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Evaluating an Intuitive Eating Program for Binge Eating Disorder: A Benchmarking Study

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### Abstract

Studies suggest that the prevalence of binge eating disorder in the obese population ranges between 30 and 55 percent (Munsch et al., 2007; Wilfley, Agras, Telch, Rossiter, Schneider, Cole, et al., 1993). Research and practice psychologists have come to view binge eating as a mental health issue. Yet, obese people often attempt to resolve binge eating through dieting although dieting fails to address the underlying sources of the behavior. This study of Intuitive Eating (Tribole & Resch, 2003) employed an eight-week group treatment for binge eating disorder that encompassed components of Cognitive Behavioral Therapy, Interpersonal Therapy, and Dialectical Behavior Therapy. Outcome results were benchmarked against the efficacy of existing treatments; no significant differences in binge abstinence levels were found between the present study and existing treatments. Binge abstinence rates of the current study were significantly different from those found in non-equivalent control groups. Self-reported anxiety and depression were explored as potential predictors of outcome, but were non-significant. The relationship between psychological reactance and binge frequency at pre-treatment was examined and the association was non-significant. Overall, participants experienced significant improvement over the course of the study, suggesting that further research into Intuitive Eating as a treatment for eating disorders is warranted.

### Evaluating an Intuitive Eating Program for Binge Eating Disorder: A Benchmarking Study

Overeating, restriction of eating, and a range of other dysfunctional eating behaviors are common in modern society. New diets emerge nearly daily within the context of an ever increasing rate of obesity. It is no surprise, then, that people who recognize their eating habits as unhealthy or experience discomfort as a result of social pressure to be thin are eager to diet themselves into health and away from social pressure. All the while, recent research suggests that dieting may in fact increase the likelihood of obesity (Mann, Tomiyama, Westling, Lew, Samuels, & Chatman, 2007; Reas & Grilo, 2007). Many people continue to diet only to revert to their previous eating habits when restrictions on their eating become too great. Not surprisingly, these relapses may take the form of eating binges (Reas & Grilo, 2007). Additionally, many people binge eat immediately before starting a diet, seemingly signaling the end of freedom with food. And for many people binge eating does not solely occur right before or after a diet, but instead occurs within the framework of an eating disorder.

Binge eating disorder is not formally recognized as a clinical disorder and thus only provisional criteria for the disorder are available for diagnostic purposes. The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR; American Psychiatric Association, 2000) defined the following criteria for binge eating disorder in order to promote research on the issue: 1) Repeated episodes of binge eating, characterized by eating within a discrete period of time, an amount of food that is substantially larger than most people would eat in a similar period of time under similar circumstances, and, a sense of lack of control over eating during the episode; 2) These episodes are associated with three or more of the following: (a) eating much more rapidly than normal, (b) eating until uncomfortably full, (c) eating large amounts of food when not feeling physically hungry, (d) eating alone because of

being embarrassed by how much one is consuming, and/or (e) feeling disgusted with oneself, depressed, or very guilty after overeating, 3) Significant distress regarding binge eating is present, 4) On average, the binge eating occurs at least two days a week over a period of six months, and finally 5) The binge eating is not associated with the regular use of maladaptive compensatory behaviors and does not occur solely during the existence of Anorexia Nervosa or Bulimia Nervosa (APA, 2000). Researchers have suggested that binge eating disorder has a prevalence rate of 0.7 to 3.3 percent in the general population (Brownley, Berkman, Sedway, Lohr, & Bulik, 2007; Munsch, Biedert, Meyer, Michael, Schlup, Tuch, et al., 2007). If only the obese population is considered, prevalence ranges between 30 and 55 percent (Munsch et al., 2007; Wilfley, Agras, Telch, Rossiter, Schneider, Cole, et al., 1993). In recent years research and practicing psychologists have come to view binge eating as a mental health issue. However, it is likely that many people with this disorder have yet to experience their behavior as a mental health concern, instead viewing binge eating as an issue of self-control or as a bad habit. Thus, many binge eaters continue to treat bingeing behavior through dieting as opposed to addressing underlying emotional triggers and psychological reactance. Over time chronic dieting may lead to a cycle of bingeing and restricting, potentially resulting in binge eating disorder. Overall, this cycle of bingeing and restricting leaves a binge eater feeling discouraged and leaves underlying stressors unresolved (Reas & Grilo, 2007). With the intention of understanding how a person escapes this cycle through psychotherapeutic treatment, it is helpful to be aware of etiological theories of eating disorders generally.

### *The Etiology of Disordered Eating*

A variety of theoretical models have been put forth to explain the etiology of eating disorders, including biological, cognitive-behavioral, and affective models. Each is described briefly herein to offer further context for the interventions used in treating binge eating disorder.

### *Biological Models*

*Animal Studies.* Recent work has demonstrated connections between sugar binges in rats and neurochemical levels in these rats' brains. In 2005, Wideman, Nadzam, and Murphy examined rats' behavior and neurochemical balances for evidence of sugar withdrawal and relapse. In this study, rats binged when given access to a sugar solution and experienced behavioral changes and a drop in body temperature in the post-binge period, when they did not have access to sugar. Wideman and colleagues concluded that these animals were in fact addicted to sugar because they experienced withdrawal symptoms and relapse, as well as weight gain, similar to animals addicted to other substances. In an earlier similarly designed experiment, Colantuoni, Schwenker, McCarthy, Rada, Ladenheim, and colleagues (2001) observed that rats repeatedly allowed access to a sugar solution and then deprived of it experienced sensitization of dopamine receptors, a phenomenon common to drug dependence.

Avena, Bocarsly, Rada, Kim, and Hoebel (2007) investigated the after-effects of sugar binges followed by fasting on rats. After fasting, the rats demonstrated anxiety, decreased dopamine release activity, and increased extracellular acetylcholine, patterns similar to opioid withdrawal. Avena and colleagues posited that bingeing on sugar may trigger neural pathways in the same manner as do addictive substances. In 2008, Avena, Rada, and Hoebel found that rats experienced significantly higher dopamine release and significantly lower acetylcholine release after having lost 15% of their body weight than prior to weight loss. They noted that this finding was consistent with previous studies in which substances are more reinforcing when animals are

at a lower weight. Avena and colleagues suggested that sugar binges are more reinforced in restricted animals because of the drastic increase in dopamine release and blunted acetylcholine release. Avena, Rada, & Hoebel suggest that higher release of dopamine in bulimics who restrict and then binge may reinforce the pattern of bingeing and purging by more strongly activating the reward pathway. The effects of sugar binges on dopamine are tied back into binge eating disorder through studies by Davis, Levitan, Kaplan, Carter, Reid, and colleagues (2008) and Shinohara, Mizushima, Masami, Shioe, Nakazawa, and colleagues (2004) discussed below.

Finally, Chandler-Laney, Castaneda, Viana, Oswald, Maldonado, and Boggiano (2007) conducted a study of the effects of “human-like dieting” on rats. They demonstrated that the SSRI fluoxetine successfully reduced bingeing behavior in stressed rats with a history of human-like dieting. Chandler-Laney and colleagues suggested that regardless of hunger, a history of dieting affects not only control of eating behaviors, but also control over mood and reward-seeking, because such control is all influenced by serotonin-dopamine interactions. In sum, animal studies have yielded clues into the nature of the effects of excessive sugar intake on the brain, suggesting that sugar may function in ways similar to other addictive substances, especially in the context of a binge-diet cycle.

*Human Studies.* Davis and associates examined reward markers in people with and without Binge Eating Disorder. They discovered that obese participants and participants with Binge Eating Disorder bearing the A1 allele on the DRD2 dopamine receptor gene reported greater reward sensitivity. This result suggests that individuals with this allele may be prone to overriding homeostatic mechanisms that typically aid in the prevention of overeating. However, the presence of the allele alone does not explain an enhanced dopaminergic reward system. Davis and colleagues suggest that perhaps another genetic variant exists in those with the A1

allele. They propose that an interaction between the A1 allele and the other genetic variant results in increased dopamine activity.

Shinohara, Mizushima and associates (2004) examined the dopaminergic system in women with and without Binge Eating Disorder. They found that those with the disorder had a short allele (not the tandem repeat polymorphism) on the dopamine transporter gene examined. Shinohara and colleagues suggest that this evidence of dopaminergic dysregulation may indicate that binge eating disorder involves the same “pathophysiologic mechanism” as substance use disorders.

