2001

Binge eating, anxiety and depression: A study of typology and direction of prediction

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BINGE EATING, ANXIETY AND DEPRESSION: A STUDY OF TYPOLOGY AND DIRECTION OF PREDICTION

A Project

Presented to the

Faculty of

California State University,

San Bernardino

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

in

Psychology:

Clinical/Counseling

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ABSTRACT

The purpose of this project was to examine the relationship between binge eating, anxiety and depression. A questionnaire containing several valid and reliable measures of anxiety, depression and binge eating was administered to 129 participants. The results of this study indicate that participants who engage in binge eating experience greater generalized anxiety, dietary restraint and general depression than non-binge eating participants. Additionally, weight exclusive fear of negative evaluation scores were greater than general fear of negative evaluation scores among binge eaters, and atypical depression scores were greater than general depression scores among binge eaters. Anxiety produced by dietary restraint and weight exclusive fear of negative evaluation were the only significant predictors of binge eating, with 54% of the variance in binge eating accounted for by these two variables. Furthermore, self-reported anxiety was greater prior to binge eating than following binge eating. Whereas, self-reported depression was greater following binge eating than prior to binge eating. Finally, binge eating was a mediating variable between generalized anxiety and atypical depression,

weight exclusive fear of negative evaluation and atypical depression, and dietary restraint and atypical depression. The results of the study suggest the following: Binge eaters are a highly anxious group, and binge eating may be a form of anxiety reduction. Additionally, depression may be a consequence of binge eating, as opposed to an antecedent. Finally, the act of dieting may be largely responsible for binge eating behavior. Clinical implications of these findings and suggested therapeutic interventions are addressed.

ACKNOWLEDGMENTS

My deepest gratitude is extended to the following individuals and sources for their support and guidance on this project: ASI funding, participants in the study, Dr. Michael Lewin for the ``brainstorming'' sessions in the initial stage of this project, Dr. Yu Chin Chien for her methodological expertise, and Dr. David Chavez for his clinical expertise and personal encouragement. A special thanks is extended to my mentor Dr. Eugene Wong, not only for his expertise and guidance, but also for his encouragement and patience. A special thanks is also extended to my family, without which, none of this would have been possible. Thank you for your tireless love, support and sense of humor!

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CHAPTER ONE

INTRODUCTION

Binge Eating, Anxiety and Depression: A Study of Typology and Direction of Prediction

According to the American Psychiatric Association (1999), 30% of adolescent females engage in binge eating behavior (formerly known as compulsive overeating). Despite an astonishing prevalence rate and studies concerning binge eating dating back to the 1950's (Bennett & Gurin, 1982), Binge Eating Disorder (BED) still awaits the necessary validation for status beyond the appendix of the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition) (American Psychiatric Association, 1994). Inconsistent findings, including a lack of clear causal relations among BED, anxiety and depression may be partially responsible for this lack of validation.

What is Binge Eating Disorder?

Expressing what Binge Eating Disorder (BED) isn't is one way to illustrate what BED is. While a significant portion of sufferers are overweight, BED is not a disorder characterized by obesity. In fact, one study suggests that 70% of obese individuals do not engage in binge eating behavior (Tanofsky, Wilfrey, Spurrell, Welch & Brownell, 1995). A similar study found that 65-75% of individuals

entering weight loss programs did not meet criteria for BED (Agras & Telch, 1998). Further, significant pathological differences exist between obese binge eaters and obese non-binge eaters, with obese binge eaters having similar pathology to bulimia nervosa participants (e.g. elevated levels of anxiety, depression, personality disorders and substance abuse), and non-obese binge eaters having similar pathology to non eating disordered participants (Fowler & Bulik, 1997). Consequently, obesity should not be viewed synonymously with BED.

According to DSM-IV (American Psychiatric Association, 1994) criteria, BED is characterized by the following: ``Symptom A: Recurrent episodes of binge eating. This binge eating involves eating (within any two hour period), an amount of food that is definitely larger than most people would eat in a similar period of time, under similar circumstances and sensing a lack of control over eating during the episode'' (American Psychiatric Association, 1994, p. 731). Therefore, consumption of mass quantities of Thanksgiving dinner would probably not constitute a binge-eating episode, as many people overindulge in that circumstance.

Additionally, DSM-IV (American Psychiatric Association, 1994) criteria states that ``three or more of the following symptoms must be associated with 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, and/or
5. feeling disgusted with oneself, depressed, or very guilty after overeating.

Likewise, the person must experience marked distress over this behavior. One must also engage in the behavior (on average) 2 days a week for a minimum of six months, and the sufferer is not utilizing compensatory measures indicative of bulimia'' (American Psychiatric Association, 1994, p. 731). Thus, one not only binges, but experiences aversive physical symptoms (e.g. tightness in the stomach, nauseous, etc.) and/or psychological symptoms (e.g. embarrassment, shame, depression, etc.)

Numerous theoretical explanations have been proposed for BED. While not underestimating the importance of potential physiological components (e.g. set-point theory, neurochemical deficiencies, excessive opioid production, etc.), this study focuses primarily on binge eating as a cognitive-behavioral means of anxiety reduction. The following theories have been consistently supported and provide insight into this model: Binge eating reduces anxiety evoked by dietary restraint

(Timmerman, 1998); binge eating is a cognitive escape from negative affect (Heatherton, 1998); there is an interaction among binge eating, anxiety and depression (Vollrath, Koch & Angst, 1990).

Binge Eating Disorder, Dietary Restraint and Anxiety

It has been proposed that dieters binge eat as a result of anxiety produced by caloric deprivation. This theory is supported to the extent that most dieters experience extreme fluctuations in daily caloric intake, and persistent restricted intake usually precedes binge eating(Timmerman, 1998). Timmerman (1998) found (utilizing self-monitoring) that dieters' caloric consumption for a binge day was often equal to the total caloric intake of the four days preceding a binge.

These restricted intake days, however were not severe enough to trigger starvation (a physiological response) (Timmerman, 1998). Consequently, deprivation for the dieter may be primarily a cognitive experience (e.g. one is eating less; therefore, one feels deprived). This is not to suggest, however, that participants did not experience distress due to hunger. Hunger is associated with agitation and other negative affect, which have been found to precipitate binge eating (Agras & Tech, 1998).

Agras and Tech (1998) tested the hypotheses that caloric deprivation and/or negative mood would

precipitate a binge. Participants meeting DSM-IV (American Psychiatric Association, 1994) criteria for BED were assigned to one of two conditions: the balanced breakfast and lunch condition or the no food condition. Participants were also assigned to either a negative mood (induced by instructing participants to visualize a negative experience) condition or a neutral mood condition. All groups were subsequently provided with an all-you-can-eat buffet.

While the deprivation (no food) group did eat more during the buffet, the overall caloric intake for the day was similar (e.g. participants simply compensated for the absence of breakfast and lunch). However, negative mood was a statistically significant predictor of self-defined binges, but not a significant predictor in experimenter defined binges (e.g. a large amount of calories consumed during the buffet and experiencing a loss of control) in either experimental condition. Simply stated, negative mood increased the likelihood of participants labeling an eating episode a binge. Interestingly, negative mood was an acute state, as opposed to a stable trait, and anxiety alone (not depression) was found to be alleviated by binge eating.

Binge Eating as a Cognitive Escape From Self-Awareness

Heatherton & Baumeister (1991) have developed an extensive theory addressing binge eating. It is

suggested that binge eating is a cycle, and the components are as follows:

1. High Standards and Expectations: There is a significant correlation between eating disorders (including BED) and perfectionism. While this perfectionism extends to many areas of life (e.g. eating disordered individuals are often overachievers), there is an undue emphasis on weight. Self-imposed expectations of weight are often unrealistically low (e.g. being 5'9 and desiring a weight of 100 pounds).
2. High and Aversive Self-Awareness: Due to unrealistic expectations of perfection, the eating disordered individual is continuously experiencing failure. Being highly self-focused, they are also painfully and persistently aware of their perceived shortcomings. Additionally, many eating disordered individuals also have an excessive fear of negative evaluation (e.g. the belief that others are also viewing them critically) (Heatherton, 1998) and interpersonal rejection sensitivity (e.g. false assumption that others are rejecting you based on a comment, look or negative mood).
3. Negative Affect: The obvious consequence of persistent feelings of failure is depression. Interestingly, the failure need not be dietary to

produce greater negative feelings about one's body. This perfectionism and highly aversive self-awareness, also produces intense anxiety to the extent that one becomes overwhelmed.

