,
Cooper, Taylor, and Lask (1996). Two key modifications were made to the EDE. First, the
inclusion of a “sort task to assess overevaluated ideas about weight and shape” (Bryant-Waugh
et al., 1996, p. 393) was used to supplement two of the items. Second, some questions were
reformulated to assess intent instead of actual behavior. The instrument was designed with
children ranging from seven to 14 years of age. A study testing the reliability and validity of the
ChEDE found a high degree of internal consistency for each of the subscales, as well as the
intrarater reliability (Watkins, Framton, Lask, & Bryant-Waugh, 2005). In addition, results
demonstrated that the scale differentiates children with AN from those with other types of eating disorders and without an eating pathology.

Another clinical interview designed to measure eating disorders is the Yale-Brown-Cornell Eating Disorder Scale (YBC-EDS; Mazure, Halmi, Sunday, Romano, & Einhorn, 1994). One of the characteristic features of this scale is that it provides a measure for the degree of impairment. Symptom assessment is not limited to a particular eating disorder or concern. A checklist of 21 preoccupations, 44 rituals and the total number of possible symptoms is organized in 16 symptom categories of thematic concerns or behavior. Some of the preoccupations concern food, eating, shape and appearance, and some of the rituals are bingeing rituals, and eating rituals, among others. The interview has been proven to be a well validated measure (Mazure et al. 1994; Garner, 2002).

The Children’s Binge Eating Disorder Scale (C-BEDS; Shapiro et al., 2007) was designed with the purpose of creating an assessment tool for children that specifically assesses binge eating, especially the loss of control that is experienced during an episode. The scale was designed to be used with clients between five and 13 years of age. The authors hypothesized that the current provision criteria for BED might not be suitable for children; however, they acknowledge that, due to the lack of studies in this area, such a hypothesis is not empirically supported.

An important consideration for the creation of the C-BEDS (Shapiro et al., 2007) was that binge eating is a subjective term not easily comprehended by children. When constructing the C-BEDS, Shapiro et al. (2007) took into consideration a proposed provisional criterion for measuring BED in children (Marcus and Kalarchian, 2003). This provisional criterion for children proposed by Marcus and Kalarchian (2003) makes some alterations to the BED DSM-
IV-TR criteria. The DSM-IV-TR BED Criterion A was modified to include “seeking food in the absence of hunger” (Shapiro et al., 2007, p.84) and Criterion B to include “food seeking in response to negative affect, food seeking as a reward, and sneaking or hiding food” (Shapiro et al., 2007, p.84). In another study, Shapiro et al. (2007) evaluated both the DSM-IV-TR criteria and the provisional criteria for children. The results showed that when the Structured Clinical Interview for the DSM-III-R (SCID; Spitzer, Williams, Gibbon, & First, 1992) was modified to conform to the children’s provisional criteria, both instruments identified a similar extent of symptoms and frequency. The utility of the C-BEDS seems to rely in its relatively simple administration, as opposed to the SCID and the ChEDE (Bryant-Waugh et al., 1996), and it appears to be more easily understood by children. Nevertheless, this instrument does not measure the DSM-IV-TR criteria for BED but uses different ones that need further investigation.

**Self-Monitoring Measures**

Self-monitoring measures can be useful for obtaining more detailed information about the patterns of eating behaviors as well as thought processes. Self-monitoring measures are usually journals or documentation of thoughts, feelings, food intake, and other behaviors. An important consideration made by Garner (2002) about self-monitoring measures is that clients may influence their behavior as they become more aware of it. In other words, as clients pay more attention to their behaviors in order to monitor them, they might consciously or unconsciously alter the frequency or intensity of their behaviors. In fact, self-monitoring is an important strategy to alter behavior in cognitive behavioral treatments for binge eating and weight loss.

**Self-Report Measures**

According to Garner (2002) some of the most frequently used self-report measures are the Eating Attitudes Test (EAT; Garner, Olmsted, Bohr, & Garfinkel, 1982) and the Eating
Disorders Inventory (EDI; Garner, Olmstead, & Polivy, 1983). EAT was developed through the factor analysis of an original 40 item version. Twenty-six items measure the different eating disorder symptoms. The EDI has multiple scales, which assess attitudes and behaviors with regard to eating, weight, and shape. The EDI-2 added three new subscales, making a total of 11 scales, namely: drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interceptive awareness, maturity fears, asceticism, impulse regulation, social insecurity. Both instruments have proven to have good psychometric properties and to be sensitive to treatment effects (Garner, 2002). In a cross-cultural comparison of the EDI, with both versions, results suggested the measure can be generalized across languages and cultures (Podar & Allik, 2009). The literature review on which the study was based included 43,722 subjects from 25 different countries, using the EDI in one of its 16 languages. It also reported that non-western subjects tend to score higher on all subscales. The authors interpret this finding as eating disorders symptoms being more pronounced in non-western subjects.

The Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994) is an adaptation of the EDE design to be a self-report measure. In the initial comparison of the EDE-Q against the EDE, results showed that the self-report version generated reports of higher rates of binge eating. This issue had been mentioned previously. Again, it is still not clear why the discrepancy occurs; one hypothesis is that the interview allows for clarification of what a binge eating episode is. The authors discard the possibility of underreporting in the interview due to embarrassment, given that for self-induced vomiting and laxative misuse there was little discrepancy in the results. This finding raises questions about the accuracy of self-report and interview-based assessments for BED.
The Three-Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985) consists of 51 items measuring cognitive restraint of eating, disinhibition, and hunger. The construction of this scale was based on a collection of items from two previous questionnaires measuring eating restraint and latent obesity. In addition, other items concerning these variables were included. After administering the questionnaire, factor analysis was used to it. After the factor analysis, the stable factors that emerged were cognitive restraint of eating, disinhibition, and hunger. This instrument has proven useful in assessing eating disorders in general, including BED.

The Questionnaire on Eating and Weight Patterns-Revised (QEWP-R; Spitzer et al. 1992) has shown great accuracy in identifying subjects with BED according to provisional criteria (Nangle, Johnson, Carr-Nangle, & Engler, 1994). This self-report questionnaire includes individual components, duration, and frequency of the BED criteria. Questions about weight fluctuation, distress about eating, dieting, episodic overeating, duration of the binge, and binge-associated symptoms are also included. Purging and diuretic or laxative use is also assessed.

Another instrument designed for the specific assessment of BED is the Binge Eating Scale (BES; Gromally, Black, Daston, & Rardin, 1982). This self-report measure covers symptoms and demographic information relevant to eating disorders. Sixteen characteristics, including guilt, preoccupation with restraint of eating, eating fast or in secret, compose the measure. Sixteen different statements that measure each characteristic are weighed to reflect severity. The preliminary study conducted by the authors of the BES showed that the measure has high internal consistency and is effective at identifying different levels of binge eating severity.

Even though body image distortion is not a diagnostic criterion for BED, it has been found to be a relevant feature. Assessing body image disturbances may also allow the clinician to
determine level of distress, impairment, and severity. Two self-report instruments that may be used to assess for body image impairment are the Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, Fairburn, 1987) and the Body Checking Questionnaire (BCQ; Reas, Whisenhunt, Netemeyer, & Williamson, 2002). The BSQ has 34 items measuring concerns with body shape. Some shortened versions of the BSQ have been introduced. The original 34-item version has proven to be valid and have discriminant validity. The BCQ was designed for the measurement of body checking, which is the over evaluation of shape and weight. Common body checking behaviors are “ritualistic weighing, feeling for bone protrusion, pinching flesh, or using special cloths to gauge fit” (Reas, White, Grillo, 2006). The BCQ consists of 23 items that measure body checking in three areas: overall appearance, specific body parts, and idiosyncratic checking behaviors. This instrument has proven to have good psychometric properties, discriminate dieters from non-dieters, and most important, show reliability and validity in individuals with BED (Reas et al., 2006).

Tuchen-Caffier and Schlüssel (2005) have pointed out that when self-reports are used to assess BED, the prevalence rates are higher than those attained with interview-based methods. The explanation that the authors give is that during interview-based assessment the clinician has the opportunity to clarify what binge eating is. The other issue to consider, which was discussed previously, is how assessment is greatly variable depending on the criteria used. Given this, it becomes necessary to find assessment instruments that match the criteria that will be used for a particular study.
Etiological Theories of Binge Eating Behavior

Much information has been collected over the years about triggers and potential risk factors; however, the information has not yielded a cohesive explanation as to why individuals engage in binge eating as opposed to other forms of behavior and the function that it serves. This section will examine literature attempting to explain the mechanisms of BED and consider models of understanding the etiology of the behavior, such as protective factors and comorbid psychopathology.