In their neurodevelopmental study of anorexia, Connan, Campbell, Katzman, Lightman, and Treasure (2003) noted that family studies have revealed a genetic component to people’s vulnerability towards anorexia and bulimia. They hypothesize that multiple genes contribute to temperament, nutritional homeostasis, and other factors that predispose a person to disordered eating. Additionally, early attachment experiences are thought to influence a person’s HPA axis, a part of the brain’s stress response system (Plotsky & Meaney, 1993). This modified HPA axis, in combination with an overactive serotonergic system, likely changes the way a person deals with stress throughout their lifetime. Connan and colleagues also cite the effects of puberty on metabolism, the endocrine system, and brain development. These effects of puberty may also alter the processing of emotion and stress.

Essentially, having a certain combination of genes, an altered HPA axis, and/or experiencing hormonal and physical shifts in puberty may predispose a person to cope with life stressors through dysfunctional eating patterns such as restriction, bingeing, or purging. Thus, as with many psychological disorders, eating disorders seem to follow the diathesis-stress model in which a genetic predisposition is “activated” by environmental experiences resulting in illness.

*Cognitive-Behavioral Models*

In contrast, proponents of cognitive-behavioral theories focus specifically on the way in which a person's cognitive style, in the form of fear of fatness, body image disturbance, dietary restraint, escape from negative affect, and biased information processing, acts as a risk factor for eating disorders (Williamson, White, York-Crowe, & Stewart, 2004). Reviewing existing theories from the 1970's to the present, Williamson and colleagues proposed an integrated cognitive-behavioral theory of eating disorders. They encompass existing theories by addressing psychological risk factors, stimuli, cognitive biases, and behaviors associated with disordered eating. Through their model, Williamson and colleagues suggest that predisposition to a negative body self-schema is associated with fear of fatness, over-concern with body size, tendency toward perfectionism and/or obsessive thinking, internalization of the thin ideal, and/or dysfunctional attitudes about physical appearance. They explain that in people with disordered eating the body self-schema is activated by internal cues such as feelings of fullness or external cues such as diet ads. Activation of the body self-schema is thought to lead to negative affect, which then confirms cognitive biases and promotes dysfunctional coping mechanisms and compensatory behaviors. Dysfunctional coping mechanisms and compensatory behaviors then serve to reinforce the negative body self-schema.

Specific to binge eating, Polivy and Herman (1999; 1985) proposed a restraint/counter-regulation model with underlying cognitive components. They cited research in which dieters, who were high in eating restraint, believed that they had consumed something high in calories and were then offered more to eat. The dieters reacted by eating much more than those who were low in restraint, regardless of the actual caloric value of the first food eaten. Those who were low in restraint were said to have regulated their eating by eating less after having eaten something

they believed to be high in calories, whereas the dieters “counterregulated” by doing the opposite and eating more. Polivy and Herman suggested that this happens with binge eaters when they perceive they have “broken” their diet. This experience of feeling out of control and in violation of one’s personal rules leads the person to binge. Polivy and Herman also discuss that people low in eating restraint, non-dieters, naturally regulate their food intake and thus would not binge.

The intense focus of society on dieting reinforces cognitive risk factors, overconcern with body size and internalization of the thin ideal, and functions as an external cue for those with negative body self-schemas (Williamson et al., 2004). Several studies have examined the role of dieting specifically in binge eating, finding that for some people dieting precedes binge eating and for others binge eating precedes dieting (Abbott, deZwaan, Mussell, Raymond, Seim, Crow, Crosby, & Mitchell, 1998; Bulik, Sullivan, Carter, & Joyce, 1996; Polivy & Herman, 1985). Thus, eating restraint in the form of dieting is a risk factor for eating disorders.

### *Affective Models*

Affective models of eating disorders have also been proposed. Heatherton and Baumeister (1991) suggested that “escape theory” explains the utility of binge eating in that bingeing enables a person to narrow their cognitive focus to their “immediate environment,” thereby allowing them to avoid emotions. Meanwhile, Paxton and Diggins (1997) have noted that affective avoidance, as predicted by escape theory, is not unique to binge eating disorder. McManus and Waller (1995) suggested that bingeing in particular follows the diathesis stress model. That is, when people with biological or cognitive risk factors for disordered eating encounter intense negative emotional states and/or physiological deprivation, they are likely to binge. Indeed, Heatherton and Baumeister (1991) cite multiple studies in which manipulations that either induce negative mood states or involve ego threat result in overeating by obese and

dieting participants. Bingeing temporarily relieves intense emotionality and feelings of deprivation while simultaneously aggravating initial risk factors.

### *Developmental and Personality Models*

In a study examining gender differences in eating disorders and parental influence on eating pathology, Tata, Fox, and Cooper (2001) found that while young women were more apt to demonstrate disordered eating as related to low body satisfaction and weight perception whereas young men were more apt to demonstrate excessive exercise. Additionally, parental overprotection was associated with low body satisfaction in both genders and disordered eating in young women. Joiner, Katz, and Heatherton (2000) also investigated the role of gender in disordered eating, focusing on people with chronic bulimic symptoms. Although previous research has found many similarities between the genders in eating disorders, Joiner and colleagues found that women with chronic bulimic symptoms expressed significantly higher levels of drive for thinness than men. In contrast, men with chronic bulimic symptoms demonstrated significantly higher levels of perfectionism and interpersonal distrust than the women in the study. The cause of these gender differences remains unclear. Joiner and associates suggest that whether these distinctions between the genders are the result of societal norms, personality dimensions, or other variables altogether is unknown.

In a factor analysis of eating disorders involving binge eating, Joiner, Vohs, and Heatherton (2000) sought to understand the distinction between bulimia nervosa and binge eating disorder in college-aged men and women. They suggested that the proposed diagnostic distinction was appropriate in males, for whom binge eating and compensatory measures were distinct. However, they propose that a clinical distinction may not be necessary in females, as their data illustrated a strong tendency for women to compensate after binge eating. Joiner, Vohs,

and Heatherton hypothesize that the higher drive for thinness demonstrated by females (as discussed previously) may be the motivating factor behind compensatory behaviors. They again noted that drive for thinness in women may be the result of societal ideals.

Streigel-Moore (1993) proposed that binge eating occurs outside of dieting when women struggle with developmental tasks and processes. She suggested that transitions during the process of gender identity development can render questions for some women about their femininity. These women attempt to affirm their feminine identity by focusing on appearance, which can promote body-image dissatisfaction and a cycle of bingeing and dieting. Striegel-Moore also emphasized the labile moods of pubertal development, noting that affective instability might contribute to binge eating. Finally, Streigel-Moore discussed how attempting to be “superwoman” influences women. As girls develop into women they seek to obtain the ideal of having a career, family, and being beautiful. Yet, in many ways this ideal is inherently conflictual because it requires women to take on irreconcilable roles. These conflicting roles make demands of a woman that generate stress, which she then releases through binge eating, a form of stress relief that impacts only herself negatively.

Together, this research suggests that genes influence gender as well as personal traits such as temperament, cognitive style, body type, and affective sensitivity. These traits, in combination with certain environmental and developmental experiences and stressors, set the stage for the development of an eating disorder. Based on this understanding and the above models, a variety of therapeutic approaches are used in the treatment of eating disorders.

#### *Existing Therapeutic Treatments for Binge Eating Disorder*

Interventions for eating disorders seek to intercept the cycle of an eating disorder by helping a person to modify their cognitive style, their emotional responses, and their behaviors.

More specifically, studies have been conducted examining cognitive behavioral therapy, dialectical behavior therapy, and interpersonal therapy as modes of treatment for binge eating disorder. Reviewing these studies is pertinent to this investigation not only because previous studies inform our understanding of the nature of the disorder itself, but because the treatment proposed in this study, Intuitive Eating, encompasses components of the therapies these studies examined. This review also provides benchmarking data against which Intuitive Eating will be compared. Thus, research on the efficacy of cognitive behavioral therapy, dialectical behavior therapy, and interpersonal therapy and the theories behind these therapies will be presented. Later, the existing therapies will be discussed in relation to components of Intuitive Eating. Overall, the ten principles of Intuitive Eating encompass components of cognitive behavioral therapy, dialectical behavior therapy, and interpersonal therapy, in addition to a reactance reduction component, forming a comprehensive program for the treatment of binge eating disorder.

#### *Cognitive Behavioral Therapy for Binge Eating Disorder*

The majority of the existing literature on the treatment of binge eating disorder is comprised of cognitive behavioral therapy (CBT) outcome studies. Group CBT was the first empirically evaluated mode of treatment for binge eating disorder. Because CBT has proven efficacious in the treatment of Bulimia Nervosa, it was hypothesized that CBT would also be efficacious with binge eating disorder due to the cognitive, behavioral, and emotional elements common to both disorders (Telch, Agras, Rossiter, Wilfley, & Kenardy, 1990). Traditional CBT for binge eating disorder focuses on breaking the cycle of restrictive dieting followed by bingeing through the development of regular, healthy, eating habits. Clients are taught to self-monitor food intake, eating patterns, binge episodes, thoughts, and affect before and after binges.