4. Cognitive Narrowing: Desiring to reduce negative affect, binge eating allows the individual to focus on lower level physical sensations. When one is binge eating, the act of chewing and the limited muscles movements required to feed one's self, allows one to focus solely on this act. Consumption is usually rapid and urgent. Cognitively meaningful thoughts dissipate, as the focus is on this one methodical act.

5. Removal of Inhibitions: Self-monitoring of actual consumption is eliminated, once binge eating ensues. The rapidness of consumption, seems to be related to the knowledge that one will eventually ``come to'' and once again be subjected to the aversive self-awareness that evoked the binge. It's disociative, in that some binge eaters can't even recall what they ate during a binge.

6. Irrational Thoughts: Often the predecessor of a binge is the idea that one has crossed an imaginary cognitive line. With regard to perfectionism, if one consumes a ``forbidden food'' (e.g. ice cream, candy, etc.) the perception is dietary failure. Even

> if a chef salad and the ``forbidden food'' have an equal number of calories and/or fat grams, the ``forbidden food'' will evoke the binge. This dichotomous (all or nothing) thinking is what actually results in dietary failure, as one could consume an ice cream cone, with little (if any) effect on weight. However, the subsequent binge eating, is what leads to weight gain and further feelings of failure. Ultimately, many BED sufferers become defeated and experience learned helplessness (Heatherton and Baumeister, 1991).

These irrational beliefs extend to other areas of life. Maris (1981) even suggested that eating disordered individuals want to be someone else; therefore, they continue to impose impossible standards upon themselves, which is indicative of a lack of self-acceptance. Likewise, many binge-eating individuals believe that weight loss will change their entire lives (e.g. one will no longer be shy, one's husband will be kinder, one won't be rejected socially, etc.). Moreover, there is overall dichotomous thinking, with diet determining the pendulum swing (e.g. If one is doing well on their diet, then all is well. If one has ``blown'' their diet, then everything is negative.)

Heatherton (1998) performed three studies concerning his theory of binge eating as an escape from self-awareness. Primarily, these studies tested the hypothesis that dieters

eat in response to negative affect. In the first study, dieting and non-dieting participants were randomly assigned to one of three treatment conditions: task failure, musically induced negative mood and a control condition. The hypothesis was that self-relevant negative mood (or task failure) would be more likely to produce disinhibited eating than non self-relevant negative mood (musically induced). It has been proposed that dieters have a heightened fear of negative evaluation; therefore, task failure should produce greater negative affect and subsequent binge eating for dieters.

In the task failure condition, participants were introduced to the ``Spin Out'' game and were told that it measured binary logic (Heatherton, 1998). This game involves solving a puzzle, and the experimenter informed participants that it should take about 5 minutes to complete, and no one has ever needed more than 8 minutes. However, the puzzle was unsolvable. After 8 minutes, the researcher entered the room, and alleged to be checking the game for mechanical problems. Comments like the following were made: ``The game seems to be fine, you just must be really bad at this sort of logic. Do you have problems with things like math?'' (Heatherton, 1998, p. 3)

In the musically induced negative affect condition, participants were told that a perceptual task would begin momentarily. Participants were then instructed that music

would be played to counteract any perceptual experiences (e.g. situations producing negative affect prior to arrival), so all participants would be in the same mental state prior to the experiment. Actually, participants were subjected to 8 minutes of music designed to produce negative affect (``Russia Under the Mongolian Yoke'').

After the manipulations were completed, all participants were told that the perceptual task was taste testing ice cream flavors (Heatherton, 1998). The ice cream was presented in very large bowls, so participants would believe that intake was not being monitored. Participants were then invited to consume as much ice cream as they wished, upon task completion.

While both dieters and non-dieters experienced mood manipulation, reaction to negative affect differed significantly (Heatherton, 1998). Dieters ate significantly more ice cream following both task failure and musically induced negative mood than participants in control conditions (e.g. simple solvable puzzle and neutral music ``Common Notes in Simple Time''). In contrast, non-dieters ate less than the dieters following both task failure and musically induced negative mood. This experiment lent partial support to Heatherton's hypothesis. Negative mood did increase disinhibited eating for dieters. However whether or not the mood was self-relevant (or elicited more by the fear of negative evaluation involved in task failure,

as opposed to non self-relevant musically induced negative mood) was not supported.

The second study was designed to test the hypothesis that dieters will transform ambiguous sad mood (causation undetermined) into negative feelings about one's self, and this will produce greater disinhibited eating, than sad mood attributed to an external causes. Dieters and non-dieters were randomly assigned to one of two conditions: sad music (``Russia Under the Mongolian Yoke'') and neutral music (``Common Notes In Simple Time'')(Heatherton, 1998). In addition, participants were further assigned to either the label or no label conditions. In the label condition, it was suggested to participants that the music might evoke sadness; whereas, in the no label condition, no suggestion of potential affect was given. All participants were told that music was utilized to create an equal perceptual set. Amount of ice cream consumption was the dependent variable.

The results were as follows: A significant three-way interaction (e.g. dieting status, music type and labeling status) was found (Heatherton, 1998). Specifically, dieters ate more in the unlabeled sad music condition then in the labeled sad music condition. Likewise, dieters ate more in the unlabeled sad music condition then in the labeled or unlabeled neutral music condition. Thus, ambiguous (or unlabeled) sad mood did lead to greater negative affect and subsequent binge eating.

In the final study, Heatherton (1998) once again hypothesized that self-relevant negative mood would lead to greater disinhibited eating than non-self-relevant negative mood. Dieting participants were randomly assigned to one of the following conditions: self-relevant sad mood condition, non-relevant sad mood condition, self-relevant neutral mood and non-self-relevant neutral mood.

The instructions were as follows: The neutral mood condition participants were instructed to image that they were to meet friends at the library, but were delayed by a flat tire. The sad mood condition participants were instructed to imagine that they were in a car accident, in which an infant was killed. In the self-relevant condition, participants were the protagonist. In the non-self-relevant condition, participants were told to image someone else as the main character. Again, ice cream consumption was the dependent variable.

The results supported Heatherton's (1998) hypothesis. Specifically, self-relevant sad mood participants ate significantly more ice cream than the self-relevant neutral mood participants. Additionally, consumption was about the same in both the sad and neutral mood non-self-relevant conditions. Thus, sad mood alone was not found to disinhibit eating; rather, the participant had to view himself or herself as the protagonist (self-relevant) in the tragic story in order to evoke disinhibited eating.

Overall, Heatherton's (1998) studies produced mixed results. In two of the three studies, dieters ate more in reaction to negative mood alone; whereas, in the final study negative mood had to be self-relevant. Dieters also consumed more, when the negative affect was ambiguous. However, the moderating role of ambiguity on negative affect and subsequent binge eating was not adequately determined (e.g. Do dieters actually project ambiguous negative affect onto their bodies or does ambiguity simply produce anxiety?). Consistently supported however, was a relationship between negative affect and disinhibited eating for dieters; therefore, providing at least partial support for the ``Binge Eating as a Cognitive Escape From Self-Awareness'' theory (Heatherton & Baumeister, 1991).

Binge Eating Disorder, Anxiety and Depression

A relationship between binge eating and anxiety has been supported and replicated (Vollrath, Koch & Angst, 1992). According to Edelman (1991), binge eating is a learned response to anxiety. This behavior thereafter is negatively reinforced. Petersson (1990) equated binge eating with alcohol abuse, as a method of suppressing anxiety and insecurity.

The role of depression in BED, however, is more ambiguous. One study found that the average age of depression onset is 17.2 years (Vollrath, Koch & Angst, 1990). Depression also seems to decrease and/or terminate,

upon improvement in binge eating (Smith, 1994). This suggests, that depression may be a secondary disorder to BED. In contrast, other studies suggest that depression evokes binge eating (Rebert, Stanton &n Schwarz, 1991).