Heatherton and Baumeister (1991) proposed that binge eating is the result of purposely engaging in low self-awareness. The authors found that dieting and food restraint are positively correlated to being eating. In other words, when individuals were found to regiment their food intake, they were more prone to binge eat. From the authors’ understanding, a critical distinction between an occasional eating splurge and a binge eating episode is that the latter is preceded by dietary restraint. They believe binge eating commonly occurs in the context of dieting. Several studies before and after the findings presented by Heatherton and Baumeister (1991) agree with this position. As an example, Manwaring et al. (2006) classified binge eaters into those whose binge eating precedes dieting and those whose dieting precedes binge eating, and compared the levels of psychopathology. Their findings showed that binge eaters who diet first and then binge present a greater history of psychopathology. The objective of their review was to formulate an answer as to what causes a person to engage in binge eating. For this purpose, they revised theories and studies with bulimics and dieters. The focus of the review was not on dieters, bulimics, or any specific eating disorder, but on the binge eating behavior itself.

Individuals attempting not to eat or to eat minimally can engage in binge eating behavior that runs counter to their previous attempts to restrict. Heatherton and Baumeister (1991), binge
eating is then a “paradoxical, self-defeating pattern of behavior” (p. 88). The contradictory nature of the behavior is supported by the fact that people with BED are more concerned with their shape and figures and tend to overeat more than individuals who are less concerned with their body shape (Heatherton & Baumeister, 1991; Reas, White, Grilo, 2006). Such self-defeating behavior is understood as a counterproductive strategy or an inappropriate trade-off. The inappropriate trade-off is to accept a risk or harm (by binge eating) in order to escape from aversive self-awareness. Such propositions are based on the escape theory by Heatherton and Baumeister (1991). Based on this, binge eating, and therefore the functionality of BED, is motivated by the desire to escape from self-awareness. Since shifting focus from the self can be a difficult task, the person focuses only on present and immediate environmental stimuli. Food provides an immediate stimulus that lowers the level of self-awareness.

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… At the lowest levels, self is reduced to body, experience is reduced to sensation, and action is reduced to muscle movement….a shift to low levels of awareness may be a means of removing long-range concerns and lasting implications from awareness. (Heatherton & Baumeister, 1991, p. 88).

From the perspective of escape theory, when people have a distressing experience, food provides an immediate stimulus that helps them lower self-awareness to the point of not only almost dissociating from the environment, but also from the immediate eating behavior in which the person is engaging. The authors considered that high levels of awareness are based on meaningful constructs that allow the person to link immediate events to significant remote ones.
In contrast, low levels allow a present event to be deconstructed in order to step away from its meaning and interpret it as nothing more than stimuli. The deconstruction of events that can be achieved at a low level of awareness allows the person to ignore any threats or worries in the present environment.

Heatherton and Baumeister (1991) postulated six characteristics that they believe are present in individuals who engage in binge eating and that are coherent with the escape theory. The characteristics are: “(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” (p. 89).

High standards found in binge eaters include a high standard for body shape and thinness. Based on several studies investigating the pressure of thinness in specific groups such as ballerinas (Brooks-Gunn, Warren, & Hamilton, 1987), the authors assert that eating disorders are more commonly found when the pressure for thinness is higher. From the perspective of escape theory, high standards will make the person seem inadequate in comparison. In consequence binge eaters have low self-esteem and “high levels of aversive self-focus” (Heatherton & Baumeister, 1991, p. 90). In other words, binge eaters tend to be very self-conscious, or aware, of their supposedly negative aspects. First, the authors explain that experiencing a lack of control or inhibition while eating is commonly found in dieters with low self-esteem. In support of this, the authors make reference to a study by Herman, Polivy, and Heatherton (1990, in Heatherton & Baumeister, 1991), in which it was observed that disinhibited eating can be driven by threatening dieters’ self-esteem.

Second, the escape model states that an aversive high level of self-awareness is the result of making self-comparisons to significant standards. Since high standards seem to be a pivotal
attribute in binge eaters, it is inferred that they are also highly aware of themselves. As mentioned previously, the action of binge eating allows the person to avoid distressing self-notions by taking attention away from them. Some studies have shown that by manipulating self-awareness or self-focus, eating behavior can be modified (Wardle & Bales, 1988; Schotte, Cools, & McNally, 1990). A study by Heatherton, Polivy, Herman, and Baumeister (1993) demonstrated that self-awareness is directly connected with disinhibited eating in subjects who restrain their eating. The authors found that restrained eaters would eat in a disinhibited manner only when they experienced emotional distress and their self-awareness was low. When emotional distress was present but the situation required high levels of self-awareness, dieters were able to inhibit eating. A major conclusion was that when dieters escape self-awareness, eating behaviors increase. Based on the empirical evidence that Heatherton and Baumeister (1991) have found to support their hypothesis, they concluded that binge eating is associated with negative views of the self, that binge eaters are chronically highly aware of themselves, and that binge eating itself is enabled by a loss of self-awareness. In other words, it appears that binge eaters focus on themselves in a very negative manner, which causes emotional discomfort and therefore prompts avoidance or escape. Binge eaters are able to find this escape in disinhibited eating, but for this to take place, low self-awareness is needed. Low self-awareness itself seems to be reinforced and positively correlated to escape or avoidance of the self.

Concerning negative affect, the authors explained that the binge eaters are very conscious of not being able to meet the high standards that they set for themselves. These shortcomings were interpreted as personal failures, leading to negative affect. As mentioned previously, binge eating is sought to escape emotional distress. A relevant statement made by the authors in order to understand the application of the escape theory to BED, is that not all emotional distress
triggers binge eating, only that which threatens the person’s self-esteem. Several studies support the correlation between negative affect and binge eating. Heatherton and Baumeister (1991) mention as an example that Rosen, Gross, and Vara (1987) found that restrained eating was correlated with depression, and Polivy and Herman (1976) observed that dieters (as opposed to non-dieters) tend to gain weight when clinically depressed. Other studies have found that binging and purging can provide a relief from anxiety. In the case of binge eating, the authors argue that, based on the findings of Steer and Cooper (1988) and Elmore and de Castro (1990), binge eating in the absence of purging can provide anxiety relief. This hypothesis is also congruent with the escape theory model, suggesting that binge eating allows the avoidance of emotional distress, including feelings of anxiety, therefore providing a temporary sensation of anxiety reduction.

The previous explanation as to how low self-awareness functions to facilitate binge eating is consistent with escaping through cognitive narrowing. Cognitive narrowing can be commonly found in dieters in the form of dichotomous thinking (Heatherton & Baumeister, 1991). In support of this, in a study by Lingswiler, Crowther, and Stephens (1989) binge-eaters showed more dichotomous thinking before binge eating than controls. This finding supports the proposition that binge eaters have a tendency to view their actions as failures if they did not meet a specific standard, instead of perhaps viewing them as partial accomplishments.

Going back to the hypothesis of cognitive deconstruction in binge eating, the authors argue that the binge eater is someone who becomes so enmeshed with eating that he or she is unsuccessful in evaluating his or her behavior using common norms and standards. It also seems that when a person is on a diet, and the diet is “broken,” binge eating occurs. Again, binge eating is linked to black and white thinking that leads dieters to believe that if the diet was not followed perfectly, they have failed “and the latter is associated with the breakdown of all restraints”
(Heatherton & Baumeister, 1991, p. 95). As a consequence of low self-awareness through
cognitive narrowing, the authors stated that binge eaters become more susceptible to cognitive
distortions or irrational beliefs. Since binge eaters are purposely avoiding critical or rational
thinking (because it would impede using binge eating as an escape), they are less capable of
recognizing and debating cognitive distortions.

A study by Paxton and Diggens (1996) investigated the escape theory’s proposal about
binge eaters displaying a high level of avoidance as a coping strategy. Specifically, the
relationship between binge eating, avoidance coping, and depression was the focus of their
investigation. One hundred and forty-nine female undergraduate students constituted the sample.
Subjects were divided into three groups depending on the scores obtained on the restraint scale
of the Dutch Eating Behavior Questionnaire (DEBQ-Res; van Strein, Frijters, Bergers, &
Defares, 1986) and the scale measuring binge eating behavior of the Bulimia Test (BULIT-Binge
scale; Smith & Thelen, 1984). Subjects with a score greater than or equal to the mean of 28 in
the DEBQ-Res were identified as restrained eaters; subjects on the top ten percent of scores in
the BULIT-Binge scale were identified as binge eaters. The three groups were: control (non-
restrained/non-binge eating), restrained, and binge eating/restrained. Two measures of avoidance
coping and two measures of problem-focused coping were derived from the Ways of Coping
Questionnaire (WCQ; Folkman & Lazarus, 1988). Paxton and Diggens (1996) found that
aversive self-awareness and negative affect were elevated in restrained and binge eating control
groups; however, significantly higher levels of avoidance coping were not observed in binge
eaters as opposed to restrainers. Avoidance coping was correlated with binge eating scores, but
did not predict binge eating when depression was considered. Some considerations for
interpreting the results are that avoidance coping was investigated in conjunction with
depression; “in addition, coping strategies may vary from the time immediately following a stressor to some hours after the stressor, but the WCQ does not detect such temporal shifts” (Paxton & Diggens, 1996, p. 87).