Treatment does not focus on weight (Telch et al., 1990). More generally, the theory of psychotherapy behind cognitive and behavioral therapies (Beck & Weishaar, 2005) assumes that faulty information processing and maladaptive behaviors lead to distress. By altering a person's cognitions to reflect reality and by activating behavior when necessary, distress will be reduced.

In a randomized and controlled 10 week study of CBT as a treatment for binge eating disorder, Telch et al. (1990) found that CBT significantly reduced binge-eating episodes as compared to a wait-list control. In addition, at post-treatment, binge-eating frequency had declined significantly in 94% of treatment group subjects, with 79% becoming binge abstinent. At 20 week follow-up, binge-eating had resumed for many participants though binge-eating frequency remained lower than frequency at baseline (Telch et al., 1990). Eldredge, Agras, Arnow, Telch, Bell, Castonguay, and Marnell (1997) found a significant drop in frequency of binge eating in subjects who received 12 additional weeks of CBT after not improving in the initial 12 weeks of CBT.

As CBT was the first used in the treatment of binge eating disorder, several researchers have studied modifications to the standard approach of CBT. Hilbert and Tuschen-Caffier (2004) investigated the efficacy of CBT with a body exposure component in comparison to CBT with cognitive restructuring. Following treatment, and at 4 month follow-up, both forms of CBT were equally efficacious in the treatment of binge eating disorder. Another study examined the effect of exercise in addition to CBT. Pendleton, Goodrick, Poston, Reeves, and Foreyt (2002) found that subjects who had CBT and exercised had a larger decrease in binge-eating and better maintained that decrease after treatment as compared to their CBT-non-exercise treatment counterparts. In conjunction with decreased binge-eating, the CBT-exercise treatment group lost weight as compared to the non-exercise group which gained weight during the course of

treatment. Pendleton and colleagues also included a CBT non-exercise with maintenance group and a CBT-exercise with maintenance group in their study and discovered that the CBT-exercise with maintenance group, after 10 months of maintenance, experienced 50% greater binge-eating abstinence than the control group and significantly greater weight loss. Another analysis of CBT for binge eating disorder modified CBT to include monitoring of all eating through Ecological Momentary Assessment (EMA). Researchers posited that EMA would assist subjects in understanding binge-eating antecedents. However, the CBT with EMA treatment group and the standard CBT treatment group showed equal improvement on outcome variables (le Grange, Gorin, Dymek, & Stone, 2002). Peterson, Mitchell, Engbloom, Nugent, Mussell, Crow, and Thuras (2001) investigated the differential efficacy of self-help-led and therapist-led group CBT. Both self-help-led and therapist-led groups had decreased binge eating episodes at post-treatment and through 1 year, with no significant differences between the two groups. Lastly, Gorin, Le Grange, and Stone (2003) examined the effect of spouse involvement in CBT for binge eating disorder. They found that spousal involvement offered no additional improvement as compared to CBT without spousal involvement. Together, all of these studies demonstrate the efficacy of various forms of CBT in the treatment of binge eating disorder. Specifically, this efficacy is illustrated by a weighted mean binge abstinence rate at outcome of 61.6%, at six month follow-up of 86%, and at twelve month follow-up of 46.5% (Agras et al., 1997; Eldredge et al., 1997; Wilfley et al., 2002). These binge abstinence rates and the 0% binge abstinence rate of wait-list control groups in these studies will be used as benchmarks for comparison to Intuitive Eating.

#### *Dialectical Behavior Therapy for Binge Eating Disorder*

Recently, researchers have examined dialectical behavior therapy (DBT) as a treatment for binge eating disorder as DBT aids clients in developing healthy emotion regulation skills.

Because binge eating is a possible means of coping with negative emotion, researchers posited that DBT might be an effective treatment for binge eating disorder (Linehan, 1993). In a 20-week treatment format, DBT targeted three elements of affect regulation in the treatment of binge eating disorder: mindfulness, emotion regulation, and distress tolerance (Wiser & Telch, 1999). Theoretically, these elements are based in behavioral science, as well as dialectical philosophy, and Zen practice (Miller, Rathus, & Linehan, 2007). Behavioral science, as with CBT, focuses on altering behavior to alter affect. Dialectical philosophy as well as Zen practice are thought to help people understand and seek the benefits of adopting a balanced state of mind.

Mindfulness skills training (Wiser & Telch, 1999) is used in the treatment of binge eating disorder in order to increase awareness of emotional experience in clients who normally avoid emotions by bingeing. Clients are taught mindfulness skills such as observing, describing, participating, acting nonjudgmentally, acting single-mindedly, being effective, urge-surfing, and alternate rebellion. Together these skills create a mindfulness meditation which enables clients to be aware of their here-and-now experiences while remaining nonjudgmental. Clients become neutral observers of their own behavior, allowing them to objectively view and understand their emotional states while simultaneously realizing that emotional states are temporary and under their control. Mindfulness skills allow binge eaters to see their emotive-behavioral sequence in context, empowering them to disrupt the sequence prior to bingeing in the future.

Emotion regulation skills training (Wiser & Telch, 1999) helps a client to comprehend the parts of an emotional response, identify the purposes of emotions, decrease susceptibility to unpleasant emotions, create positive emotional experiences, and alter emotional states. Clients in DBT share their experiences of emotion in group therapy, helping each other to process feelings and explore new methods of coping with those emotions.

Distress tolerance skills training (Wiser & Telch, 1999) assists clients in learning how to endure difficult situations that are out of the clients' control. Distress tolerance addresses the inevitability of difficult situations in life and the necessity of adaptively coping with such situations. Clients are directed in crisis survival and acceptance strategies and are reminded of the inefficacy of avoidance strategies. Adaptive strategies are composed of cognitive, behavioral, and spiritual elements.

In a small, uncontrolled, trial of DBT, Telch, Agras, and Linehan (2000) found that 82% of subjects were binge-free at post-treatment with no significant change occurring between post-treatment, 3-month follow-up, and 6-month follow-up. A larger, controlled, replication study by the same authors (2001) achieved significantly lower levels of eating pathology in the treatment group as compared to the control group and binge abstinence in 89% of treatment group subjects at post-treatment. Binge abstinence dropped to 56% in the treatment group at 6-month follow-up (Telch, Agras, and Linehan, 2001). Finally, in a study of relapse prediction after successful treatment with DBT, Safer, Lively, Telch, and Agras (2002) found that the strongest predictors of relapse were binge eating beginning before or at the age of sixteen and high post-treatment Eating Disorder Examination Restraint subscale scores. The literature on dietary restraint is mixed at this point, bringing into question the value of the finding regarding restraint in this study. Weight and shape concerns at post-treatment, assessed via the Eating Disorders Examination, and Body Mass Index at post-treatment were not highly associated with relapse (Safer et al., 2002). As evidenced by the binge abstinence benchmarks of 86.2% at outcome and 66.0% at six month follow-up (Telch, Agras, & Linehan, 2000; Telch, Agras, & Linehan, 2001), DBT is an efficacious treatment for many struggling with binge eating disorder. Twelve and a half percent of the wait-list control group in this study was binge abstinent at outcome. These

binge abstinence rates will be used as the efficacy benchmarks for DBT. Lastly, interpersonal therapy has been evaluated as a treatment for binge eating disorder.

### *Interpersonal Therapy for Binge Eating Disorder*

Finally, researchers have tested the efficacy of interpersonal therapy (IPT) as a treatment for binge eating disorder. Though originally used in the treatment of Bulimia Nervosa, IPT has since been applied to the treatment of binge eating disorder. Researchers speculate that binge eating may occur as a result of interpersonal problems, thereby possibly making IPT an effective treatment for BED (Wonderlich, de Zwaan, Mitchell, Peterson, & Crow, 2003).