Regardless, a relationship exists between anxiety, depression and BED (Pertschuk, Collins & Fager, 1986). Antony, Johnson, Carr-Nagle and Able (1994) conducted a study on depression and anxiety comparing BED participants, binge eaters (insufficient symptoms for the diagnosis of BED) and participants with no present or prior diagnosis of eating disorders. They found that BED participants experienced moderate levels of depression, whereas binge eaters and no diagnosis participants experienced only mild levels of depression or none at all. Interestingly, BED participants scored higher on anxiety measures, than a sample of anxiety patients. BED participants also experienced greater fatigue and less vigor, which are indicative of depression.

Rebert, Staton and Schwarz (1991) examined personality, mood states and eating patterns, utilizing a 20-day self-monitoring diary. They found that BED participants were more likely to binge in reaction to depressed mood, anxiousness and hostility. This reaction was especially significant if the participant had high trait hostility and/or an external locus of control. This suggests that

personality traits may be moderating variables in the relationship among anxiety, depression and binge eating.

It has also been suggested, that gender may be a moderating variable between BED and anxiety. Edelman (1991) found that women were more likely to binge eat in response to anxiety, whereas men were more likely to consume alcohol for the same purpose. Additionally, the majority of women reported binge eating in response to emotional distress (particularly anxiety and depression), while a significant percentage of men reported binge eating in response to external cues (e.g. dinnertime, advertisements, etc.). Regardless of motivation, the majority of participants claimed to feel more relaxed (anxiety reduction) following binge eating.

Fowler and Bulik (1997) conducted diagnostic interviews with eating disordered participants and gained insight into potential familial factors associated with BED and anxiety. First, they found participants that met the criteria for BED had a higher rate of anxiety disorders, than non eating disordered controls. Specifically, BED participants were overanxious children. BED participants also had a high rate of first-degree relatives with the disorder and additional relatives that were preoccupied with weight. Not surprisingly, these participants became preoccupied with weight and dieting (probably through example) at a younger age than non-BED participants.

BED participants were also more likely to experience a parenting style known as ``affectionless control'' (Fowler & Bulik, 1997, p. 111). Thus, over anxiousness in childhood could be the result of familial conflict. Consequently, binge eating may have emerged as a method of anxiety reduction.

In a study by Vollrath, Koch and Angst (1995) binge eaters, those concerned with weight and a non-eating disordered control group were compared with regard to several disorders. Binge eaters again experienced more anxiety and depression. Additionally, binge-eating participants had a high prevalence of suicidal thoughts, appetite problems, loss of interest and greater feelings of inferiority.

Typology and Direction of Prediction

An obvious limitation in the literature supporting a relationship between BED, anxiety and depression, is a lack of research on typology (e.g. which anxiety disorders are frequently associated with binge eating) and contradictory findings concerning direction of prediction (e.g. Is depression an antecedent or consequence of binge eating or is it a cyclic relationship, as Heatherton and Baumeister (1991) suggested?) Many studies only employ correlational data and proceed to speculate about typology and direction of prediction.

One notable exception is a study by Schwalberg, Barlow, Alger and Howard (1992) where normal weight bulimics, obese binge eaters, social phobics and panic disordered participants were compared on measures of anxiety, depression and substance abuse. They found that most BED participants suffered from anxiety disorders; most commonly, participants experienced Generalized Anxiety Disorder and Social Phobia. They also found that 70.8% of the anxiety disorders noted preceded the onset of eating disorders. 27.3% of obese binge eaters suffered from depression, and 10% of all groups suffered from substance abuse.

In an effort to determine typology of anxiety, the present study will specifically explore the relationship between generalized anxiety and binge eating, the relationship between fear of negative evaluation (both general and weight exclusive) and binge eating, and the relationship between dietary restraint and binge eating. Generalized Anxiety was selected for the following reasons: Generalized Anxiety Disorder (GAD) is unique among the anxiety disorders as it is not situational; thus, anxiety is constantly present. Whereas, people who suffer from specific phobias can reduce anxiety by avoiding the anxiety producing stimuli, GAD sufferers must utilize an anxiety reduction method, which is not directly related to the

aversive stimuli. Binge eating may serve as this anxiety reduction method.

Fear of negative evaluation (a component of Social Phobia) was selected for the following reasons: Some studies implied (but did not test) that interpersonal rejection sensitivity and fear of negative evaluation are potentially correlated to binge eating (Heatherton & Baumeister, 1991). Additionally, Heatherton's (1998) mixed results pertaining to the role of self-relevance in the negative affect/binge eating equation was curious. Perhaps, there is a moderating variable between fear of negative evaluation and binge eating. This study proposes that fear of negative evaluation for binge eaters exists primarily with regard to weight. Consequently, fear of negative evaluation will be measured as both a general construct and a weight exclusive construct.

The relevance of examining weight exclusive fear of negative evaluation, as opposed to general fear of negative evaluation pertains to the potentially faulty inferences being drawn from the correlation sometimes found between binge eating and fear of negative evaluation. That is, studies that have explored fear of negative evaluation with regard to Binge Eating Disorder (BED) were really assessing for comorbid Social Phobia. However, to be diagnosed with Social Phobia one must experience, ``marked and persistent fear of one or more social or performance situations in

which the person is exposed to unfamiliar people or to possible scrutiny of others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing'' (American Psychiatric Association, 1994, p. 416). Additionally, ``the person must recognize that the fear is **excessive or unreasonable**'' (American Psychiatric Association, 1994, p. 416).

There are serious flaws with the above criteria with regard to overweight binge eating individuals. In Western culture, overweight individuals are often chastised, mocked and discriminated against. Therefore, fearing the scrutiny of others may be very **reasonable.** Additionally, the overweight binge eater may not avoid social situations, due to fear of behaving in an embarrassing and/or humiliating manner, but are humiliated by virtue of their size. This is not to suggest that BED and Social Phobia are not comorbid. However, a distinction should be made between fear of negative evaluation (as a reality-based constraint) and the pathology present in Social Phobia. This is especially important with regard to treatment.

A relationship between dieting and binge eating has also been supported (Timmerman, 1998). It is speculated that dietary restraint, as a potential form of anxiety, may evoke binge eating. Furthermore, dietary restraint coupled with generalized anxiety and/or fear of negative evaluation

(general or weight exclusive) will produce greater anxiety and consequently increase binge eating.

Like anxiety, depression is often comorbid with BED. The present study will explore this relationship, with an emphasis on atypical depression. Atypical depression was selected, as symptoms of atypical depression overlap with symptoms of BED. For instance: The weight gain (increase of appetite) experienced in atypical depression is consistent with BED. Also, long-standing patterns of interpersonal rejection sensitivity and mood reactivity are criterion for atypical depression and have also been observed in BED sufferers (Heatherton & Baumeister, 1991).

Further, it is speculated that atypical depression is a consequence of binge eating, as opposed to an antecedent. Eating disordered individuals place an excessive value on body image with regard to self-esteem (American Psychiatric Association, 1999). Body dissatisfaction, repeated dietary failures and the societal ramifications of being overweight are all likely to evoke depression.

Thus, the purpose of this study is to explore the potential relationships among anxiety variables (e.g. general fear of negative evaluation, weight exclusive fear of negative evaluation, dietary restraint and generalized anxiety), binge eating and depression. The hypotheses are as follows:

1. Participants who engage in binge eating will report greater generalized anxiety, than non-binge eating participants.
2. Participants who engage in binge eating will report greater dietary restraint than non-binge eaters.
3. Participants who engage in binge eating will report greater general depression than non-binge eating participants.
4. Participants who engage in binge eating will report greater atypical depression than ``typical'' or general depression.
5. Among participants who were classified as binge eaters, there is a positive relationship between binge eating and fear of negative evaluation. Specifically, if one engages in more binge eating, one will also experience greater general fear of negative evaluation.
6. Among participants who engage in binge eating, fear of negative evaluation will be greater with regard to weight, as opposed to general fear of negative evaluation.
7. Participants who engage in binge eating will report greater anxiety prior to binge eating, than following binge eating.

8. Participants who engage in binge eating will report greater depression following binge eating, than prior to binge eating.

In addition to the hypotheses stated above, two additional exploratory analyses will be conducted. First, measures of anxiety (i.e. generalized anxiety, general fear of negative evaluation, weight exclusive fear of negative evaluation and dietary restraint) will be examined as predictors of binge eating in a step-wise regression analysis. Second, a potential mediating effect of binge eating between anxiety and atypical depression will be examined for each of the following measures of anxiety: generalized anxiety, general fear of negative evaluation, weight exclusive fear of negative evaluation and anxiety evoked by dietary restraint.