Blackburn, Johnston, Blampied, Popp, and Kallen (2006) also tested the escape theory (Heatherton & Baumeister, 1991) of BED in a non-clinical sample of women who engaged in binge eating. The authors described escape theory’s application to BED as originally presented by Heatherton & Baumeister (1991): “Each of the steps in the Escape Model is viewed as a choice point in a decision tree, with binge eating only occurring if each step produces a particular outcome” (Blackburn et al., 2006, p. 24). One hundred and twenty-nine participants (77 students and 52 non-students) with an age range of 18 to 64 years old constituted the sample. All identified themselves as dieters. The DEBQ-Res (van Strein, Frijters, Bergers, & Defares, 1986) and Body Mass Index (BMI) were used as measures.

A battery of questionnaires was used to measure all the components of escape theory. Perfectionism was measured with the Positive and Negative Perfectionism Scale (PANPS; Terry-Short, Owens, Slade, & Dewey, 1995); aversive self-awareness was measured with two subscales of the Self-Consciousness Scale-Revised (SCSR; Fenigstein, Scheier, & Buss, 1975); negative affect was measured using the Hospital Anxiety and Depression Questionnaire (HADS; Zigmond & Snaith, 1983); cognitive narrowing was measured with the avoidant coping subscales of the COPE Inventory (Craver, Scheier, Weintraub, 1989); and binge eating or ‘binging’, was assessed with the binge scale of the BULIT. A structural equation modeling (SEM) was used based on its capacity “to distinguish sequential relations within the model and also to test the goodness of fit between the data and the hypothesized model, through simultaneously testing various pathways within the model” (Blackburn et al., 2006, p. 23). The
analysis of results obtained showed that escape theory “was indeed a good fit for the data, suggesting that the model does provide a framework for understanding the casual process leading to binge eating and explaining the function binge eating served for an individual” (Blackburn et al., 2006, p. 28). The relationship between the variables posited in escape theory were significantly related to binge eating as shown by the individual path coefficients of the SEM analysis.

An interesting finding was that data supported the bidirectional relationship between cognitive narrowing and binge eating; however, the relationship between cognitive narrowing and binge eating was negative, meaning that binge eating reduced cognitive narrowing, instead of both variables interacting as a feedback loop. A hypothesis explaining this phenomenon is that binge eating may decrease cognitive narrowing, but increase negative self-awareness, therefore perpetuating cognitive narrowing and binge eating. The results also showed that there was no significant correlation between eating restraint and binge eating, which is an important aspect of the escape theory. The results did not support the notion that eating restraint preceded binging, but they did appear to support the claim that escape theory can predict binge eating behaviors whether or not dietary restraint is present. Blackburn et al. (2006) stated that co-existing eating restraint may positively influence factors leading to negative affect, which in turn promotes escape or avoidance through binge eating.

Although not specifically testing it, Stein et al. (2007) obtained some results consistent with escape theory. The objective of the study was to understand better the precursors and consequences of BED by examining the contribution of restraint and hunger to binge eating. The sample was constituted of 31 females who met DSM-IV BED criteria. An Ecological Momentary Assessment (EMA) was employed. EMA is “a group of methods, developed by
personality/social psychologists, termed ecological momentary assessment (EMA), which permit the research participant to report on symptoms, affect, and behaviour close in time to experience and which sample many events or time periods” (Moskowitz & Young, 2006, p. 13). Participants carried around a computer for seven consecutive days. The computer prompted the participants to enter data through an alarm six times a day. Participants answered a series of questions concerning eating and mood. The results showed that negative mood and hunger were significantly higher before the participants engaged in binge eating than when they did not. Negative mood was even higher after binge eating. With regard to restraint, the results showed that meals and snacks had usually not been eaten before a binge episode. Also, participants attributed binge episodes to mood more frequently than hunger or abstinence. The authors stated that binge eating allows the person to achieve a less aversive emotional state; consequently the escape from self-awareness through binge eating becomes reinforced. They did, however, recommend further research on this.

Dieting or food restraint seems to be a recurrent factor in studies in binge eating. Howard and Porzelius (1999) wrote a literature review on the role of dieting in BED. One initial difficulty noted by the authors is that the definition of dieting and its measurement are inconsistent across studies because there is no standard definition for it. They explained that in 1984, Herman and Polivy had a major influence on the definition of dieting when they defined dieting as dietary restraint. The basic idea was that dieters would set a mental boundary through rigid cognitions that was below the cutoff point of physical satiety.

Howard and Porzelius (1999) found that obese individuals with more severe BED started dieting at an earlier age. Also, obese individuals with BED have more frequent weight fluctuations than obese individuals without BED. An important finding in their review is that
most individuals with BED reported starting binge eating before dieting; however, when
individuals without BED or less severe BED were compared with individuals presenting severe
BED symptoms, the latter “started dieting at a younger age, spent more time dieting, and have
experienced greater fluctuations in weight” (Howard & Porzelius, 1999, p. 31). The authors also
reviewed studies using the Restraint Scale (RS; Herman & Polivy, 1980), which is a self-report
questionnaire that measures weight fluctuations, chronic dieting, and attitudes toward weight and
eating. The results of studies reviewed using the RS detected a high correlation between dietary
restraint and binge severity. From other studies using other measures to assess restraint, such as
the TFEQ (Stunkard & Messick, 1985), the authors concluded that individuals with BED are
dieters. They speculated that high scores in the RS seem to reflect a broader concern with food
and weight, which may be influenced by past dieting, current dieting, or both.

Two significant studies examined by Howard and Porzelius (1999) were Telch and Agras
(1993), and Yanovski and Sebring (1994). The first one tested the effects of a very low calorie
diet (VLCD) on BED. Participants were 12 subjects with BED and comorbid obesity, and 37
subjects with obesity and no BED. All participants followed a 12-week VLCD and normal food
intake was gradually introduced. They also participated in nine months of behavior therapy for
weight loss. Fifty percent of subjects that initially had no BED reported BED onset when normal
food was initially reintroduced, and 62% had BED at termination. Binge eaters decreased this
behavior while on the VLCD, but when normal food was introduced, binge eating increased and
by the end of treatment, binge eating behavior was very similar to baseline. At three-month
follow-up, binge eating decreased in both groups. Thirty-nine percent of non-BED participants
who had displayed BED after the VLCD no longer met criteria, but 15% did. From these results
it appears that extreme dietary restraint can induce BED.
In the study by Yanovski and Sebring (1994), dietary restraint and its effects on BED were also examined. Participants were 17 obese women with BED and 16 obese women without BED. All participants went through a VLCD for three months and were assessed a week before treatment and at three month post-treatment. After 12 weeks of VLCD, normal food was introduced and 12 weeks of behavioral weight loss therapy (BWLT) began. The results showed that post-treatment the BED group presented fewer binge eating episodes in total, but the amount of small binges, which according to the authors is fewer than 500 calories, increased. The non-BED group did not show significant changes post-treatment.

These two studies seem to demonstrate inconsistent results in the non-BED groups. One started displaying BED symptoms and a small portion maintained them at post-treatment (Telch & Agras, 1993), whereas the other group remained without BED symptomatology (Yanovski & Sebring, 1994). Howard and Porzelius (1999) explained that something important to consider is the fact that the study by Telch and Agras (1993) was six months longer than the one by Yanovski and Sebring (1994). Also, the latter study suggested that an important aspect in understanding BED could be the experience of losing control. Lastly, in reference to the increase of small or subjective binges that was observed by Telch and Agras, the authors hypothesized that dieting might increase awareness of intake, which may lead to experiencing smaller intakes in an equally disturbing manner as an objective binge. Moreover, Howard and Porzelius (1999) consider this might account in part for the role of dieting in BED.

In Dialectical Behavior Therapy (BDT) pathology lies in emotional deregulation that is caused by emotional vulnerability and difficulties in regulating emotional reactions (Miller et al., 2007). BED is understood by DBT through an affect-regulation model. Wiser and Telch (1999) stated that, according to this model, binge eating stems from the presence of negative affect or
unpleasant emotions. Unpleasant affective experiences can come from within, be prompted by circumstance, or be triggered by interpersonal interactions. Binge eating can be used to avoid emotional distress when more adaptive emotional-regulation skills are not in place. Individuals “who binge may have deficits in adaptive emotion regulation skills: Once the emotional experience threatens to emerge into awareness, or is consciously perceived, the individual fanatically searches to minimize or end it” (Wiser & Telch, 1999). In consequence, the relation between emotional regulation (or deregulation) and binge eating is that an emotional experience arises, is interpreted as intolerable, and just as an individual with Borderline Personality Disorder (BPD) might engage in self-injury, individuals with BED attempt to manage this unpleasant emotional experience through binge eating. Very similar to the theory of Heatherton & Baumeister (1991), Wiser and Telch (1999) state that “during the binge episode, attention is narrowed, and cognitive faculties are directed away from awareness of emotion and personal meanings and toward concrete immediate food-related issues” (p. 757). In other words, the authors believe that some form of cognitive narrowing takes place in order to diminish emotional distress by focusing exclusively on present food stimuli. Moreover, individuals report experiencing a “pleasurable sense of rebellion” (p. 757) before and during a binge episode. This rebellious pleasure is considered then to help counterbalance emotional distress. From this perspective, if binge eating is a maladaptive emotional-regulation skill, then providing equally effective but healthier emotion regulation skills should be the focus of treatment.