Theoretically, IPT is based on the concept that clients' problems are based in faulty beliefs and ineffective coping strategies that clients originally learned in their developmental relationships. The therapist in IPT offers clients a corrective emotional experience which breaks down clients' maladaptive coping strategies, in this case binge eating. Clients are then able to extend what they have learned in therapy into other relationships, thus making those relationships more emotionally safe (Teyber, 2000). IPT is unique in that it does not deal specifically with the symptoms of binge eating disorder, but instead focuses on underlying issues that trigger bingeing. In the first phase of IPT, clients identify issues related to significant life events, mood and self-esteem, interpersonal relationships, and changes in weight, and then connect these issues to the course of the eating disorder. One tenet of IPT is that clients usually seek treatment based on issues with role transition, interpersonal role disputes, grief, and/or interpersonal deficits. An IPT client, then, clarifies which of these four issues is their primary issue. In the second phase of IPT, clients are encouraged to discover the interpersonal basis of their bingeing and the emotions that the interpersonal basis brings up. Discussing symptoms at length is avoided. In the last stage of treatment, clients review their treatment gains, discuss

future roadblocks, and consider their progress in light of interpersonal relationships (Apple, 1999).

Wilfley and colleagues (1993) conducted a controlled, comparative study between group CBT and group IPT which resulted in equal efficacy. Participants in both CBT and IPT significantly reduced their number of days bingeing as compared to a wait-list control at post-treatment, with 28% of CBT participants binge abstinent, 44% of IPT participants binge abstinent, and 0% of control participants binge abstinent. However, significant increases in number of binge eating days from post-treatment occurred at one-year follow-up for both treatment groups, though follow-up number of binge eating days was still significantly decreased from pre-treatment baseline. In an uncontrolled, replication study, Wilfley and associates (2002) found that once again, after 20 weeks of treatment, both CBT and IPT significantly reduced the number of days bingeing, with 79% of CBT participants and 73% of IPT participants binge abstinent at post-treatment. Though binge eating frequency increased at follow-up, it remained significantly less than pre-treatment baseline frequency.

Agras, Telch, Arnow, Eldredge, Detzer, Henderson, and Marnell (1995) investigated the efficacy of group IPT with binge-eaters who did not respond to group CBT. In this study, CBT non-responders (after 12 weeks) completed 12 weeks of IPT. Unexpectedly, IPT did not contribute to the outcomes of CBT in individuals who did not respond to CBT after the initial 12 weeks. This finding suggested that CBT and IPT may help the same type of disordered eater or function through the same therapeutic mechanism, despite the drastic differences in therapeutic approach. The results of the above reviewed studies suggest that IPT results in a weighted mean binge abstinence rate of 67.7% at outcome and 61.7% at twelve month follow-up, compared to a

0% binge abstinence rate at outcome in the wait-list control group. These benchmarks suggest that IPT is an efficacious treatment for binge eating disorder.

Overall, these studies suggest that CBT for binge eating disorder yields a weighted mean binge abstinence rate of 61.6% at outcome (Agras et al., 1997; Eldredge et al., 1997; Wilfley et al., 2002), 86.0% at six month follow-up, and 46.5% at twelve month follow-up. DBT yields a weighted mean binge abstinence rate of 86.2% at outcome and 66.0% at six month follow-up (Telch, Agras, & Linehan, 2000; Telch, Agras, & Linehan, 2001). IPT yields a weighted mean binge abstinence rate of 67.7% at outcome and 61.7% at twelve month follow-up (Wilfley et al., 1993; Wilfley et al., 2002). Wait-list control groups for CBT, IPT, and DBT had binge abstinence rates of 0%, 0%, and 12.5% respectively. These binge abstinence rates will serve as the benchmarks for comparison of Intuitive Eating to CBT, DBT, and IPT.

### *Intuitive Eating*

Although CBT, DBT, and IPT are known to be efficacious in the treatment of binge eating disorder, these treatments may not directly address the psychological reactance that binge eaters experience. People in general face substantial pressure to be thin, stay thin, and engage in drastic measures if necessary to attain thinness. Even more so, people with binge eating disorder, who are often obese, fight consistent pressure to restrict their eating in extreme ways. As a multi-faceted treatment program that attends to the physical, affective, cognitive, *and* environmental components of binge eating disorder, Intuitive Eating combines the approaches of CBT, DBT, and IPT, as well as what will be referred to as a “reactance reduction component.” Psychological reactance theory (Brehm & Brehm, 1981) suggests that people rebel when they experience a threat to their freedom. Although binge eating has never been considered in light of psychological reactance previously, the theory is easily applied to the disorder. The assumptions

of reactance theory are: 1) “for a given person at a given time, there is a set of behaviors any one of which he could engage in either at the moment or at some time in the future”, and 2) these behaviors are only realistically possible acts (i.e. these are behaviors that people are realistically capable of engaging in). One act that people are free to engage in is eating. Additionally, the theory notes that people must be aware that the freedom to engage in a behavior exists and that they have the ability to exercise that freedom. In the case of eating, people are aware of their control over eating and their ability to eat. Reactance theory also posits that the stronger the expectation that a person should have freedom over a behavior, the more difficult it is to convince the person they do not have the freedom. So, a person with a very strong expectation will experience more reactance, and a greater desire to rebel and reassert freedom when a limitation or threat to that freedom is perceived. Thus, in the situation of restrictive dieting people feel so limited in what they can consume, something that people view as a behavior under their control that they rebel by bingeing. More generally, people may binge as a reaction to the diet pressures they feel from close others or society. Indeed, reactance theory states that “any kind of attempted social influence, any kind of impersonal event, and any behavior on the part of the individual exercising the freedom can be defined as threats” to one’s freedom.

The variety of therapeutic approaches taken from CBT, DBT, IPT, and psychological reactance theory are embodied in the ten principles of Intuitive Eating: 1) Reject the diet mentality, 2) Honor your hunger, 3) Make peace with food, 4) Challenge the food police, 5) Feel your fullness, 6) Discover the satisfaction factor, 7) Cope with your emotions without using food, 8) Respect your body, 9) Exercise - Feel the difference, and 10) Honor your health with gentle nutrition. By approaching the treatment of binge eating disorder in this multi-faceted

manner, people struggling with the illness are more apt to let go of bingeing as a coping mechanism and dieting as a temporary fix, thus enabling them to experience lasting recovery.

In illustration of the multi-dimensional nature of the Intuitive Eating program, the following will be presented for each of the ten principles: 1) A description of the principle and 2) connections between the principle and existing therapies.

### *Principles of Intuitive Eating*

Principle 1, “reject the diet mentality”, essentially entails giving up the hope that dieting will allow the person the ability to lose weight easily, quickly, and permanently, and entails getting angry at an industry and society that sets people up for failure (Resch & Tribole, 2003). A binge eater’s commitment to Intuitive Eating hinges on their realization that dieting is futile. Working on this principle involves recognizing and acknowledging the biological and psychological damage that dieting has caused in the person’s life, increasing awareness of diet-mentality thinking and traits, and getting rid of dieters’ tools (scales, measures of fat percentage, etc). Principle 1 is primarily psycho-educational, encouraging binge eaters to reflect on and become angry with their failed attempts at weight loss. In addition to citing scientific evidence on the ineffectiveness of dieting, principle 1 also challenges the messages people tell themselves about their eating. Thus, another part of principle 1 is based on cognitive and psychological reactance theories.

Principle 1 explains that this rebellion through bingeing is the way in which people have protected their own boundaries and freedoms. This principle is consistent with psychological reactance theory and the idea that people react with rebellion when they feel one of their freedoms has been threatened. Additionally, the theory behind cognitive therapy (Beck & Weishaar, 2005) suggests that people experience distress as a result of dysfunctional thoughts

and beliefs. As with CBT, principle 1 addresses cognition by helping people to examine the evidence that does not support their dysfunctional beliefs and by helping them to challenge extreme thinking. Namely, principle 1 helps participants in Intuitive Eating to examine dysfunctional beliefs that they have acquired through a history of dieting.

Principle 2, “honor your hunger”, is comprised of psychoeducational, mindfulness, and behavioral techniques. Psychoeducationally, principle 2 explains the biological and psychological effects of starvation, many of which people experience in the course of a lifestyle of chronic dieting. Mindfulness teaches participants to get in touch with their personal sensations of hunger, the extent of their hunger at given times, and different types of hunger. This is a key component of the program because binge eaters have often lost touch with their hunger sensations through the artificial eating schedules and portions prescribed by many diets.

Principle 2 encourages participants to eat every time they feel hunger. This behavioral strategy enables participants to experience control over their eating repeatedly and to begin trusting that they can successfully care for their bodies’ needs. The mindfulness component and behavioral components are reminiscent of DBT and CBT respectively. Psychological reactance theory also applies to this principle, as encouraging binge eaters to eat every time they experience hunger eliminates limitations to the freedom of eating, thus reducing the reactance that promotes bingeing behavior.