CHAPTER TWO

STRUCTURE OF THE STUDY

Method

Design

The following research designs were employed to test the hypotheses. To examine the fifth hypothesis and the exploratory analyses, a correlation-regression approach was adopted. The variables were as follows: binge eating, generalized anxiety, general fear of negative evaluation, weight exclusive fear of negative evaluation, dietary restraint and atypical depression. All of these variables are quantitative and continuous. To test the fifth hypothesis a correlation coefficient was calculated and the significance tested. A step-wise regression analysis was used to examine the first exploratory analysis. Partial correlation coefficients were used to assess the role of binge eating as a mediating variable.

To examine the first, second and third hypotheses, a between-subjects, single-factor design was adopted. The following variables were compared between participants who engaged in binge eating and those who did not: generalized anxiety, dietary restraint and general depression.

To examine the fourth, sixth, seventh and eighth hypotheses, t-tests for correlated samples were adopted. To test the fourth hypothesis, levels of self-reported general

depression and atypical depression were compared for those participants who engage in binge eating. To test the sixth hypothesis, weight exclusive fear of negative evaluation scores and general fear of negative evaluation scores were compared for those participants who engage in binge eating. To examine the seventh and eight hypotheses, self-reported depression and anxiety scores were compared prior to and following binge eating.

Generalized anxiety was measured by the Penn State Worry Questionnaire (Meyer, 1984), and general depression was measured by the Beck Depression Inventory (Beck, 1967). Items were added to the Beck Depression Inventory to measure atypical depression specifically. Binge eating and the classification of participants as a binge eater were measured and determined by the Bulimia Test(Smith & Thelen, 1987) and the Food Diary. General fear of negative evaluation was measured by the Brief FNE (Leary, 1983), and the revised Brief FNE items measured weight exclusive fear of negative evaluation. Dietary Restraint was measured by the Restraint Scale (Herman, 1978).

Participants

Participants were recruited from a university and several weight loss/fitness centers in Southern California. There were 129 participants total (92 women, 37 men). The average age of participants was 27 with a range of 18 years of age to 72 years of age. The most frequently reported

income range was $25,000 to $35,000. However, participants reported salaries ranging from under $10,000 to above $100,000.

Dieting information was obtained for both binge eating participants and the overall sample. 58% of all participants had been on a diet. 71% of those dieters felt that dietary success and failure effects their self-esteem. 71% of binge eaters reported that their lives would be different if they didn't binge eat. The binge-eating group had participated in an average of 11 diets, whereas the non-binge-eating group had participated in an average of 7 diets.

Participants were compensated in the following manner. Participants from the university sample were offered extra-credit for their participation. The weight loss/fitness center participants were offered an ASI funded $5.00 incentive.

The decision to use two different samples was based on the following rationale. It was speculated, that differences existed among samples. Specifically, it was thought that more participants from the weight loss center would actually classify as binge eaters, than participants from the university sample.

Our hypothesis was correct, but problems existed. More participants from the weight loss centers were binge eaters, but recruitment was difficult. An agreement was made with a

major weight loss agency prior to the proposal of this thesis did not materialize. Many other weight loss centers refused the request of participant recruitment. In fact, only one major weight loss center permitted recruitment at all. Over 50 questionnaires were distributed to this center with a return of 15.

As a result, dieting participants were recruited in other forums (e.g. the gym, dieting teachers, dieting coworkers, dieting students, etc.). A phone screening ensued, and the dieting criteria were as follows: 1. must be on a diet (e.g. reducing caloric intake for the purpose of weight loss, not just watching what one eats), and 2. must be on a specific diet.

Materials and Scoring

Several instruments were used to measure the variables. These measures are as follows: an informed consent form, a demographic sheet, Beck Depression Inventory (Beck, 1967), The Penn State Worry Questionnaire (Meyer, 1984), The Brief FNE (Leary, 1983), The Restraint Scale (Herman, 1979), The Bulimia Test (Smith & Thelen, 1984), a food diary, and a debriefing statement.

Informed Consent Form

The following information was included on the informed consent form (see Appendix A): identification of researchers and university affiliation, explanation of the

purpose and nature of the study, research methods and approximate duration of participation. Additionally, participants were informed of their right to confidentially and anonymity and the safeguards researchers employed to protect these rights. Participants were also informed of their right to withdraw participation without negative consequences, as their participation was voluntary. Finally, participants were informed of the potential risks and benefits and whom to contact regarding inquiries about participants' rights and/or injuries.

Demographic Sheet

The demographic sheet (see Appendix B) contained both general and specific items. General items include gender, age, income, marital status, etc. Specific inquires were made pertaining to eating and a history of dieting. Likewise, there were items pertaining to a possible family history of eating disorders and clinical diagnosis (and/or personal suspicion) of eating disorders, anxiety disorders and/or depression. Participants were reminded that they are free to answer (or not answer) any items, and a researcher's phone number was given to contact in the event of emotional distress.

Beck Depression Inventory

The Beck Depression Inventory (see Appendix C) was designed to measure the presence and severity of general depression (Beck, 1967). The author, Aaron Beck, originally

standardized this test with a group of psychiatric patients (both inpatient and outpatient), but this scale has subsequently been validated with both clinical and non-clinical populations. The inventory assesses depression utilizing 21 items pertaining to depression. Specifically, 11 items assess for depressive cognitions; 2 items assess for depressed affect: 2 items assess for overt behavior indicative of depression; one item pertains to interpersonal depressive symptoms, and five items assess for somatic symptoms associated with depression.

Participants responded to items using a 0-3 scale (0=not experiencing the symptoms at all, 1=acknowledging the presence of the symptoms, 2=indicating greater frequency or severity of the symptoms and 3=indicating experiencing the symptom with great frequency or severity). Items are then summed, with a range of 0-63; higher scores indicated greater severity of depression. In order to have a consistent measure, the average of the summed items was used in the analyses.

The Beck Depression Inventory is a structurally sound measure. This scale has excellent concurrent validity, as it has been repeatedly found to correlate with many other measures of depression. It also strongly correlates to clinical ratings of depression. This scale also has good split-half reliability, ranging from .78 to.93. Test-retest reliability with college populations is .74.

Fourteen items (22-35) were added to the Beck Depression Inventory by the experimenter; thus, an atypical depression subscale was created. Utilizing the same format, these items were designed to assess for atypical depression specifically. Each item is reflective of DSM-IV (American Psychiatric Association, 1994) criteria for atypical depression (e.g. items 22 and 29 assess for mood reactivity, items 23 and 35 assess for weight gain, items 24 and 30 assess for hypersomnia, items 25 and 31 assess for leaden paralysis, items 26, 27, 32 and 34 assess for interpersonal rejection sensitivity and items 28 and 33 assess for increase of appetite). Scoring is identical to the Beck Depression Inventory, with reverse scoring on items 22, 25, 28, 31 and 33. These items were summed, with a range of 0-42; To test hypothesis four, a mean score was calculated for both the general and atypical subscales. These mean scores were used to compare atypical depression and general depression, among binge eaters. Reliability for these items was established with a Cronbach's alpha score of .76.

Penn State Worry Questionnaire

To assess for generalized anxiety, the Penn State Worry Questionnaire (PSWQ) (Meyer, 1984) (see Appendix D) was utilized. Tom Meyer developed this scale to assess for worry, as it relates to Generalized Anxiety Disorder (GAD). Specifically, this measure evaluates the following: ``(a)

the typical tendency of the individual to worry, (b) the excessiveness or intensity of worry experience, and (c) the tendency to worry in general without restricting the topic to one or a small number of situations. Additionally, this scale assesses for chronic (6 months minimum) worry, excessive worry, and generalized (not just focused on a single area of concern) worry'' (Meyer, 1984, p. 265). These areas of focus are consistent with DSM-IV (American Psychiatric Association, 1994) criteria for GAD.

The PSWQ (Meyer, 1984) contains sixteen items, and participants responded utilizing a 5-point Likert-type scale (1=not at all typical, 2 (level between 1 and 3), 3=somewhat typical, 4 (level between 3 and 5) and 5=very typical). There are five reverse score items (numbers 1, 3, 8, 10 and 11), which will be re-coded (with 1=5, 2=4, 5=1 and 4=2). Participants' responses were summed, yielding a total score that could range from 16 (low level of generalized anxiety) to 80 (high level of generalized anxiety).