Other possible explanations for the etiology of BED included genetics and social or environmental factors. Based on a literature review investigating the genetics of BED, Hilbert (2005) concluded that there is some suggestion for a genetic basis for BED, but the amount of research is small, and some studies included subjects who did not meet established provisional
criteria for BED. Fairburn et al. (1998) investigated alleged factors preceding the onset of BED. Individuals with BED were compared to controls without BED. Subjects with BED had more negative childhood experiences related to family problems and negative comments about body shape and weight. Examples of these experiences included sexual or physical abuse, parental psychiatric disorder, and parental criticism, among others. In addition, psychosocial vulnerability in childhood, such as shyness and low self-esteem were found to be risk factors.

With regard to body image and body dissatisfaction, Zwaan and Mitchel (2001) reported that results are inconsistent and they appear to be influenced by the assessment measure used. In general, it appears that there is similar or lower body dissatisfaction and disturbance in BED subjects than in those presenting BN. Stice (2001) makes an interesting point regarding dieting, body image, and body dissatisfaction. He states that previous studies have found that body dissatisfaction can lead to dieting, and as it has been seen in other studies, dieting can be an important factor in BED.

Stice (2001) identified several risk factors for eating disorders, including BED. It seems that elevated adiposity could have some influence on the development of BED. It is speculated that having an elevated body mass could raise social pressure for thinness and body dissatisfaction. Killen et al. (1992) speculated that the appearance of eating disorders in adolescence positively correlates with the appearance of higher adiposity in this developmental stage. Nonetheless, the studies examined by Stice (2001) showed only modest support for this. Three other risk factors that are related to the later are: sociocultural pressures to be thin, thin-ideal internalization, and body dissatisfaction. Sociocultural pressure to be thin has also been identified as a major risk factor for eating disorders. The author reports that this sociocultural
pressure leads many to internalize thinness as a requirement for beauty, creating body dissatisfaction and emotional disturbances.

A study by Streigel-Moore et al. (2007) demonstrated that elevated levels of perceived stress before the age of 14 were found to precede the onset of BED. The objective of the study was to examine a broad range of childhood risk factors in BN and BED. The sample included 20 women who met what the authors described as “lifetime” criteria for BN, and 25 women who met “lifetime” criteria for BED. Only women with an onset of BN and BED after the age of 14 were included in the study. A control sample was comprised of 1,515 women who did not have a history of an eating disorder. Measures were used to assessed “childhood risk factors in relating to body weight, body image, eating-related concerns, self-concept, stress, and family cohesion” (Streigel-Moore et al., 2007, p. 482). Signal detection analysis was used to identify group cases similar in both outcome and risk factors. The results showed one pathway to the development of BED in women presenting an elevated level of perceived stress before the age of 14. The authors findings are the first ones to suggest that elevated levels of stress can precede BED, acknowledging that this could be a casual association.

**Applications to Therapy: The Treatment of BED**

Since BED is relatively new compared to other eating disorder diagnosis, the development of treatments and their empirical testing is still limited. Many current treatments have been based on treatments for BN. One of the challenges of treating BED is that the person will usually present a variety of comorbid disorders; as a result, choosing a treatment that considers all of the pathologies is a complex task (Wilfley, 2002). Several different treatments are available for BED, including pharmacological, nutritional, and psychological ones. For the purpose of this review, only psychological treatments will be considered.
There are a variety of treatment modalities that have been tested for BED, including Cognitive Behavioral Therapy (CBT), Interpersonal Psychotherapy (ITP), and Dialectical Behavior Therapy. Perhaps the most studied treatments have been CBT and ITP respectively. This is consistent with the research summarized in this literature review. According to Wilfley (2002), these two approaches are the ones that have empirically proven positive long-term results. Family or systemic therapy was not included given that no studies were found which specifically addressed BED.

**Cognitive Behavioral Therapy**

In a systematic review of controlled trials on the efficacy of treatments for BED, CBT was found to improve binge eating abstinence for up to four months after treatment (Brownley, Berkman, Sedway, Lohr, & Bulik, 2007). In addition, “according to the guidelines of the American Psychiatric Association, and the National Institute of Clinical Excellence for the treatment of eating Disorders, cognitive-behavioral treatment (CBT) is the best-established treatment for BED” (American Psychiatric Association and National Institute for Clinical Excellence, as cited in Munsch et al., 2009, p. 648).

In the CBT view eating disorders are seen as the manifestation of cognitive distortions about dietary regulations and the overevaluation of shape, weight, and appearance (Pike, Delvine, & Loeb, 2004). Considerations in adapting BN treatments for BED are that binge eating clients have less dietary restraint than bulimic clients, present more disorganized eating behaviors, and BMIs are usually higher (Wilfley, 2002). As mentioned previously, there is some empirical support for believing that dieting influences the development of binge eating. Howard and Porzelius (1999) note that many CBT based therapies for BED discourage weight loss as a therapeutic goal, at least until binge eating is stable, even if the individual is significantly
overweight. Common strategies of this therapeutic modality are self-monitoring, stimulus or environmental control, development of different coping strategies to handle negative affect, problem solving, positive self-reinforcement, and cognitive restructuring (de Zwaan and Mitchell, 2001; Beck, 2007). All other basic characteristics of CBT, such as emphasis on the present, a collaborative client-therapist relationship, between session homework, and psychoeducation, are employed (Pike et al., 2004). Wilfley (2002) reported that CBT has shown binge eating abstinence rates averaging 50% at post-treatment while assessment of waiting list conditions showed insignificant change. In addition, CBT yield short-and long-term improvement in dietary restraint, body image, and comorbid psychiatric symptoms.

In a review by Brownley et al. (2007) on the available treatments for BED, four questions guided their study: evidence for the efficacy of treatment or combinations of treatments for BED; evidence of harms associated with the treatments; factors associated with efficacy; and whether efficacy differed by sex, gender, age, race, ethnicity, or cultural group. Of the 26 studies, 16 examined the use of CBT. Studies mentioned by the authors that are considered relevant for the present review will be mentioned by order of approach.

Three studies reviewed by Brownley et al. (2002), which examined medication plus therapy used a CBT approach (Grilo, Masheb, & Wilson, 2005; Grilo, Masheb, & Salent, 2005; Agras et al., 1994), and one used CBT through a self-help modality. To test the efficacy of fluoxetine (a selective serotonin reuptake inhibitor) and CBT alone and combined as treatments for BED, Grilo, Masheb, and Wilson (2005) compared fluoxetine to a placebo group in combination with or absence of CBT. One hundred and eight participants received fluoxetine, placebo, CBT plus fluoxetine, or CBT plus placebo. Results showed fluoxetine was not superior to placebo. There were no significant differences between CBT plus fluoxetine and CBT plus
placebo. Reduction in frequency of binge eating was significantly greater in participants receiving CBT in both conditions. The same was true for body shape concerns, disinhibition, and depression. Weight loss was similar in all conditions.

Agras et al. (1994) tested the efficacy of weight loss treatment, CBT, and desipramine in individuals with BED. One hundred and eight participants with BED were placed in a nine-month weight loss treatment (WLT), three-month CBT treatment plus six-month WLT after CBT, or CBT plus WLT and desipramine for six months after CBT. Participants receiving CBT showed a reduction in the frequency of binge eating post-treatment but not at follow-up, and the WLT showed more weight loss post-treatment; however at follow-up, the greatest weight loss was achieved in the CBT plus desipramine group. The authors explained that weight loss correlated with diminished binge eating. However, abstinence from binge eating and weight loss was not significant.

Given that previous studies have demonstrated that CBT is effective at reducing binge eating but not comorbid obesity, Grilo, Masheb, and Salent (2005) tested whether the addition of medication, specifically orlistat, facilitated weight loss. Fifty participants presenting BED and comorbid obesity were assigned to treatment constituted of guided self-help CBT and orlistat, or guided self-help CBT and placebo. Each treatment condition lasted 12 weeks. The combination of guided self-help CBT and medication showed greater binge eating abstinence and weight loss, but this was not maintained at two-month follow-up; nevertheless, the group did achieve higher weight loss that the no medication condition. Both groups displayed significant improvement in psychological distress and did not differ significantly from each other in this respect.