Principle 3, “make peace with food”, covers the effects of depriving oneself of food, giving oneself unconditional permission to eat, and the fears that go along with the freedom to eat anything. This principle employs psychoeducation to explain how deprivation leads to bingeing, bingeing leads to guilt, guilt leads to dieting, and dieting leads back to deprivation. Helping participants to give themselves unconditional permission to eat is a behavioral

experiment which allows them to begin challenging their fears regarding uncontrollable eating in the face of an endless food supply. Behavioral experimentation is a common technique in cognitive behavioral therapy. Additionally, psychological reactance theory explains much of the premise behind this principle. Having unconditional permission to eat fully eliminates the threat to the freedom of eating that people with binge eating disorder experience. Thus, once participants embrace the freedom to eat all foods, psychological reactance drops causing bingeing behavior to go down as well.

Principle 4, “challenge the food police”, involves examining the rules binge eaters create and live by in an attempt to improve their eating, becoming aware of how these rules influence affect and behavior, and ultimately challenging the rules. Drawn directly from cognitive and behavioral theories, principle 4 is based on cognitive behavioral therapeutic techniques of thought stopping and cognitive restructuring. By actively challenging the negative messages that binge eaters tell themselves and adopting more balanced attitudes about eating and physical appearance, participants reduce the amount of distress they experience when they do not eat as they would like to.

Principle 5, “feel your fullness”, is another lesson in mindfulness. Similar to principle 2, “honor your hunger”, principle 5 encourages participants to reacquaint themselves with the physical sensations of satiation. Participants frequently check in with themselves throughout an eating experience to check their level of fullness as well as after eating to learn what foods keep them satiated for longer periods of time. This mindfulness component, as with principle 2, is like that of dialectical behavior therapy. Additionally, psychological reactance theory is subtly applied again in that principle 5 reminds participants that they should not punish or restrict their

eating if they do eat beyond their level of fullness. This reduces the guilt that overeating normally triggers, preventing the desire to restrict and the experience of psychological reactance.

Principle 6, “discover the satisfaction factor”, is yet another mindfulness-based component reminiscent of dialectical behavior therapy. In this case, participants are taught to spend time focusing on the pleasure they experience in the actual experience of eating. Participants are taught to regain the pleasure in eating by considering carefully what they *really* want to eat, discovering the pleasure of tasting food, making the eating experience enjoyable, not settling for foods that are not desirable, and checking in with themselves to evaluate the taste of the food throughout the meal. Selecting and eating the foods that a person truly craves also results in earlier satiation and less food consumed.

Principle 7, “cope with your emotions without using food”, helps participants to address their use of food as a source of comfort. This principle aims to increase awareness of how people use food to distract themselves from painful emotions, to help participants start to identify their emotional experiences prior to blocking them with eating, and to teach participants alternative ways of getting their emotional needs met. This principle is consistent with the view of binge eating disorder as an issue of emotional dysregulation. As such, the goals of this principle are suggestive of the emotional regulation and distress tolerance components of DBT. Principle 7 aids people with binge eating disorder in separating other issues they are struggling with from their disordered eating behaviors. Similar to IPT, this principle encourages resolving non food-related issues in order to reduce bingeing behavior.

Principle 8, “respect your body”, revolves around treating the physical self well. This psychoeducational component teaches that incessant self-criticism and comparison only fuels the

desire to diet. By respecting, and ultimately accepting, one's size and shape, people with binge eating disorder can approach more realistic standards for their physical bodies in a natural way.

Principle 9, “exercise – feel the difference”, promotes physical fitness for the purpose of pleasure and general good health. Cognitively, this component of the Intuitive Eating program helps participants to view exercise in a more balanced way, by both separating exercise from weight and eating, and by viewing exercise in shades of gray as opposed to black and white. Behaviorally, this component helps participants to get into the habit of pleasurable exercise. Therefore, this component is consistent with CBT. Mindfulness can also be seen in this component, as participants are instructed to focus on the way their bodies feel in an effort to discover types of exercise that make them feel good. Thus, principle 9 reflects concepts associated with DBT. Finally, psychological reactance is reduced in that participants are not being forced to exercise for the purpose of weight loss, but encouraged for the purpose of enjoyment.

The last principle, principle 10, “honor your health with gentle nutrition”, is an educational and psychoeducational component that incorporates nutrition into the overall picture of Intuitive Eating. This principle is comprised of nutritional information regarding the healthy balance of nutrients as well as ways in which participants can use this information in moderation so that eating nutritiously does not become another diet. As with CBT for binge eating disorder, participants are reminded to beware of extreme thinking. Psychological reactance is also addressed in that participants are encouraged to continue eating whatever they wish to eat, thereby protecting the freedom of eating.

Overall, the ten principles of Intuitive Eating encompass components of cognitive behavioral therapy, dialectical behavior therapy, and interpersonal therapy, in addition to a

reactance reduction component to form a comprehensive program for the treatment of binge eating disorder. These principles facilitate the development of non-restrictive eating, balanced thinking, new coping skills, and a healthy fitness routine. Although the existing literature on Intuitive Eating is minimal it is presented at this point in order to provide as much background information on the treatment as possible.

### *Existing Studies of Intuitive Eating*

Although the use of Intuitive Eating for binge eating disorder specifically has never been evaluated empirically, a few studies have demonstrated the physical and psychological benefits of Intuitive Eating more generally. Hawks, Madanat, Hawks, and Harris (2005) found that adherence to Intuitive Eating principles was associated with lower body mass index, lower triglyceride levels, higher levels of high density lipoproteins, and improved cardiovascular risk in college students. Smith and Hawks (2006) found that adherence to Intuitive Eating principles was associated with lower body mass index, lower health-consciousness related to food, and higher enjoyment of food and eating. Thus, not only are intuitive eaters healthier physically, but they also have healthier attitudes toward food.

A recent study by Bacon, Stern, Van Loan, and Keim (2005) showed that obese participants in a size acceptance focused Intuitive Eating program experienced decreased eating restraint, decreased depression, increased self-esteem, increased physical activity, and decreased eating disorder symptomatology. These positive outcomes were not experienced by participants in a “diet” group.

Despite the minimal empirical support for Intuitive Eating program at this point in time, Tribole & Resch (2003) have been using the program in their nutritional therapy practice with success for several years. Acknowledging this anecdotal evidence, the empirical support for

Intuitive Eating as it exists, and the empirical support for CBT, DBT, and IPT in the treatment of binge eating disorder, it seems prudent to evaluate the Intuitive Eating program and examine how Intuitive Eating compares to existing treatments for binge eating disorder.

Although an efficacy study of the Intuitive Eating program would allow any success of the program to be attributed to features of the Intuitive Eating program itself, this is not the goal of the current study. Instead, before undertaking a large-scale investigation it seems practical to do a preliminary investigation of the program under real-world circumstances. This population is of special interest, because it is within the general community that so many people with binge eating disorder are attempting to treat themselves through dieting. Reaching this population through a naturalistic psychoeducational approach seems of the utmost importance. Yet, unlike other effectiveness studies, this study is not testing a therapy already known to be efficacious. Thus, this study will function as a pilot study in that its focus is to evaluate a specific, never before researched, therapeutic program. This study examines Intuitive Eating in the treatment of binge eating disorder within a community population in the form of a summative program evaluation (Royse, 1992). This type of program evaluation seeks to simply demonstrate if participants have improved at a certain point in time after having received an intervention. Therefore, this evaluation does not examine *how* the intervention is tied to the outcome.

A prospective naturalistic outcome design is used to evaluate Intuitive Eating and to compare binge abstinence rates at outcome and follow-up with those of control and treatment groups from existing outcome studies. A “benchmarking” approach is used to compare the outcomes of the Intuitive Eating program with the efficacy of CBT, IPT, DBT, and their respective control groups. Examining efficacy involves investigating the outcomes of a randomized, controlled trial of a specific treatment. By limiting co-morbidity and maximizing

internal validity, efficacy studies reveal how successful a treatment is under the purest of circumstances. In contrast, examining effectiveness involves investigating the outcomes of a treatment when that treatment is performed in a more “real world” setting in which co-morbidity is allowed and generalizability maximized. A benchmarking approach (McFall, 1996) is used to compare efficacy and effectiveness outcomes of the same therapy, thus showing how treatment success varies under ideal conditions and in reality. Although benchmarking is typically used to compare the *efficacy* of a treatment to the *effectiveness* of that same treatment, the approach remains applicable for the purposes of this study because it offers the opportunity for direct comparison between existing treatments that are related to Intuitive Eating and Intuitive Eating itself, but also because it provides a comparison between Intuitive Eating outcomes and the outcomes of people in wait-list control groups. Despite the use of a benchmarking approach, the lack of a control group within the study itself will prohibit causal inferences from being made. Examining Intuitive Eating through a program evaluation designed in this manner will not allow changes in participants’ symptomatology to be attributed the program alone.