This scale is also methodologically sound. The 16 items have an internal consistency of .93. Likewise, 74-80% of participants who met GAD criteria on this questionnaire, were subsequently diagnosed with GAD in a clinical interview. The PSWQ also correlates significantly with other measures of worry. Test-retest reliability, over a four-week interval, was found to be .86.

PSWQ was specifically selected for its high discriminant validity. When compared to other measures of anxiety, PSWQ generally correlated only to specific logical subscales of larger anxiety measures (e.g. cognitive subscales, as opposed to somatic subscales). Likewise, the highest correlation found between any anxiety measure and PSWQ was the State-Trait Anxiety Inventory with 50% shared variance. Thus, ``the PSWQ significantly distinguishes people meeting criteria for GAD from nonanxious controls and each of the other anxiety disorders'' (Meyer, 1984, p. 279).

The Brief Fear of Negative Evaluation (FNE)

The Brief FNE (see Appendix E) was selected to measure general fear of negative evaluation (Leary, 1983). Specifically, items reflect level of fear associated with loss of social approval, anxiety and behavior that may evoke disapproval from others. This brief version of the original FNE (Watson & Friend, 1969) was preferred for the following reasons: First, the original FNE consists of only true/false items, whereas the Brief FNE is measured on a five point Likert-type scale, which eliminates forced dichotomous responses. In addition to the original 12-item Brief FNE, 12 additional items were created, as to compare general fear of negative evaluation with weight exclusive fear of negative evaluation. For example: Item 5 of the Brief FNE states, ``I am afraid that people will not approve

of me'' (Corcoran & Fischer, 1987, p. 156). The comparable weight exclusive item states, ``I am afraid that people will not approve of me, because of my weight.'' To have utilized the original FNE with the added weight exclusive comparison items, would have resulted in a 60-item, potentially redundant measure for the participants. This isn't necessary, as the original FNE and the Brief FNE are highly correlated (.96). Reliability of these items was established, resulting in a Crombach alpha score of .73.

The Brief FNE and weight exclusive fear of negative evaluation items were scored separately. The weight exclusive fear of negative evaluation items were placed first on the questionnaire; therefore, the Brief FNE items are 12-24 on this measure. The decision to place the weight exclusive items first was based on concerns that participants may include weight exclusive fear of negative evaluation in their assessment of general fear of negative evaluation. Placing weight exclusive items first made the distinction apparent.

Participants responded to the Brief FNE items using a 1-5 scale (1=not at all characteristic, 2=slightly characteristic, 3=moderately characteristic, 4=very characteristic and 5=extremely characteristic). Items 14, 17, 20 and 23 are reverse scored. Items were then summed with a range of 12-60; higher scores indicate greater general fear of negative evaluation. Weight exclusive fear

of negative evaluation items were scored and analyzed the same way, with reverse scoring on items 2, 4, 7 and 10; higher scores were indicative of greater weight exclusive fear of negative evaluation.

The Brief FNE (Leary, 1983) is a reliable and valid measure. Using Cronbach's alpha, an internal consistency of .90 was established. Over a four-week period, test-retest reliability was .75. Criterion validity was established, as scores on the Brief FNE correlated with anxiety, avoidance, respondent's evaluation of being both well presented in social situations and bothered by unfavorable evaluations of others. Additionally, the FNE is correlated with various measures of ``social approval, locus of control, desirability, autonomy, dependence, dominance, abasement, exhibitionism and other measures of anxiety'' (Corcoran & Fischer, 1987, p. 153).

Restraint Scale

The Restraint Scale (Herman, 1979) (see Appendix F) was selected to measure prevalence of dieting (or utilizing restraint to maintain current weight) (Herman, 1979). Participants responded to the 10-item scale indicating frequency of behavior associated with dieting. Items 1, 2, 3, 4 and 10 are scored in the following manner: a=0, b=1, c=2, d=3 and e=4. Items 5-9 are scored similarly, with the exclusion of an ``e'' response (or the absence of a fifth choice). Items were then summed, with a range of 0 to 35;

higher scores indicated greater prevalence of behavior associated with dieting.

This measure is structurally sound. Criterion validity was established by comparing groups of restrained and non-restrained eaters, with differences in consumption patterns observed. Known-group validity was established by comparing ``obese, normal and skinny'' (Corcoran & Fischer, 1987, p. 284) participants and observing differences in restraint scores. This scale shows concurrent validity to the extent that an association has been found between weight gain and higher scores on the Restraint Scale (Herman, 1979).

The Bulimia Test

The Bulimia Test (BULIT) (Smith & Thelen, 1984) (see Appendix G) was selected to assess for the presence of eating disorders and differentiate participants with symptoms consistent with BED, Bulimia and Anorexia. This scale was created by Marcia C. Smith and Mark N. Thelen (1984) to measure the symptoms of Bulimia. The 36-item BULIT identifies behaviors related to excessive attempts to lose weight and contains criteria for ruling out anorexia. Based on DSM-IV (American Psychiatric Association, 1994) criteria, the symptoms of BED and Bulimia are very similar; thus, through analysis of a few items concerning purging behavior (items 7, 15, 27, 30 and 34) differentiating between BED and Bulimia is possible.

Participants responded to the multiple-choice items by circling the description that most accurately represents them (a-e scale). A-E scores are coded (e.g. a=5, b=4, c=3, d=2 and e=1) for items 1, 2, 6, 10, 16, 19, 22, 23, 24 and 30. Coding is reversed for the remaining items (e.g. e=5, etc.). Scores (expect 7, 33, 34 and 36, as they are not used in the analysis) are then summed. Total scores range from 32-160, and those scoring 88 or higher are classified as Bulimic. Consequently, if a participant scored 88 or higher, their data was excluded from the analysis.

Further, three similarly structured and scored items (37-39) were added to differentiate Bulimia (non-purge type) with regard to the excessive exercise criteria. If a participant scored higher than 83 on the Bulimia Test (Smith & Thelen, 1984), but below the required 88, these items were analyzed. A score of 5 on any of the three items was indicative of the excessive exercise utilized by Bulimics (non-purge type). Therefore, the scores obtained on these three items were summed with the participant's original score. If a score of 88 or more was subsequently acquired, this participant was also classified as potentially Bulimic, and their data was not used in the analysis.

Items 33 and 36 differentiate anorexia nervosa, as one criterion for anorexia is absence of menstruation for at least 3 months. If a score of 6 or more was obtained,

coupled with low weight (less than 85% of what is expected based on height), as reported on the demographic sheet, this participant's data was excluded from this study.

Items 7, 15, 27, 30 and 34 differentiated Bulimia from BED. These items pertained to the use of compensatory methods (e.g. vomiting, use of laxatives, etc.) exclusively. If a participant received a score of 3 or higher on any item and/or a score of 5 on items 37, 38 or 39, that participant's data was excluded from the study.

To differentiate BED participants from non-eating disordered participants, the following analysis occurred. Items 7, 15, 27, 30, 34, 37, 38 and 39 were eliminated from this analysis, as they represent symptoms of Bulimia, which were ruled out in the previous analysis. Of the 39-item scale, the remaining 31 items were analyzed with a range 31 (indicating a low level of symptoms consistent with BED) to 155 (indicating a high level of symptoms consistent with BED).

A score of 85 or higher was used to identify participants with symptoms indicative of BED. This is consistent with the original scoring of the Bulimia Test (Smith & Thelen, 1984).

The Bulimia Test (Smith & Thelen, 1984) is methodologically sound. Strong concurrent validity has been found , as the measure correlates highly with other measures

of eating disorders. Additionally, test-retest reliability is excellent (.87).

Food Diary

A 7-day food diary (Appendix H) was used to test the seventh and eighth hypotheses. Participants were asked to rate their anxiety and depression before and after binge eating, using the following Likert-type scale (0-8, with 0=none, 2=slight, 4=moderate, 6=a lot and 8=as much as you could possibly imagine). Participants were also asked to identify any potential triggers to binge eating. Additionally, if a participant reported at least 2 days of binge eating within the week (in accordance with DSM-IV criteria)(American Psychiatric Association, 1994), the participant's data was included in the ``binge eater'' group for some of the analyses.