Delvin et al. (2005) designed a study to examine the effect of adding two adjunctive therapies to group behavior therapy for the treatment of BED. The added therapies consisted of
individual CBT and/or fluoxetine. In addition, all participants received group behavioral weight control treatment for a period of five months. The participants were 116 men and women presenting BED according to DSM-IV-TR criteria. They were assigned randomly to either CBT and fluoxetine, CBT and placebo, fluoxetine, or placebo. The measures used were the Structured Clinical Interview for the DSM-III-R (SCID; First, Spitzer, Gibbon, & Williams, 1995), Beck Depression Inventory (BDI; Beck et al., 1961), Rosenberg Self-Esteem Questionnaire (RSE; Rosenberg, 1979), TFEQ (Stunkard & Messick, 1985), Inventory of Interpersonal Problems (IIP; Howowitz et al, 1988), an abbreviated version of the EDE-12 (Fairburn & Cooper, 1993) with additional items assessing BED criteria, the BSQ (Cooper, Taylor, Cooper, Fairburn, 1987, Brief Symptom Inventory (BSI; Derogatis, 1993), and BMI. Participants were assessed at baseline and at the end of treatment. All treatment groups showed significant decreases in binge eating frequency, weight, and psychopathology, but not in weight. There were significant effects for participants receiving individual CBT alone, but not for medication alone. The fluoxetine alone condition was associated only with a decrease in depressive symptoms. There was a main effect on abstinence from binge eating for participants who received individual CBT, with 62% in comparison to 33% for no individual CBT. In addition, participants who achieved abstinence showed superior improvement in all secondary outcomes and weight loss. An examination of the measures for secondary outcomes showed little effects for treatment assignment.

Gorin, Le Grange, and Stone (2002) examined the effect of spouse involvement in group CBT for individuals with BED. The sample was comprised of 94 women between the ages of 18 and 65 meeting DSM-IV criteria for BED. Participants were assigned to group CBT, CBT plus spouse involvement (CBT-SI), or wait list (WL). Sessions consisted of weekly 90-minute sessions for twelve weeks. Based on the CBT transactional model of family functioning and the
interpersonal expectation model, spouses were included in all sessions. Each couple was educated on BED and on the coping strategies and resources available to manage BED to increase confidence in their ability to deal with BED effectively. In addition, each couple had to agree on a plan of action to deal with BED. One modification for the CBT-SI group was to set aside a few minutes at the beginning of the session for the couples to discuss eating problems and progress. Spouses were also encouraged to participate in group discussions. Besides the homework traditionally set for BED participants in CBT treatment, spouses had to set weekly behavioral goals to assist their wives in decreasing binge eating. Assessment methods included SCID Spitzer, Williams, Gibbon, & First, 1992), TFEQ (Stunkard & Messick, 1985), BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), RSE (Rosenberg, 1979), Dyadic Adjustment Scale (DAS; Spanier, 1976), and Stress Appraisal Measure (SAM; Peacock & Wong, 1990). Both groups receiving CBT showed significant improvements on all measures compared to WL, especially on the BDI, where participants’ scores decreased by an average of seven points. Approximately 40% of the participants were abstinent from binge eating by the end of treatment, and rates improved at the end of treatment to 52% for CBT-SI and 47% for standard group CBT. Spousal involvement did not significantly improve binge eating or other behaviors when added to standard CBT. Both CBT groups showed little impact in weight loss.

A study by Hilbert and Tuschen-Caffier (2004) examined the effects of body exposure in the treatment of BED. This is one of the few studies that has focused specifically on the treatment of body image in BED. CBT was the treatment approach, with one modality adding a body exposure component to CBT (CBT-E) and another adding a cognitive restructuring component focused on body image (CBT-C). “In CBT-E, the body image module included four group sessions and homework assignments on body exposure, such as in vivo mirror exposure to
one’s whole body under various conditions (e.g., in normal clothes, tight fitting clothes, different mood states) and exposure to avoided body-related situations” (Hilbert & Tuschen-Caffier, 2004p. 1329). The participants were 28 women meeting DSM-IV criteria for BED or subthreshold BED (i.e., they engaged in binge eating at least once a week, but less than twice a week). Results showed that both treatment modalities resulted in significant improvement in BED symptoms and related symptomatology, including depression and body image. There was no significant difference between CBT-E and CBT-C.

A study conducted by Renijilian et al. (2001) examined the results of matching participants to their preferences for individual or group therapy for obesity. The first goal was to test whether matching participants to treatment preference improved the outcome, and the second consisted of comparing the effectiveness of group and individual therapy. A total of 75 adults between the ages of 21 and 59, who expressed a strong preference for either individual or group therapy through a Likert-type scale, comprised the sample. The participants were required to have a BMI of 28 to 45, which indicates a BMI between the upper range of overweight and the upper range of morbid obesity or the starting point of superobesity. The participants were stratified on the basis of treatment preference and percentage overweight before they were randomly assigned to treatment. Twenty-six weekly sessions of standard CBT weight management were implemented for all participants. The sessions were of 90-minute duration for group and 45-minute for individual therapy. All candidates followed a low-calorie diet and home-based exercise. The main outcome studied was BMI. For secondary outcomes the measures included the General Severity Index (GSI) of the Symptom Checklist 90-Revised (SCL-90-R; Derogatis, 1986) and the BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). All measurements were assessed at pre- and post-treatment only. The results of the study showed
significantly more decreases in BMI for group therapy than for individual therapy. Matching the participants to their preferred treatment did not improve outcome. Both conditions showed significant improvements in psychological functioning with large effect sizes; there were no significant differences between modalities.

Peterson, Mitchell, Crow, Crosby, and Wonderlich (2009) conducted a study in order to compare and determine the efficacy of self-help group treatment (SH), therapist-led group treatment (TL), and therapist-assisted (TA) group treatment. The three groups were based on a CBT approach and there was also a WL condition. The participants consisted of 259 adults (87.6% women) diagnosed with BED according to the DSM-IV who were randomly assigned to the three different group therapy modalities. As part of the inclusionary criteria, the participants needed to present a BMI of 25 and over, meaning they had to be at least overweight. All treatments consisted of fifteen 90-minute sessions over the course of 20 weeks. The first ten week sessions were held weekly and the remaining ten week sessions were held biweekly. The frequency of binge eating episodes was the primary outcome measure, which was assessed through the EDE-12 (Fairburn & Cooper, 1993) and the TFEQ (Stunkard & Messick, 1985). Secondary outcome measures included BMI, the Inventory for Depressive Symptomatology-Self Report (IDS; Rush, Giles, Schlesser, Fulton, Weissenburger, & Burns, 1986), the RSE (Rosenberg, 1979), and the Impact of Weight on Quality of Life-Lite (Kolotkin, Crosby, Kosloski, & Williams, 2001). All the measurements were completed at baseline, post-treatment, and at six- and 12-month follow-ups. Significant differences were found at follow-up. The TL group had greater reductions on objective binge eating (which refers to a consumption of food that most people would interpret as large) than the SH and WL groups, the TL had greater reductions than the SH group, and the SH group had greater reductions than the WL. Secondary
outcomes showed few differences. Changes in depression, quality of life, and BMI were not observed. The authors concluded that psycho-educational and CBT techniques can be used in TA, TL, and structured SH groups with positive outcomes. However, TL showed the highest reduction on binge eating and had the fewest dropouts at the end of treatment.

Kenardy, Mensch, Bowen, Green, and Walton (2002) examined the effectiveness of group CBT for binge eating in populations with type two diabetes, comparing group CBT and group non-prescribed therapy (NPT) for binge eating. As described by the authors, NPT “is derived from Rogerian principles of self-awareness and self-acceptance. There is no evidence of its efficacy with binge eating or disordered eating broadly” (Kenardy et al., p. 5). The participants were women diagnosed with type two diabetes who met the threshold for BED, meaning that for the participants to be included they did not need to meet the criteria of binging two or more times a week, but one or more times per week. A total of 34 women were randomly assigned to either group CBT or group IPT. The age of the participants was not provided. Both modalities consisted of 90-minute, ten-week therapy. For both groups treatment manuals were followed. All participants were assessed at pre-treatment, post-treatment, and at three-month follow-up. The EDE-12 (Fairburn & Cooper, 1993) was used and adjusted for diabetic patients by scoring the items related to dietary restriction, taking into account diabetic dietary limitations. The Eating Disorders Inventory (EDI; Garner et al., 1983) and the Well Being Questionnaire (WBQ; Rodin, Johnson, Garfinkel, Daneman, & Kenshole, 1986) were also used as measures. The results demonstrated that both therapeutic modalities are effective on measures of binge eating, beliefs related to eating, weight, and mood. However, the NPT showed a significant relapse in binge eating at follow-up. From these results CBT seems to provide a more enduring
change. A small effect size for change in the BMI of the participants was hypothesized to be due to the brief interval between treatment and follow-up.

Munsch et al (2009) compared the efficacy of CBT and behavioral weight loss treatment (BWLT) for BED. Eighty participants presenting BED criteria with comorbid obesity comprised the sample. Participants were randomly assigned to CBT or BWLT. There were seven CBT groups and six BWLT groups. Sixteen weekly group sessions constituted the active phase of treatment, and six monthly group sessions were conducted at follow-up. The last session was held 12 months after the active phase had ended. Binge eating was assessed through the EDE-12 (Fairburn & Cooper, 1993). BMI and other comorbid psychiatric disorders were also assessed. Both treatments were efficient in improving all variables from baseline to post-treatment. They were both comparable in significantly decreasing secondary outcome measures. CBT significantly reduced binge eating, and BWLT significantly reduced weight. Despite CBT’s initial positive effect on decreasing binge eating, the effects were not significant at follow-up.