Because effectiveness studies do not exclude for most co-morbid conditions or use of psychotropic medication, another purpose of such studies is to examine possible mediating and moderating variables affecting participants’ success after treatment. Thus, commonly co-morbid issues such as depression and anxiety are considered as potential predictors of outcome.

### *Hypotheses*

To evaluate an Intuitive Eating program for binge eating disorder, the following seven hypotheses are tested:

- 1) At pre-treatment, frequency of bingeing episodes will be significantly positively associated with psychological reactance.

- 2) Frequency of bingeing episodes at pretreatment will be significantly different from frequency of bingeing episodes at outcome and at follow-up.
- 3) Self-reported adherence to Intuitive Eating principles at pretreatment will be significantly different from self-reported adherence to Intuitive Eating principles at outcome and follow-up.
- 4) Participants in the Intuitive Eating program will have a significantly higher binge abstinence rate at outcome and six month follow-up than participants in existing studies' no treatment control groups.
- 5) There will be no significant difference between the percentage of clients who are binge abstinent at outcome of the Intuitive Eating program treatment and the percentage of clients who are binge abstinent in existing studies of cognitive behavioral therapy, interpersonal therapy, and dialectical behavior therapy.
- 6) Self-reported depressive severity at pretreatment will predict frequency of bingeing episodes at outcome and follow-up.
- 7) Self-reported anxiety severity at pretreatment will predict frequency of bingeing episodes at outcome and follow-up.

## Method

### *Participants*

Men and women over the age of seventeen who self-identified as binge eaters were recruited to participate in the study. Participants were recruited from the community of a mid-sized Midwestern town using newspaper articles and flyers advertising “Free treatment for binge eating.” Local mental health professionals were also made aware of the treatment study so as to promote referral to the group. Power analysis suggests that to attain power of .80 for a repeated

measures design with three time points (pre-treatment, outcome, and follow-up) and to detect a large effect, a sample size of thirty-one participants is needed to allow for stepwise multiple regression. To account for attrition, a sample 20% larger than that is needed. Thus, a sample of at least thirty-eight participants will be recruited.

In order to qualify for the study, participants had to meet the DSM-IV-TR research criteria for binge eating disorder, as diagnosed using the SCID (First, Gibbon, Spitzer, & Williams, 2001). Additionally, potential participants were excluded from the study if they were diagnosed with psychosis, substance abuse or dependence, or organic mental disorder. Potential participants were also excluded if they were currently undergoing treatment for weight loss or were pregnant. Consistent with the existing effectiveness literature, participants were not excluded for other co-morbid conditions or use of psychotropic medication. By allowing for co-morbidity, the results of the study are more easily generalized to community populations.

### *Measures*

*Diagnostic Interview.* At pre-treatment, outcome, and follow-up, the Non-Patient Edition of the Structured Clinical Interview for DSM-IV (SCID; First et al., 2001) was used to diagnose participants with binge eating disorder. In a study of SCID reliability, kappas for inter-rater agreement ranged from .60 to .80 (Williams, Gibbon, First, Spitzer, Davies, et al., 1992). Additionally, a recent study by Smitham and Smith (2007) found an inter-rater agreement kappa of .85.

*Frequency of Bingeing and Binge Abstinence.* The seven day calendar recall method (Wilson, 1987), used by Wilfley and colleagues (1993), was employed to quantify the frequency of participants' bingeing within the last week. This method asks participants to recall binge

episodes on each of the last seven days by anchoring each day to that day's activities. Frequency of bingeing was quantified at pretreatment, outcome, and follow-up.

### *Questionnaires*

*Demographic Questionnaire.* Participants filled out a demographic questionnaire in order to obtain information about participants' age, ethnicity, marital status, number of children, current employment and salary, current and recent past prescription medication usage, as well as current weight and height (Appendix A).

*Dysfunctional Eating.* The Eating Disorders Inventory (EDI; Garner, Olmstead, & Polivy, 1983) was used as a self-report measure of dysfunctional eating (Appendix B). Although the measure was created for the measurement of anorexia and bulimia severity, the EDI is comprised of 64 items from eight subscales that are applicable to the dysfunctional eating patterns of binge eating disorder as well. Each item is rated on a six point scale with the following labels: always, usually, often, sometimes, rarely, and never. Scores are then transformed from a six point scale to four point scale in which "0" is assigned to the three lowest severity ratings, "1" to the third highest severity ratings, "2" to the second highest severity ratings, and "3" to the highest severity ratings in order to assess the degree to which a pattern of dysfunctional eating exists. Thus, higher scores correspond with higher eating disorder symptomatology. The subscales (drive for thinness, body dissatisfaction, bulimia, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, and maturity fears) assess behavioral, personality, and general psychological components of eating disorders. Espelage, Mazzeo, Aggen, Quittner, Sherman and Thompson (2003) found good internal consistency within subscales, ranging from .80 to .92. Thiel and Paul (2006) reported subscale test-retest reliabilities at one week ranging from .84 to .94. Espelage et al. also demonstrated convergent validity of the personality scales by showing

appropriate associations between the EDI personality scales and scales from the Millon Clinical Multiaxial Inventory - II. Additionally, Espelage and colleagues evaluated discriminant validity in the ability of the EDI to distinguish between clinical and non-clinical samples and found that the EDI appropriately categorized 84% of the clinical sample and 92% of the non-clinical sample. Principal components analysis by Eberenz and Gleaves (1993) yielded eight factors corresponding to the eight subscales, although Espelage et al. (2003) questioned the factor structure of the measure.

*Intuitive Eating Behavior.* The Intuitive Eating Scale (IES; Tylka, 2006) was used as a self-report measure of eating behavior based on physiological and satiety cues as opposed to emotional or situational cues (Appendix C). The twenty-one items composing the IES are rated on a five-point Likert scale ranging from 1, “strongly disagree”, to 5, “strongly agree.” Higher scores on the IES correspond to higher adherence to principles of Intuitive Eating. An exploratory factor analysis defined three factors that were then labeled “eating for physical rather than emotional reasons”, “reliance on internal hunger/satiety cues”, and “unconditional permission to eat” (Tylka, 2006). Internal consistency reliability for these three factors (eating for physical, reliance on internal cues, unconditional permission) were .85, .89, and .87 respectively. Construct validity was also illustrated by Tylka who found strong negative correlations between the IES and each of the following: severity of eating disorder symptomatology, body dissatisfaction, poor interoceptive awareness, internalization of thin-ideal, and pressure for thinness. Additionally, the IES was positively correlated with optimism, life satisfaction, self-esteem, and proactive coping. Finally, the alpha coefficient for three week test-retest reliability of the full IES scale was .86.

*Depression.* The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) was used as a self-report measure of depression severity (Appendix D). This 21-item measure comprises forced-choice questions such as: “Sadness- I do not feel sad (0); I feel sad much of the time (1); I am sad all of the time (2); I am so sad or unhappy that I can’t stand it (3).” Respondents endorse items on a scale of 0 to 3, with higher scores corresponding to higher levels of depression. The BDI-II is correlated .93 with the original BDI (Beck et al., 1996). Arnau, Meagher, Norris, and Bramson (2001) found the BDI-II to have high internal consistency with an alpha coefficient of .94 and item-total correlations ranging from .54 to .74. Convergent and criterion-related validity are also impressive for the BDI-II, as demonstrated by Mahalik and Kivlighan (1988) who found a correlation of .72 between the BDI and the Automatic Thoughts Questionnaire (Hollon & Kendall, 1980) that measures negative thoughts associated with depression.

*Anxiety.* The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) was used to assess self-reported anxiety (Appendix E). This twenty-one item measure was created to discriminate anxiety from depression. Participants rate items on a four-point Likert scale, labeled from 0, “not at all”, to 3, “severely - I could barely stand it.” According to Beck and colleagues, internal consistency reliability was high at an alpha of .75, as was one week test-retest reliability coefficient of .92. Factor analysis yielded a somatic anxiety factor and a subjective anxiety/panic factor. Convergent validity was illustrated in significant correlations of .51 between the BAI and the Hamilton Rating Scales for Anxiety (Hamilton, 1959) as well as the BAI and the Cognition Checklist – Anxiety subscale (Beck, Brown, Steer, Eidelson, & Riskind, 1987).