Debriefing Statement

A debriefing statement (see Appendix I) addressed the following information: The true nature of the study and the major research questions addressed. Resources for the participant, if the study evoked distress. Participants were also reassured that eating disorders are extremely common in this culture and are not indicative of a lack of character. Information was given, as to where to obtain the final results of this study, and participants were advised to not discuss this study with potential participants.

Procedure

Procedure

University participants were recruited from undergraduate classes. Utilizing the last ten minutes of class, the researcher briefly introduced the study (particularly the food diary portion) and requested volunteers. Those volunteering received the questionnaire, and the researcher collected the questionnaires a week and half later, as to provide ample time to complete the food diary portion.

Participants from the weight loss center population were recruited in the following manner. The researcher phoned various weight loss centers and requested to administer the questionnaire to participants. The only weight loss center that agreed to permit participant recruitment requested that the researcher explain the study to the manager, and she would attempt to recruit potential participants. This was agreed upon. Participants from the weight loss center population were offered an ASI funded $5.00 incentive.

Scoring and Analyses

The following statistical analyses were performed to test the hypothesized relationships. To test the fifth hypothesis, a correlation coefficient was calculated and significance tested. To examine the first exploratory analysis a step-wise regression analysis was conducted, and to test the second exploratory analysis a zero order

correlation coefficient and a partial correlation coefficient were calculated and significance tested. To test mean levels of anxiety and depression pre and post binge eating (hypotheses seven and eight), paired t-tests were employed. Paired t-tests were also employed to test hypotheses four and six. Independent t-tests were used to test the first, second and third hypotheses. A significance level of $p < .05$ was adopted to conclude statistical significance.

CHAPTER THREE

STATISTICAL ANALYSES

Results

The first three hypotheses examined differences between participants who engage in binge eating and non-binge eating participants. Significantly greater generalized anxiety was reported by participants who engage in binge eating (M=55.6579, SD=15.1091) than non-binge eating participants (M=46.9561, SD=16.5453), $t(124) = 2.787$, $p < .05$. Significantly greater dietary restraint was also reported by participants who engage in binge eating (M=26.1282, SD=7.2554) than non-binge eating participants (M=21.2241, SD=7.9423), $t(124) = 3.289$, $p < .05$. Finally, significantly greater general depression was reported by participants who engage in binge eating (M=13.0513, SD=10.3006) than non-binge eating participants (M=7.0450, SD=7.3090), $t(124) = 3.767$, $p < .05$.

The remaining hypotheses solely examine participants who engage in binge eating. Specifically, participants who engage in binge eating reported greater atypical depression (M=1.3239, SD=.3751) than general depression (M=.6223, SD=.4906), $t(38) = -11.477$, $p < .05$. Additionally, among participants who were classified as binge eaters, there is a positive correlation between binge eating and general fear of negative evaluation, ($r(38) = .428$, $p < .05$).

Finally, among participants who engage in binge eating, weight exclusive fear of negative evaluation (M=37.2051, SD=11.9212) was not significantly greater than general fear of negative evaluation (M=33.6923, SD=3.5105).

To explore a potential direction of prediction, anxiety and depression scores from the food diary were compared prior to and following binge eating (hypotheses seven and eight) (see Appendix K). Anxiety and depression scores ranged from 0-8 and could be reported for up to seven days. A significant difference exists between anxiety prior to binge eating and anxiety following binge eating. Specifically, binge eaters experience significantly more anxiety prior to binge eating than following binge eating, t (38)= 3.015, $p < .05$.

A significant difference also exists between depression prior to binge eating and depression following binge eating. Specifically, binge eaters experienced significantly more general depression following binge eating than prior to binge eating, $t(38)=-2.840, p < .05$.

A step-wise regression analysis was used to examine which anxiety variables (generalized anxiety, general fear of negative evaluation, weight exclusive fear of negative evaluation and anxiety evoked by dietary restraint) would predict binge eating (exploratory analysis one). The step-wise analyses indicated that anxiety evoked by dietary restraint (e.g. nervousness and agitation evoked by hunger,

etc.) and weight exclusive fear of negative evaluation were the only significant predictors of binge eating, $F_{(2,121)} = 72.725$, $p < .05$, $R^2 = .546$, Adjusted $R^2 = .538$. The standardized regression coefficients for dietary restraint and weight exclusive fear of negative evaluation were .578 and .231, respectively.

To assess for a potential mediating effect of binge eating between various forms of anxiety (i.e. generalized anxiety, general fear of negative evaluation, weight exclusive fear of negative evaluation and dietary restraint) and atypical depression, a series of partial correlation coefficients were calculated and significance tested (see Appendix J). A zero-order correlation was calculated between generalized anxiety and atypical depression. The correlation was significant, ($r = .362$, $p < .05$). In order to examine whether binge eating mediates this relationship, a partial correlation between generalized anxiety and atypical depression, controlling for binge eating, was calculated. The partial correlation was not significant, ($r = .247$, $p = .141$). This suggests that the relationship between generalized anxiety and atypical depression is mediated by binge eating.

A zero-order correlation did not exist between general fear of negative evaluation and atypical depression, ($r = .260$, $p = .110$). Thus, the potential mediating influence of binge eating on the relationship between

general fear of negative evaluation and atypical depression was not assessed.

The zero-order correlation between weight exclusive fear of negative evaluation and atypical depression was significant, (r = .377, p < .05). In order to examine whether binge eating mediates this relationship, a partial correlation between weight exclusive fear of negative evaluation and atypical depression, controlling for binge eating, was calculated. The partial correlation is non-significant, (r = .214, p = .197). This suggests that the relationship between weight exclusive fear of negative evaluation and atypical depression is mediated by binge eating.

Finally, a zero-order correlation between dietary restraint and atypical depression was significant, (r = .486, p < .05). In order to examine whether binge eating mediates this relationship a partial correlation between dietary restraint and atypical depression, controlling for binge eating, was calculated. The partial correlation was also significant, (r = .320, p < .05).

The partial correlation between dietary restraint and atypical depression, controlling for binge eating (r = .320) is less than the correlation between dietary restraint and atypical depression (r = .486). This indicates that, to a certain degree, the relationship between dietary restraint and atypical depression is

mediated by binge eating. However, dietary restraint relates to atypical depression above and beyond its mediated relationship through binge eating.

CHAPTER FOUR

DISCUSSION AND IMPLICATIONS

Discussion

This research was designed to provide greater insight into the role of anxiety and depression in binge eating. The results are numerous and potentially complicated. Therefore, a brief discussion of the analyses will be followed by a discussion of the overall clinical implications of the study.

Participants who engaged in binge eating reported greater generalized anxiety than non-binge eating participants. This suggests that binge eaters are more prone to excessive worry and nervousness, than non-binge eaters. It is speculated, that binge eating reduces excessive worry and nervousness. Specifically, food can be an inexpensive, highly effective sedative. For example, foods that are high in fat trigger the parasympathetic nervous system, which evokes a calming effect. Additionally, eating until one is overly full produces fatigue. For a highly anxious individual, the reduction of anxiety experienced by binge eating can be a powerful, negative reinforcement.

Participants who engaged in binge eating also reported greater dietary restraint, than non-binge eating

participants. Timmerman (1998) concluded that the anxiety produced by dietary restraint (e.g. agitation, irritability and perceived deprivation) would evoke binge eating, which is consistent with the findings of this study. It may also be the case, that dieting promotes a mental preoccupation with food and creates dichotomous thinking with regard to food. Specifically, binge eaters may view food intake in extremes: dieting or binge eating. In contrast, non-binge eating participants may not engage in the extremes. Rather, non-binge eating participants primarily enjoy a healthy, balanced diet, a concept that may be elusive to binge eaters.

It is also possible that dietary success or failure becomes intertwined with self-esteem. In Western culture, value judgments are placed on individuals based on weight. An overweight individual is perceived as less desirable and lacking in character and/or will power (National Institute of Diabetes and Digestive and Kidney Diseases, 2001). If an individual subscribes to these beliefs, it is possible that the increased dietary restraint reported by binge eaters is an attempt to redeem self-esteem lost during a binge-eating episode, especially if one is overweight.

Participants who engaged in binge eating also reported greater general depression. As previously mentioned, Western culture assigns negative traits to overweight

individuals. A logical consequence of continued feelings of failure is depression.