Downe, Goldfein, and Delvin (2009) used the same sample from the study by Delvin et al. (2005) to examine changes in restraint, hunger, and disinhibition in obese individuals with BED, and to determine whether these variables are related to binge eating abstinence at post-treatment and two-year follow-up. Binge eating was assessed at post-treatment, 12-month and 24-month follow-up. The Eating Inventory (EI; Ruderman, 1986) was used to measure levels of cognitive restraint, hunger, and disinhibition. The restraint scale was separated into rigid and flexible subscales. The authors explained this was done in an effort “to reconcile the differential relations that exist between the disinhibition scale and the restraint scale” (Downe et al., 2009). The results showed that at post-treatment total scores and the restraint subscale were higher in those achieving binge eating abstinence than in non-abstainers. Participants who lost more
weight had greater increases in the flexible restraint score, which led the authors to conclude that focusing on this variable over the course of treatment may lead to better outcomes. Based on the results, the authors stated that reducing dishibition and increasing restraint during treatment may be important for short-term success. The effectiveness of CBT was still observable at a two-year follow-up.

In an attempt to examine the efficacy of CBT in BED by eliminating the errors in assessment due to memory recall error in participants, Munsch et al. (2009) evaluated CBT through EMA. The authors compared CBT’s treatment efficacy for BED through traditional measurements and EMA-based instruments. Participants were 28 obese females meeting DSM-IV-TR criteria for BED. Treatment effects measured by questionnaire-based methods and EMA were comparable. By both assessment methods, CBT resulted in a decrease in frequency of binge eating at the end of treatment and at post-treatment; however, abstinence rates increased significantly at post-treatment.

**Interpersonal Psychotherapy**

According to IPT, interpersonal relationships play an important role in the onset and maintenance of psychopathology (Tanteleff-Dunn, Gokee-LaRose, & Peterson, 2004). IPT suggests that people presenting mental illness have interpersonal disturbances. Consequently, the focus of therapy is to develop and/or improve interpersonal functioning instead of focusing on the disorder and its symptoms (Tanteleff-Dunn, 2004). ITP is present-focused and intended to be a short-term therapy. Just as in CBT, this information is shared with the client in order to motivate them to stay focused and work proactively in therapy.

A study conducted by Wilfley et al. (1993) was designed to assess the effectiveness of group CBT versus of group IPT for non-purging bulimics. Although the study was conducted
with participants presenting non-purging BN, it is of relevance to the current literature review because it focuses on binge eating reduction. The main objective was to determine whether group IPT is as effective as CBT for the treatment of non-purging bulimia. The participants were 56 women who met non-purging BN criteria according to the Diagnostic and Statistical Manual of Mental Disorders, Third Edition, (DSM-III; American Psychiatric Association, 1980), which is comparable to the provisional diagnosis in the DSM-IV. Ages ranged from 27 to 64 years old. All the participants were randomly assigned to group CBT (18), group IPT (18), or a WL control (20). Binge eating was measured weekly based on the participants’ self-report. CBT and IPT participants were assessed at baseline, at 16 weeks, and at six-month and one-year post-treatment. The WL group was only assessed at baseline and 16 weeks. Both treatment modalities included weekly 90-minute group therapy sessions for 16 weeks. Each group consisted of nine members. Both treatments were implemented with the use of manuals. At the six months and one-year post-treatment assessment, CBT and IPT were not significantly different in the reduction of days binged per week. Although there were no significant differences between the CBT and IPT group, there was a significant difference between both groups and the WL group.

Wilfley et al. (2002) compared the effects of group CBT and group IPT. The study evaluated whether previous research findings (Wilfley et al., 1993) comparing IPT and CBT for the treatment of BED could be replicated. One hundred and sixty-two overweight patients meeting the criteria for BED according to the DSM-IV were randomly assigned to either group CBT or group IPT. The ages of the participants were not specified. Nine cohorts of 18 subjects each comprised the CBT and the IPT groups, with 9 participants per group. Twenty weekly 90-minute sessions were held in addition to three individual sessions addressing goals and progress. Therapists were instructed to follow treatment manuals. All measures, except for the assessment
of non-eating disorder psychiatric comorbidity, which was assessed only at pre-treatment, were assessed at: pre-treatment, post-treatment, and at four-, eight-, and 12-month follow-ups. The measures used were the EDE-12 (Fairburn & Cooper, 1993), the SCID (Spitzer, Williams, Gibbon, & First, 1992), BMI, the RSE (Rosenberg, 1979), the IIP (Horowitz, Rosenberg, Baer, Ureno & Villasenor, 1988), and the Social Adjustment Scale (SAS; Weissman & Bothwell, 1976). Binge eating decreased by 96% from pre-treatment to post-treatment for CBT, and by 94% for IPT; by the 12-month follow-up it was reduced by 90% and 93% for CBT and IPT, respectively. All secondary outcomes showed significant improvement and remained stable across follow-up, with the exception of interpersonal problems, which improved but did not remain stable, and BMI, which decreased. The improvement of secondary outcomes and the reduction of days of binge eating per week did not differ significantly by treatment approach. According to the authors the reductions in binge eating and abstinence rates in this study “are amongst the highest reported in the treatment research literature for BED” (Wilfley et al, 2002, p. 720).

**Dialectical Behavior Therapy**

Standard DBT approaches incorporate four skills training modules for mindfulness, distress tolerance, emotional regulation, and interpersonal effectiveness (Linehan, 1993). All modules integrate behavioral and acceptance-based strategies and typically involve group therapy, individual psychotherapy, and 24-hour telephone coaching (Chen, Matthews, Allen, Kuo and Linehan, 2008). Skills are taught in a group setting and are later reinforced and processed in individual therapy. Some slight adaptations were made to the standard DBT for its use with BED by Chen et al. (2008)
Telch, Agras, and Linehan (2001) evaluated the efficacy of adapting DBT for the treatment of BED. Forty-four women with BED were randomly assigned to group DBT (22) or a WL control condition (22). Assessment instruments consisted of the SCID I and II (Spitzer et al., 1990; 1992), BES (Gromally et al., 1982), Emotional Eating Scale (EES; Arnow, Kenardy, & Agras, 1995), RSE (Rosenberg, 1979), BDI (Beck et al., 1961), Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), and the Negative Mood Regulation Scale (NMR; Catanzaro & Mearns, 1990). The participants were assessed at baseline and after completing weekly two-hour sessions for a total of 20 weeks; participants assigned to DBT were also assessed at three- and six-month follow-up. Treatment was adapted from Linehan’s DBT treatment manual for BPD (Linehan, 1993). Measures revealed that subjects in treatment groups significantly improved relative to the wait-list group. By the end of treatment, 89% of the participants receiving DBT were abstinent from binge eating. At the six-month follow-up, 56% were abstinent.

Chen et al. (2008) conducted a research study with the objective of providing summary data about the use of standard DBT for women with BED or BN, and BPD. Standard DBT is applied in a group setting. Five of the eight participants met BED and BPD. The ages of the participants ranged from 24 to 56 years. Treatment consisted of weekly group skills training, individual psychotherapy, and access to 24-hour telephone coaching for a period of six months. Minimal adaptations were made for the treatment to address binge eating. At baseline, post-treatment, and six-month follow-up assessment the following measures were used: the EDE-12 (Fairburn & Cooper, 1993), the Suicide Attempt Self Injury Interview (SASII; Linehan, Comtois, Brown, Heard, & Wagner, 2006), and the Social History Interview (SHI; Linehan & Heard, 1994). In addition, a Longitudinal Interval Follow-up Evaluation (LIFE; Keller et al., 1987) was
also used at post-treatment and six-month follow-up. Results showed improvement on all outcome measures. The authors reported that half of the participants were abstinent from binge eating; results did not distinguish between participants with BED and those with BN. BMI changes in clients with BED varied and only one of the participants presented significant weight loss between baseline and six-month follow-up.

**Cultural Considerations**

Since BED is a relatively new disorder, few studies have focused on the cultural aspects of BED. Most studies concerning gender differences, as well as racial and ethnic background, focus on AN, BN, or examine eating disorders in general. Little information on cultural findings for BED is available.

Studies on gender differences for BN and AN have repeatedly demonstrated high prevalence in women. In the case of BED, studies have shown a similar prevalence between men and women (Smolak & Murnen, 2001). However few studies have examined gender differences in BED specifically. Barry, Grilo, and Masheb (2001) studied the gender differences in 182 adults presenting BED according to the DSM-IV-TR. Of these, 35 were men and 147 were women. The study revealed that men and women did not differ significantly regarding several variables, but men did present higher BMIs and women showed higher body image dissatisfaction and drive for thinness. A clear limitation of the study was the ratio of women to men in the sample. In addition, more studies are needed to validate these findings. Jambekar, Masheb, and Grilo (2003) studied the gender differences regarding shame in individuals with BED. Thirty-eight men and 188 women meeting BED criteria according to the DSM-IV-TR constituted the sample. Participants were assessed for shame, behavioral and attitudinal features of eating disorders, and general mental health. The authors found that shame did not differ
significantly between men and women and it was not associated with binge eating frequency. But when shame was examined separately by gender, and depression and self-esteem were considered, shame was associated with body dissatisfaction in men and weight concern in women.