*Psychological Reactance.* The Hong Psychological Reactance Scale (HPRS; Hong & Faedda, 1996) was used to assess the extent to which participants exhibit psychological reactance

(Appendix F). This scale is comprised of eleven items that load on four factors: Emotional response toward restricted choice, reactance to compliance, resisting influence from others, and reactance to advice and recommendations. Items are rated on a Likert scale anchored with 1, “strongly disagree”, 3, “neither agree nor disagree”, and 5, “strongly agree.” Thus, higher scores represent higher psychological reactance. In a study employing three different samples, Shen and Dillard (2005) found that test-retest reliability for the scale ranged from .45 to .71. Illustrating convergent validity, Shen and Dillard found that the HPRS was positively associated with a measure of perceived threat to freedom and negatively associated with a measure of behavioral intention (as assessed by participants’ intention to follow guidance offered by public service announcements).

#### *General Procedure*

Potential participants contacted the principle investigator to discuss involvement in the study. A phone screen was used to assess for binge eating disorder, dieting behavior, substance use, psychosis, and organic mental disorder. Qualifying participants then attended an individual meeting with the principal investigator, at which point the SCID (First et al., 2001) was administered and binge frequency was assessed. SCID interviews were videotaped to later assess inter-rater reliability. Participants also filled out self-report measures at this appointment. Following the completion of this initial assessment, participants began group treatment for binge eating disorder. Upon completion of the final session of group therapy (i.e. outcome), participants filled out the self-report measures once again and set an appointment to meet with the principle investigator for outcome assessments using the SCID and binge frequency measurement. Six months after completion of treatment (i.e. six month follow-up), participants were contacted again to complete self-report measures and interview measures.

*Treatment*

Group treatment was provided by two pre-doctoral students under the supervision of a licensed counseling psychologist. The program was presented over the course of eight, ninety minute, weekly sessions. Treatment was based directly on the book, “Intuitive Eating” (Tribole & Resch, 2003), with each session corresponding approximately to one of the ten principles put forth in the book. Training of group leaders involved both leaders listening to training seminars by the creators of Intuitive Eating as well as reading the book. The leaders met regularly prior to and during the course of treatment to ensure treatment adherence and were able to consult with Evelyn Tribole or Elyse Resch for clarification if needed. Participants were divided into five groups based on scheduling preference, with no group consisting of more than ten members. Every session began with a sixty minute introduction of the principle of the week, followed by a thirty minute group discussion of the applicability of this and the other principles. Detailed outlines of each session as well as written activity sheets were located in an Intuitive Eating treatment manual.

Based on this format, session one focused on principle one, “reject the diet mentality.” The goal of this session was to help participants thoughtfully examine the role dieting has played in their lives. The therapist achieved this goal by: 1) Presenting the diet-binge cycle, 2) describing statistics on the effectiveness of diets, 3) suggesting possible emotional and physical consequences of this cycle, and 4) addressing possible feelings associated with giving up on dieting. Participants then discussed these topics and their feelings regarding dieting and a future life without dieting. During the week, participants tracked their diet-related thoughts using a log provided by group leaders in order to promote deeper processing of principle 1.

Session two focused on principle two, “honor your hunger” and principle 5, “feel your fullness.” The first goal of this session was to increase participants’ awareness of and respect for their feelings of hunger. The therapist achieved this goal by: 1) Educating participants on the biology of hunger and starvation, 2) examining possible physical and emotional cues of hunger, 3) presenting mindfulness as a tool to track hunger, and 4) discussing the benefits of respecting hunger signals.

The second goal of this session was to aid participants in identifying and respecting signals of satiety. The therapist achieved this goal by: 1) exploring sources of our beliefs regarding satiety, 2) discussing how to recognize satiety, 3) describing ways to respect fullness and the benefits of respecting fullness, and 4) describing common emotional experiences of respecting fullness.

Participants discussed the challenges they anticipated in honoring their hunger as well as their fears regarding respecting fullness and what might prevent them from respecting fullness. During the week, participants kept a log of their hunger experiences on the “Hunger Discovery Scale” and the “Fullness Discovery Scale.”

Session three focused on principle three, “make peace with food.” The goal of this session was to help participants give themselves unconditional permission to eat. The therapist achieved this goal by: 1) Presenting research on deprivation, 2) discussing psychological reactance and the outcomes of reactance, 3) presenting the seesaw analogy, and 4) discussing giving oneself unconditional permission to eat and the emotional experience of this freedom. Participants discussed their feelings regarding having unconditional permission to eat and situations that could prevent them from giving themselves permission. During the week, participants logged their feelings related to shopping for previously “forbidden” foods, allowing

themselves to eat these foods, and having eaten these foods using a worksheet provided by group leaders, again for the purpose of encouraging participants to engage in thoughtful reflection of their eating habits.

Session four focused on principle 4, “challenge the food police.” The goals of this session were to increase participants’ awareness of food-related self-talk and to teach participants to challenge distorted thinking related to eating. The therapist achieved these goals by: 1) presenting “food talk” and the way people judge themselves based on their eating habits, 2) framing this in terms of “destructive dieting voices” and “powerful ally voices”, and 3) presenting forms of extreme thinking and teaching participants to challenge these destructive thoughts. Participants discussed the experience of living in a world that is full of extreme messages related to diet and health and their own experiences of living with these messages. During the week, participants logged the messages they encounter from the media, themselves, or others as well as their feelings upon hearing those messages. Finally, they logged how they challenged those messages.

Session five focused on principle 6, “discover the satisfaction factor.” The goal of this session was to increase participants’ mindfulness during selection and consumption of foods. The therapist achieved this goal by: 1) Discussing the importance of selecting food based on desire, 2) describing pleasurable eating through the five senses, and 3) discussing how to create an enjoyable eating experience. Participants discussed how they will put this principle into practice and how enjoying eating contrasts with bingeing. During the week, participants logged ways in which they succeeded in pleasurable eating, situations in which they struggled to eat in this way and what prevented them from doing so.

Session six focused on principle 7, “cope with your emotions without using food.” The goals of this session were to help participants identify emotions that they cope with by bingeing and to provide participants with alternative coping skills. The therapist achieved this goal by: 1) Presenting the “continuum of emotional eating” and emotional triggers for overeating, 2) proposing alternative ways of meeting emotional and physical needs, and 3) discussing the emotional experience of giving up food as comfort. Participants discussed what typically drives them to binge and alternative activities they could use to self-soothe. During the week, participants engaged in alternative activities and tracked their feelings following coping in this way and coping with food.

Session seven focused on principle 8, “respect your body” and principle 9, “exercise – feel the difference.” The goals of this session were to help participants develop realistic expectations regarding body size and respect their body size as it currently is as well as to prompt participants to begin enjoyable physical activity. The therapist achieved these goals by: 1) Discussing the body’s needs, 2) promoting changes in body assessment, 3) educating participants on how to challenge negative self-talk, 4) the emotional experience of letting go of unrealistic expectations, 5) focusing participants on choosing exercise that is pleasurable, 6) teach participants how to be mindful during exercise, and 7) challenging weight-related motivations for exercise. Participants discussed how unrealistic expectations have influenced their lives and their feelings related to developing realistic expectations in addition to discussing their previous experiences with exercise and sharing ideas of how they will create a different habit of exercise for the future. During the week, participants wrote about their emotional experience of changing expectations and tried different types of exercise and rated their enjoyment of each activity.

Session eight focused on principle 10, “honor your health with gentle nutrition.” The goal of this session was to motivate participants to make healthy food choices when those food choices were desirable to them. The therapist achieved this goal by: 1) Discussing the difference between gentle nutrition and dieting, 2) educating participants on nutritional guidelines, and 3) exploring finding pleasure in healthy eating. Participants discussed their impressions of gentle nutrition and roadblocks that could prevent them from using gentle nutrition. Participants were encouraged to continue keeping logs of their eating experiences for as long as they are helpful.