It is interesting to note the societal reinforcement of the binge/diet cycle and the intertwining of self-esteem and weight. When watching an hour of television, one will view several commercials, promoted by thin models, for food items that exceed healthful caloric and fat intake limitations. These commercials are followed by advertisements for weight loss and fitness products. The message is as follows: One can eat high calorie/high fat foods and be thin (like the model). If one is overweight, one is aesthetically offensive and the diet and fitness industry will ``help'' for a price. Just ponder the idea of being aesthetically offensive, and the correlation among binge eating, dietary restraint and depression becomes obvious.

It is also interesting to note, the societal stereotype of the jovial overweight individual. This may be partially explained by the results of hypothesis four. Participants who engaged in binge eating reported significantly more atypical depression, than overall depression.

Presentation of atypical depression differs from ``typical'' or general depression in the following ways: Weight gain and an increase in appetite characterize atypical depression, while the opposite is usually true of general depression. Additionally, atypical depression is characterized by mood reactivity (or responding positively

to positive events), whereas general depression is characterized by flat affect. It is possible, that mood reactivity is mistaken for jovial presentation. Consequently, it is also possible, that depression in binge eaters is less recognizable and potentially under diagnosed.

In light of the societal constraints discussed, it is not surprising that a correlation exists between binge eating and general fear of negative evaluation for participants classified as binge eaters. It is also not surprising, that fear of negative evaluation for binge eaters is greater when it is weight exclusive. That is, despite non-significant initial findings, the greater prevalence of weight exclusive fear of negative evaluation for binge eaters was significant at $p < .06$. It is highly probable, with even a minimal sample size increase (e.g. more than 39 participants classified as binge eaters), that the comparison would be significant.

The purpose of comparing weight exclusive fear of negative evaluation and general fear of negative evaluation for binge eaters was to challenge current research on the topic and explore clinical implications. Fear of negative evaluation is a symptom of Social Phobia. In some of the literature, it has been inferred that the correlation between fear of negative evaluation and binge eating indicates a correlation between Social Phobia and binge eating.

The foundation of phobias are ``faulty'' cognitions. Based on DSM-IV (American Psychiatric Association, 1994) criteria, the fear experienced in phobias must be excessive and unreasonable. For an overweight binge eater, in Western culture, weight exclusive fear of negative evaluation is at the very least reasonable.

Differences exist in the treatment of phobias, as opposed to reality-based constraints. Since phobias are based on ``faulty'' cognitions (e.g. ``I didn't get the job, because nobody likes me''), treatment of phobias will involved challenging faulty cognitions. Treating potential reality-based constraints (e.g. ``I didn't get the job, because nobody likes a fat hostess''), involves increasing coping skills. This is not to suggest that overweight, binge eaters do not experience faulty cognitions or Social Phobia. However, discrimination against overweight individuals is a reality-based constraint and should be considered potentially valid, as opposed to the excessive and unreasonable fears that characterize phobias.

The purpose of exploring typology of anxiety was to provide insight into treatment planning. The results of this study suggest that generalized anxiety and dietary restraint are greater for binge eaters than non-binge eaters. However, when a step-wise regression analysis was conducted, employing anxiety variables (i.e. general fear of negative evaluation, weight exclusive fear of negative

evaluation, dietary restraint and generalized anxiety) as predictors, only dietary restraint and weight exclusive fear of negative evaluation predicted binge eating, with an astonishing 54% of the variance accounted for by these variables.

It is interesting to note that both variables (i.e. dietary restraint and weight exclusive fear of negative evaluation) are indicative of preoccupation with diet and weight. Addictions are characterized by a preoccupation with the substance and continued use of the substance, despite adverse consequences. Therefore, it is possible that binge eating has an addictive component (see Treatment and the Substance Abuse Industry).

Equally plausible however, is that the results of the current study may be explained by an earlier study on the effects of semi-starvation (Bennett and Gurin, 1982). In November of 1945, the University of Minnesota conducted a study on the effects of semi-starvation over a 6-month period of time. The results of the study indicated that the participants became preoccupied with food, which is reasonable in light of the semi-starvation component. However, this preoccupation remained long after the study was over.

Additionally, participants became binge eaters. That is, once dietary restrictions were removed, participants consumed an average of 5,000 calories a day and reported

experiencing insatiable hunger. ``Thus, even though their bodies were taking in considerable amounts of food energy, the profound psychological alteration that semi-starvation had produced remained with them'' (Bennett and Gurin, 1982, p. 15). A reduction in preoccupation with food and binge eating didn't occur, until participants had regained most or all of their original weight.

It is interesting to note that what defined ``semi-starvation'' in the 1945 study, meets or exceeds the recommended caloric intake of most fad diets. That is, today's dieters may be experiencing the effects of semi-starvation (e.g. preoccupation with food and binge eating). Based on the results of the current study, it may be the case that weight exclusive fear of negative evaluation evokes dietary restraint, and dietary restraint evokes preoccupation with food and binge eating.

Noting the high correlation among anxiety variables (except for general fear of negative evaluation) (see Appendix L), it is possible that generalized anxiety also predicts binge eating, but simply didn't yield variance above and beyond the dietary restraint and weight exclusive fear of negative evaluation variables. It is also possible, that generalized anxiety does not predict binge eating, independent of dietary restraint and/or weight exclusive fear of negative evaluation.

In retrospect, typology of anxiety is less important than recognizing that anxiety is predictive of binge eating. Clinicians will discern typology, but may not have considered binge eating as a potential symptom of a primary anxiety disorder.

Furthermore, the results of this study suggest that depression may be a secondary diagnosis to Binge Eating Disorder. While establishing an absolute direction of prediction among variables was beyond the scope of this study, participants did report greater depression following binge eating than prior to binge eating; whereas, the opposite was true of the anxiety component (e.g. anxiety was greater prior to binge eating than following binge eating.)

It may the case that binge eating is a secondary or mediating variable between anxiety and atypical depression, and the results of this study partially support this idea. Specifically, binge eating mediated the relationship between generalized anxiety and atypical depression, and binge eating also mediated the relationship between weight exclusive fear of negative evaluation and atypical depression. Therefore, it is possible that if one successfully treats the anxiety, then binge eating may decrease which, in turn, may alleviate atypical depression.

Additionally, to a certain degree, the relationship between dietary restraint and atypical depression is

mediated by binge eating. However, dietary restraint relates to atypical depression above and beyond its relationship through binge eating. Thus, if one is exercising high levels of dietary restraint, one may also be experiencing atypical depression, regardless of binge eating status.

Finally, the results also suggest that no direct correlation exists between general fear of negative evaluation and atypical depression; consequently, the role of binge eating as a mediating variable was not examined. As previously mentioned, general fear of negative evaluation and weight exclusive fear of negative evaluation are separate constructs. It appears that weight exclusive fear of negative evaluation is a more relevant construct, than general fear of negative evaluation for binge eaters.

Treatment and the Substance Abuse Industry

The purpose of this study was to gain insight into Binge Eating Disorder, as to aid in treatment planning. Binge Eating Disorder has an astonishing prevalence rate and yet, treatment of this disorder has been largely unsuccessful. More disheartening, is the absence of psychological research and outcome studies regarding Binge Eating Disorder. It is unclear, if it was by default or presumptuousness that the substance abuse industry began treating Binge Eating Disorder, but treatment of Binge

Eating Disorder employing traditional substance abuse models has been fiasco for the following reasons.

The most successful and utilized model of substance abuse treatment (the Abstinence or the Minnesota model) is inappropriate for the treatment of Binge Eating Disorder. The traditional substance abuse model begins with physical abstenience from the substance, and the remainder of treatment emphasizes replacing the mental preoccupation with the substance with preoccupation of restoring one's life. It is dichotomous (e.g. either one is clean and sober or not).

In its infancy, Overeater Anonymous attempted to apply this model by excluding sugar and white flour products, and measuring recovery by length of abstinence. The irony is that Overeaters Anonymous was not addressing overeating. It would be the equivalent of Alcoholics Anonymous suggesting abstinence solely from Whiskey and Vodka, but not other alcoholic beverages; it doesn't make sense.