A study by Nicdao, Hong, and Takeuchi (2007) showed different results for gender differences in Asian Americans. The study examined lifetime prevalence and 12-month prevalence estimates of eating disorders in 2,095 Asian American men and women. The results showed that BED was significantly higher in Asian American women than men. Also, a BMI of 30 and above was significantly associated with BED. Findings in acculturation were not specific to BED.

Alegria et al. (2007) studied lifetime prevalence and 12-month prevalence estimates of eating disorders in Latinos in the United States. The sample was constituted of 2,554 individuals of Latino origin; 868 Mexicans, 495 Puerto Ricans, 57 Cubans, and 614 other Latinos. The results showed that prevalence rates of eating disorders did not differ significantly across Latino subgroups. In general, it was observed that Latinos have higher rates of binge eating disorder and low prevalence of AN and BN. The prevalence rates did not differ significantly depending on the number of parents that were born in the US, meaning that the level of acculturation did not seem to be a contributing factor. Also, when compared with other eating disorders, Latinos reported somewhat higher levels of impairment if they presented BED, as opposed to BN and AN, but group differences were not statistically significant.

The ethnic racial differences in feelings of embarrassment and fear of losing control related to binge eating were examined by MPhil and Dodge (2007). The sample included 5,726 women between the ages of 19 and 27. It was found that Asian and Native Americans reported
more feelings of embarrassment related to binge eating than whites. Results also showed that Hispanics reported being more afraid to start eating for fear of losing control than whites and blacks. The authors conclude that the affective dimensions concerning binge eating differ between ethnic racial groups.

Harrington, Crowther, Henrickson, and Mickelson (2006) examined the relationship between trauma, stress, discriminatory experiences, and binge eating. The sample was comprised of 93 African American women and 85 white women. The participants were recruited from “undergraduate psychology courses, undergraduate student organizations, faculty and staff mass mailings, and word of mouth” (Harrington et al., 2006, p. 219). Measures included the Life Stressors Checklist–Revised (LSC–R; Wolfe & Kimerling, 1997) for the assessment of trauma, the Survey of Recent Life Experiences (SRLE; Kohn & Macdonald, 1992) and the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) for the assessment of stress, the Schedule of Racist Events (SRE; Klonoff & Landrine, 1999; Landrine & Klonoff, 1996) and the Schedule of Sexist Events (SSE; Klonoff & Landrine, 1995) for the assessment of discriminatory stress, the Eating Expectancies Inventory (EEI; Hohlstein, Smith, & Atlas, 1998), and lastly the BES (Gormally, Black, Daston, & Rardin, 1982) for the assessment binge eating symptomatology.

Results from the study of Harrington et al. (2006) revealed that the interaction between trauma, ethnicity, and binge eating was not significant; however, ethnicity did influence the relationship between stress and binge eating. White women reported more severe binge eating, and the severity of their binge eating was positively correlated with higher levels of stress. Thus, white women who experience high levels of stress may be at particular risk for binge eating behavior.
Harrington, Crowther, and Shipherd (2010) examined the relationship between trauma exposure, distress, and binge eating in female African American trauma survivors. Participants were 179 African American women. All of the participants completed measures assessing “…traumatic experiences; emotional inhibition/regulation difficulties; self-silencing (prioritizing others’ needs and adopting external self-evaluation standards); eating for psychological reasons; binge eating; and internalization of “Strong Black Woman” (SBW) ideology” (Harrington, 2010, p. 469). The authors define SBW ideology as a cultural symbol that emphasizes strength and self-sufficiency.

Assessment measures included: The LSC-R (Wolfe & Kimerling, 1997) and the Sexual Experiences Survey (SES; Koss & Oros, 1982) for the assessment of trauma; the BES (Gormally, Black, Daston, & Rardin, 1982) and the Eating Disorder Diagnostic Scales (EDDS; Stice, Telch, & Rizvi, 2000) for the assessment of binge eating; the Stereotypic Roles for Black Women Scale (Thomas, Witherspoon, & Speight, 2004) for the assessment of SBW ideology; the Courtauld Emotional Control Scale (CECS; Watson & Greer, 1983) and two subscales from the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) for the assessment of emotion regulation; and the EEI (Hohlstein, Smith, & Atlas, 1998), the Eating in Response to Trauma Scale (ERTS; Harrington et al., 2006), and the Emotional Eating Scale (EES; Arnow, Kenardy, & Agras, 1995) for the assessment of eating for psychological reasons. Based on the findings of the study, the authors conclude that in African American trauma survivors, trauma exposure and distress can lead to greater internalization of the SBW ideology, which is related to eating for psychological reasons and binge eating behavior.
Ethical Considerations

One ethical consideration that was brought up previously is the need to consider that a treatment focusing on weight loss or dietary restraint may worsen BED symptoms. Despite the medical implications that significant overweight may have for some individuals with BED, studies seem to indicate that pressure for weight loss can counteract the efforts to ameliorate binge eating. Although these results still need replication in further studies, they suggest that this needs to be a consideration in treatment. The issue of helping a client lose weight through psychological treatment is very delicate when we consider that the treatment may actually exacerbate binge eating. A possible approach for BED could be to address binge eating first and once the client has been stabilized, the clinician could work on weight management through careful and constant assessment of BED symptoms.

Another ethical concern regards multiculturalism in the assessment and treatment of BED. It is widely known that the role of food and the importance and standards for body shape vary across cultures. Some preliminary results on eating disorders in Latinos suggest that “the standard eating disorder criteria may not be appropriate for understanding the psychological morbidity of restricting eating disorders for Latinos, particularly less acculturated Latinos” (Alegria et al., 2007, p, S19). A likely explanation for the underrepresentation of AN and BN in Latinos lack of appropriate assessment tools for this population. At the same time, it is possible that there is a difference in prevalence rates due to protective factors associated with culture. In the cross-cultural comparison of the EDI by Podar and Allik (2009) results showed that non-western individuals tend to score higher on all subscales. The authors attributed the results to eating disorders being more pronounced in these populations; however, a reasonable explanation for this is that the instrument is culturally biased and does not provide accurate results when used
in non-westerns. This lack of sensitivity in the instrument may lead to an incorrect diagnosis and therefore the incorrect treatment of individuals with binge eating.

The expression of eating disorder symptomatology may present differently in people of color, without this meaning that the distress or impairment is any less significant for individuals. Given that there is little research on this subject, it becomes even more important that clinicians proceeded with great caution when treating a minority member with BED. It is important to be aware of the fact that there might be unexpected and unintended responses to treatment and that the clinician might have to be more flexible to meet the client’s needs.

When dealing with people of color and any type of eating disorder, it becomes important to analyze the influence of the struggles of acculturation. Alegria et al. (2007) suggested that a possible risk factor for BED and any other eating disorder for minorities in the U.S. is the internalization of U.S. concepts of beauty and the ideal of thinness. Clinicians need to be aware of the pressures that people of color encounter when they are trying to adjust to a different culture and the potential risks that this holds for their mental health. Clinicians need to become advocates for the acceptance of different body shapes and conceptions of beauty that will help the client make a healthy integration of their cultural background and the subjective pressures of their new cultural context possible.

MPhil and Dodge (2007) found that feelings of shame and other affective components may be experienced qualitatively differently in minorities such as Native Americans, Asian Americans and Hispanics. It then becomes necessary for the clinician to understand that phenomena such as resistance or guarded affect may in fact be due to cultural differences which can be misinterpreted. Clinicians must be even more willing to work cooperatively with the
client, understanding that they might have to directly ask clients to guide them through their cultural understanding of the disorder and their associated experiences.

**Future Research Directions**

In reference to BED’s provisional criteria for diagnosis, larger samples are needed in order to clarify the differences between BED and non-purging BN as well as obesity with no-BED more accurately. The literature examined leaves unclear if BED should perhaps be considered a subtype of BN. Another consideration for future research is to keep examining the relevance of the frequency of binge episodes in order to meet criteria. As it was observed from some of the research reviewed, the relevance of the twice-a-week binge eating frequency threshold is unclear. Larger samples are needed to provide an accurate cutoff point for binge eating episodes in order to determine clinical utility. It could also be useful to test the clinical utility of examining BED on a continuum in which the frequency of binge eating provides information on severity. In addition, there is a need for research to test the impact of measuring binge eating in episodes versus number of days in which binge eating occurred.