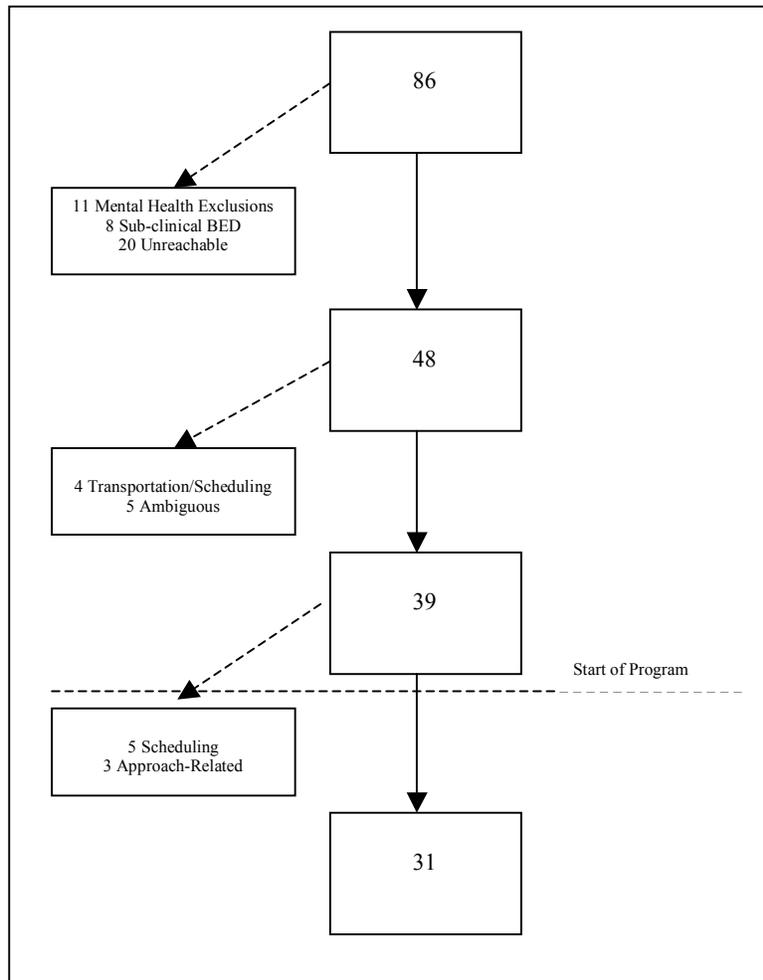
Ideally, learning and discussing the ten principles of Intuitive Eating allowed participants to: 1) let go of previous dieting habits and dysfunctional cognitions, 2) begin eating a variety of foods, 3) become aware of the physical sensations of hunger and fullness, 3) work toward self-acceptance, 4) develop new ways to cope with overwhelming emotions, and ultimately, 5) cease engaging in binge eating.

## Results

### *Descriptive Statistics*

Eighty-six people initially expressed interest in participating in the Intuitive Eating study (Figure 1). These people learned of the study in the following ways: a) twenty-three through television, b) thirty-seven through area newspapers, c) ten through a campus newspaper, d) three through a friend in the group, e) eight through fliers at community mental health centers, pharmacies, and physicians’ offices, and f) six through unknown sources. Eleven people were excluded through the phone screen or in person due to mental health issues which met the exclusionary criteria. Eight people were excluded through the phone screen or in person because they did not meet full criteria for binge eating disorder. Twenty of the eighty-six people expressed interest in the study but either could not be reached for the phone assessment or did

not attend their scheduled in-person assessment. Prior to the start of the groups, forty-eight people were qualified to participate in the study through both the phone and in-person assessments.



*Figure 1.* This figure illustrates numbers of people who initially expressed interest in the study, completed initial assessments, completed the study, and numbers of people who terminated participation in the study at given time points.

*Comparison of Completers Versus Drop-Outs.* Of the forty-eight who qualified through the initial assessment, four dropped out prior to starting the Intuitive Eating group due to transportation/scheduling concerns, five dropped out prior to starting the group without

indicating a reason, five dropped out after starting the group due to scheduling concerns, and three dropped out after starting the group because they felt the Intuitive Eating approach would not be helpful to them. The thirty-one remaining people completed the Intuitive Eating program. Thus, the initial attrition rate after the group started was twenty-one percent. This level of attrition is consistent with attrition from the existing treatment studies of binge eating disorder discussed previously (Safer et al., 2001; Telch, Agras, & Linehan, 2001; Telch et al., 1990; Wilfley et al., 2002; Wilfley et al., 1993). Independent samples t-tests were used to assess for any systematic differences between study completers and drop-outs. Among the demographic and self-report variables, there were no significant differences between the groups.

*Demographic variables.* Of the thirty-one people who completed the Intuitive Eating sessions, thirty were female and one was male. Participants ranged in age from 30 to 62 years, with a mean age of 44.32 years ( $SD = 9.52$ ). The racial make-up of the sample was 90.3% Caucasian and 9.7% of “other” racial identification. Relationship status was as follows: 25.8% single, 51.6% married, and 22.6% divorced. Qualifying participants’ number of children ranged from 0 to 4, with a mean of 1.87 ( $SD = 1.31$ ). Annual income ranged from \$0 to \$375,000, with a mean income of \$71,080 ( $SD = \$77,859$ ). Qualifying participants ranged in height from 5’1” to 5’10” and ranged in weight from 125 to 360 pounds, with a mean height of 5’5.58” ( $SD = 2.87$ ”) and mean weight of 241.06 pounds ( $SD = 68.13$ ), resulting in a mean BMI of 39. This average body mass index indicates an obese sample.

Twenty-five participants completed the phone portion of the follow-up assessment including the diagnostic interview and binge frequency assessment. There were no significant differences between those who completed the phone follow-up and those who did not on either demographic or self-report variables. Fourteen participants completed the self-report follow-up

assessments on the internet. Age was the only demographic variable on which there was a significant difference between participants who completed the self-report questionnaires and participants who did not, ( $t = 2.15, p < .05$ ). On average, those who did not complete the questionnaires online were older ( $x = 47.28, SD = 9.75$ ) than those who completed the questionnaires online ( $x = 40.23, SD = 7.78$ ). There were no significant differences between follow-up completers and non-completers on other measures. Despite this, there was a near significant difference between the groups on self-reported depressive severity at post-test ( $t = 1.96, p = .06$ ), with less depressed participants being more likely to complete the assessments. There was also a near significant difference between the groups on adherence to principles of intuitive eating ( $t = -1.85, p = .08$ ), with participants who indicated greater adherence to intuitive eating being more likely to complete the online assessments.

*Self-Report/Diagnostic Variables.* Means, standard deviations, and inter-correlations of all study variables are presented in Table 1. For study completers, self-reports of binge frequency over the course of the week prior to the assessment ranged from 0 to 11 binges, with a mean binge frequency of 4.10 ( $SD = 2.27$ ). One participant reported binge abstinence in the week preceding assessment; therefore binge abstinence at pre-treatment was 3.2%. Means of self-reported binge frequencies before each session were as follows: 3.24 prior to week 1, 2.74 prior to week 2, 2.46 prior to week 3, 2.19 prior to week 4, 2.13 prior to week 5, 1.48 prior to week 6, 1.59 prior to week 7, and 1.17 prior to week 8 (Figure 2). At outcome, binge frequencies ranged from 0 to 3, with a mean binge frequency of .68 ( $SD = 1.08$ ). At outcome, 64.5% of completing participants reported being binge abstinent in the past week whereas 35.5% reported bingeing at least once in the past week. At outcome, 80.6% of completing participants no longer met

diagnostic criteria for Binge Eating Disorder. A paired samples t-test found a significant difference between reported binge frequency at pre-treatment and outcome ( $t = 8.88, p < .001$ ).

As mentioned, twenty-five participants were reached for the follow-up diagnosis and binge frequency assessment. At follow-up, these participants' reported binge frequency ranged from 0 to 7, with a mean of 1.04 ( $SD = 1.90$ ; Figure 3). Of these participants, 62.5% reported being binge abstinent in the previous week, whereas 37.5% reported at least one binge episode in the previous week (Figure 4). At follow-up, 16.7% of participants who completed the assessment met diagnostic criteria for Binge Eating Disorder. The remaining 83.3% no longer met criteria for the disorder. A paired samples t-test found a non-significant difference, in the positive direction, between self-reported binge frequency at outcome and follow-up ( $t = -1.74, p = .10$ ). There was a significant difference between reported binge frequency at pretreatment and binge frequency at follow-up ( $t = 6.05, p < .001$ ).

One-way analyses of variance were used to assess the effect of treatment group by binge abstinence at outcome, binge frequency at outcome, and frequency of binge eating disorder at outcome. There were no differences between the groups. This implies that the groups were equivalent in their severity prior to treatment and at outcome.

Participants' EDI scores at pre-treatment ranged from 23 to 116, with a mean of 65.93 ( $SD = 20.80$ ). There was no significant difference in EDI scores at pre-treatment between study completers and non-completers. At post-treatment, completers' EDI scores ranged from 7 to 82, with a mean of 39.52 ( $SD = 22.31$ ). A paired samples t-test revealed a significant difference between EDI scores at pretreatment and outcome ( $t = 6.18, p < .001$ ). At follow-up, fourteen participants completed the EDI. Scores ranged from 25 to 69, with a mean of 45.36 ( $SD$