Another factor future studies should examine is the clinical utility that body image disturbance (BID) has for BED. BID plays a significant role in AN and BN, and it has been found in BED participants as well. Nevertheless, the impact and prevalence of this factor has not been given sufficient importance. Along these lines, it is worth focusing on the correlates between BID and binge eating frequency.

Many of the measures used to assess BED have been designed for the assessment of eating disorders in general, specifically based on AN and BN. Further research should explore the validity of commonly used eating disorder measures such as the EDE, EDI, and the TFEQ for BED. Other scales that have been designed to assess binge eating such as the BES (Gromally et
al., 1982) should also be tested for their reliability and validity in measuring BED criteria. It is also important that research be done comparing self-report measures and semi-structured interviews, given that some have speculated that results may vary depending on this. As mentioned previously, self-report measures tend to result in a greater number of individuals identified as having BED than clinical interviews, which could be explained by that fact that clinical interviews allow the examiner to further clarify the definition of BED to the individuals being examined.

Further development of theoretical explanations for binge eating may be needed, given the dominance of the escape theory model. Heatherton and Baumeister’s (1992), application of escape theory to BED was based on post hoc interpretation. Only two studies were found testing the applicability of the escape theory to binge eating (Paxton & Diggens, 1996; Blackburn et al. 2006). In these studies, none of the participants were examined to see if they met BED diagnosis criteria according to the DSM-IV or DSM-IV-TR. Also, the study by Paxton and Diggens (1996) only tested some of the elements of the escape theory. Further investigation needs to be conducted on the applicability of the escape theory model, perhaps testing it against alternative models. The influence of self-awareness on BED requires further examination to investigate its role in causing or perpetuating BED.

Related to escape theory, the role of dieting in BED also needs further exploration. A challenge to this is determining a consistent definition for dieting among the research community in order to provide some sort of comparability across studies. Further research should pay attention to the role of dieting by comparing different psychological variables, as well as those specific to BED, in participants who engage in dieting and participants diagnosed with BED. More research on the specific risk factors with participants presenting BED should be conducted.
It is important that more studies research the CBT, ITP, and DBT approach to establish the generalizability of previous findings. Since the escape theory comes closest to DBT perspective on BED, it is important to test the effectiveness of DBT further on binge eating, as well as the effect that it has on variables that pertain to self-awareness and distress tolerance. In addition to future research on the previously mentioned approaches, an examination of the application and effectiveness of family therapy for BED is needed. In order to better understand the long-term results of treatment, it is recommended that future studies provide results conducted at least one-year post-treatment.

One limitation in the revised literature is that the studies that reported racial background or ethnicity of their participants had a significant majority of Caucasian participants. This indicates a need for greater diversity populations sampled. Future research should keep exploring the cultural differences that might affect the assessment and treatment of BED in minorities. Acculturation was not given sufficient attention in the studies reviewed. Future researchers should consider comparing the results of assessment and treatment by distinguishing between people of color who were born and raised in the United States and those who lived abroad during their childhood and adolescence. Also regarding the subject of culture, BED seems to present a very different pattern of epidemiology when compared to BN and AN, with prevalence numbers between men and women appear very similar. More research comparing the development and maintenance of BED in men and women is necessary. Additionally, gender socialization should be examined in relation to BED. Several authors have explained that the significantly higher rates of eating disorders in women are due to gender socialization; however, BED has similar epidemiological rates between men and women.
Lastly, studies with participants presenting BED report successes in decreasing binge eating, but not BMI. Given that weight loss is an important variable to modify in order to improve physical health, it is of interest that future studies compare the effectiveness of different treatment approaches for decreasing binge eating and weight loss. Further study of combinations of treatments to achieve effectiveness on both variables is necessary.

**Summary**

Since BED is not an official diagnostic category in the DSM-IV-TR, current research on this topic helps to determine its clinical validity and utility, as well as other specific aspects that concern it. After reviewing the literature regarding the clinical utility of BED it was found that participants with BED present clear differences when compared with obese participants with no-BED, such as more prominent body image disturbances and greater levels of psychopathology. The cutoff point for the clinical significance of binge eating frequency is still to be determined. So far, it appears that individuals with both subthreshold BED and BED exhibit similar levels of distress.

One measure specifically designed for the assessment of binge eating was identified, although many measures are well validated for the assessment of eating disorders in general and have been used for the assessment of BED. It is not clear whether the assessment measures reviewed are appropriate for the evaluation of minority groups, given that some studies have demonstrated different results when administered with minorities (Alegria et al., 2007; Nicdao et al., 2007).

An important consideration when assessing BED is that participants may not comprehend well what binge eating is and therefore underreport or over-report its prevalence. So far, it has been observed that binge eating tends to be over-reported when self-reports measures are used as
posed to clinical interviews. It is important that when assessing and researching BED the individuals understand what binge eating is. Additionally, the clinician should be able to compare the DSM-IV-TR BED criteria as a parameter to the results of other studies.

It was repeatedly found and speculated that dieting or food restriction was positively correlated with BED; as an example, the greater history of dieting showed a relationship the severity of BED. In addition, a previous literature review found that most individuals with BED reported starting BED before dieting (Howard & Porzelius, 1999). Heatherton and Baumeister (1991) explain that the role of dieting in BED is complex and related to a self-defeating response; binge eaters who are dieting end up doing the complete opposite of the initial goal. Binge eating allows an immediate form of escape from an aversive emotional state, but the result seems to be an even higher aversive emotional state due to a sense of failure that likely affects self-esteem and consequently becomes a feedback loop. Food can be used to provide an immediate escape from self-awareness which, based on descriptions given by binge eaters, is similar to a dissociative state. This explanation ties in well with the sense of lack of control over food intake that is described in the criteria for BED.

Although escape theory presents a comprehensive explanation for various findings on BED, little follow-up research has been done on it. DBT provides an explanation for BED that comes close to the understanding provided by escape theory holds. A more prominent role is given to emotional distress or emotional deregulation in DBT, which is believed to be the source of pathology. Similar to the escape theory, the DBT model states that when a negative emotional experience arises the individual copes with this aversive emotion through binge eating.

Most of the research on risk factors has been done on AN and BN, with little attention to evaluating risk factors for BED. Research on genetic and environmental risk factors for BED is
scant and has not provided sufficient information to allow many generalizations to be made. It is still unclear what the risk and protective factors for BED are.

Given that the etiology and diagnostic criteria of BED are still uncertain, treatments may have been designed without a solid basis and have mostly been predicated on modifying treatments for BN. Since BN also presents binge eating as a clinical feature, most of the adaptations for therapy have been extracted from modules or specific techniques used for the treatment of binge eating in bulimics. The most widely researched treatment for BED is CBT. Results from different studies have consistently demonstrated a significant improvement in participants presenting BED when compared to controls, in both individual and group modalities. Still, greater follow-up periods are necessary to determine long-term effectiveness. IPT has shown similar results when compared to CBT; however the number of studies on IPT for BED is limited. Just the same, both DBT and IPT display promising results as a treatment option.

In addition to the question of what the best treatment approach is, the issue of determining how dieting factors into treatment is unresolved. It is still not completely certain that dieting contributes or worsens BED, but it is a possibility that has to be considered. This might be especially difficult to decide when clients have significant weight issues (e.g., morbid obesity). Perhaps one of the most pressing future research needs is to determine the behavioral effects that weight loss treatment has on binge eating. Future research needs to focus on these issues.

A common theme across this review is that in many cases conclusions are based on little research. This was specially true of research regarding cultural differences in BED, where research concerning multiculturalism and BED is very limited. There is no indication that the instruments used for the assessment and research in minority groups was adapted for the
population that was being examined. In addition, little attention has been given to possible
diagnostic differences in people of different ethnic backgrounds. The lack of knowledge on the
potential differences that minorities might display in the assessment and treatment of BED leads
to various ethical concerns. First, this population may be under- or over-identified. Clinicians
dealing with minorities have little guidance about the specific considerations that are needed in
order to best serve this population.

In conclusion, the inconsistencies in definitions and assessment methods have not
allowed for some of the findings to be generalized. Although the etiology of BED is still not
clear, there are several treatments that have been empirically tested with promising results (Grilo,
Masheb, & Wilson, 2005; Delvin et al., 2005; Gorin, Le Grange, & Stone, 2002; Renijilian et al.
2001; Peterson et al., 2009; Wilfley et al., 2002; Telch, Agras, & Linehan, 2001; Chen et al.,
2008). In addition, there is information available to guide clinicians when addressing weight loss
in individuals with BED.

There are still many questions that have only been partially answered for BED; however, past studies have provided important guidelines for treatment and future research directions. Perhaps one of the greatest challenges in the study of BED is clarifying its diagnostic criteria, especially among a subclinical population. Nonetheless, questions regarding the clinical significance of threshold symptomatology have been a matter of study and debate in other disorders currently recognized in the DSM-IV-TR, such as Post-traumatic Stress Disorder. There seems to be enough evidence supporting the clinical validity of BED; perhaps if BED were established as a full pledged diagnosis, it would receive greater attention from researchers.
References