Ultimately, Overeaters Anonymous (and other programs based on a traditional substance abuse model) has begun addressing the binge-eating component. Some programs advise the client to ``phone in'' their expected intake to a counselor or sponsor. While this is often successful on a short-term basis (e.g. if a person feels accountable, they may be less likely to binge eat), it isn't long before the client simply stops ``phoning in''. The problem inherently

with this plan is that it reinforces preoccupation with food and diet, which as the results of this study suggest (coupled with the high drop out rate of Overeater Anonymous) evokes binge eating.

Additionally, much of what motivates recovery from other substance abuse does not exist with regard to Binge Eating Disorder. For example, the consequences of this type of abuse are usually minimal compared to alcohol and/or narcotics addiction (e.g. loss of employment, home, family, etc.). Thus, there is less incentive for recovery. Further, while health risks are inherent with obesity, only a small (yet significant) percentage of individuals with Binge Eating Disorder are actually obese. In fact, the most damaging component of Binge Eating Disorder is to the self-esteem of the sufferer (National Institute of Diabetes and Digestive and Kidney Diseases, 2001). This is does not aid in motivation, because if the individual already hates him/her self (e.g. feels undeserving of good things, like increased self-esteem), there is little reason to strive for recovery. For example, one participant wrote, ``I know it doesn't make any sense, but I just say to myself, you're already fat, so why bother.''

Another obstacle to change, under the traditional substance abuse model, is that it takes a considerable amount of time for healthy eating habits to become reinforcing. With other substance abuse recovery, the

increased ability to function (in all areas) is an immediate reinforcement of sobriety. With food, it can take several weeks or months to begin to feel physically better and for some, healthy eating habits don't become psychologically reinforcing until a significant amount of weight loss has occurred. Once weight loss has occurred, society begins to reinforce the individual's efforts. Again however, this requires a willingness to abstain from a powerful comfort, until healthy eating habits become reinforcing.

A New Beginning and Clinical Implications

The traditional substance abuse model is not effective in treating Binge Eating Disorder; therefore, a new beginning is warranted in psychological research to reexamine conceptualization and treatment of Binge Eating Disorder. This study is a beginning of this reexamination.

While Binge Eating Disorder is multifaceted, with psychodynamic, interpersonal and familial components not addressed by this study, the following recommendations for interventions and outcome studies are made, based on the results of this study:

1. Assess and Treat the Anxiety. As the results of this study suggest, binge eating is a response to anxiety. Therefore, it is possible that if the anxiety is treated, the binge eating (and possibly depression) will be treated vicariously.

2. Cognitive Restructuring. As the results of this study suggest, dietary restraint evokes binge eating. Therefore, cognitive restructuring regarding dieting is suggested as a primary intervention. Specifically, challenge the idea that dieting is an effective solution to issues surrounding binge eating. Examine dichotomous thinking with regard to the potential diet/binge cycle and restructure these thoughts with the idea of a healthy, balanced diet as the goal. A referral to nutritionist/dietician/Weight Watchers may assist in reaching the behavioral portion of this goal.
3. Challenge Preoccupation with Dieting. Again, dietary restraint evokes binge eating. It is counterproductive for the client's self-esteem to be based on dietary success or failure, as it reinforces mental preoccupation with food and dieting. Instead, encourage the client to examine other (potentially neglected, due to preoccupation with food and diet) areas of their life.
4. Address Fear of Negative Evaluation. While fear of of negative evaluation for the binge eater may primarily be weight exclusive (and a reality-based constraint), it may also be indicative of projecting a negative self-perception (poor body image) onto others. Only a small (yet significant) percentage of

binge eaters are actually obese, but fear of negative evaluation and binge eating are correlated. Assist clients in discerning the degree to which fear of negative evaluation (general or weight exclusive) is a reality based constraint, as opposed to the pathology present in Social Phobia. In the case of reality-based constraints (e.g. discrimination), assist clients in increasing coping skills. In the case of projection, challenge faulty cognitions concerning fear of negative evaluation (general and weight exclusive). Whether fear of negative evaluation is reality-based or pathological, it evokes binge eating and should be considered a primary intervention.

5. Assess Depression. When working with a client with Binge Eating Disorder, examine typology of depression. Specifically, the client may be experiencing depression, but it may be atypical in presentation.

In closing, Binge Eating Disorder is multifaceted, and future research is warranted to more clearly define the dynamics occurring. However, the results of this study are a positive beginning in defining the role of anxiety and depression in binge eating. Specifically, the results of this study suggest that anxiety may evoke binge eating, and binge eating may evoke depression. Thus, treating the

anxiety may vicariously treat Binge Eating Disorder and depression.

Outcome studies are warranted employing valid and reliable anxiety interventions with binge eating clients. One possibility is utilizing Paxil and/or Prozac for clients with Binge Eating Disorder, as these medications have shown moderate efficacy in the treatment of Bulimia (Thacker, 2001). It is possible, that the same results would be found for Binge Eating Disorder.

Finally, the results of this study suggest that dietary restraint and weight exclusive fear of negative evaluation are the primary predictors of binge eating. Thus, an intensive cognitive restructuring component is necessary in the treatment of Binge Eating Disorder. This will be no small task however, as the clinician will be challenging the mindset of an entire culture.

APPENDIX A:

INFORMED CONSENT

Informed Consent

Hello! My name is Kimberly Olson, and I am a graduate student. Dr. Eugene Wong (from California State University, San Bernardino) and I are conducting a study concerning eating behaviors. Participation in this study is completely voluntary, and your responses will be strictly anonymous. Only researchers will have access to your information, and data will be reported in group form only.

In addition, you may choose to terminate participation at any time without penalty. You may also choose to answer (or not answer) any item. At no point, will your name be reported with your responses.

It this study, you will be responding to three questionnaires, demographic items and completing a food diary. The initial survey should take approximately 1 hour to complete, and the food diary will require approximately 15 minutes a day, for 7 days. Please be assured, that this procedure is in no way harmful, and has been approved by the Psychology Department Human Subjects Review Board, California State University at San Bernardino.

If you have any questions or concerns, please contact either Kimberly Olson or Dr. Eugene Wong (909)-880-5573. In addition, if you have any questions regarding subjects' rights or research related injury, please contact the university's Institutional Review Board (909)-880-5027.

If you agree to the above stated conditions, please check and date below. By checking and dating, it is implied that you understand both the nature and purpose of this study. You also consent to participate in this study, and you are at least 18 years of age.
Thank You!!!

Place a check mark here:_____Today's date:_____

APPENDIX B:

DEMOGRAPHIC SHEET

Instructions: Please answer the following demographic items.

1. What is your gender? Male/Female

2. What is your age?___

3. What is your ethnicity (race)? African-American
   Asian-American
   Latino/Mexican-American
   Euro-American
   Other _____

4. What is your school status? not currently attending school/ freshman/ sophomore/ junior/ senior/ graduate student

5. What is your enrollment status?
   Less than half time (6 units or less)
   Half-time (6 units)
   Three-quarter time (7-11 units)
   Full time (12+ units)

6. What is your employment status?
   Unemployed (not working at paid employment)
   Part-time employment (20 or less hours per week)
   Three-quarter time employment (21-39 hours per week)
   Full-time employment (40+ hours per week)

7. What is your yearly income? **(Self if living independently, Self and Spouse if married, Parents and Self if living at home)**
   less than $10,000
   $10,001 to $20,000
   $20,001 to $30,000
   $30,001 to $40,000
   $40,001 to $50,000
   $50,001 to $60,000
   $60,001 to $75,000
   $75,001 to $85,000
   $85,000 to $100,000
   $100,000 +

8. Are you married?____(If no, skip to question 10.)

9. How many years have you been married?____(If yes, skip to question 11)

10. Have you been living with a significant other (boyfriend/girlfriend) for two or more years?____

11. Do you have children? Yes/ No

12. Have you ever been professionally diagnosed with bulimia? _____

13. Have you ever been professionally diagnosed with anorexia? _____

14. Have you ever been professionally diagnosed with Binge-Eating Disorder? _____

15. Have you personally ever suspected, that you might be suffering from an eating disorder? _____
    If yes, please state the specific eating disorder. _____ (If no, skip to item 17).

16. How long do you think you have been suffering from this eating disorder? _____

17. In the home you were raised in, does anyone suffer from an eating disorder? _____ If yes, please explain._____
    _____

18. Do you have any extended relatives that suffer from eating disorders? _____ If yes, please explain. _____
    _____

19. In the home you presently live in, does anyone suffer from an eating disorder? ____ If yes, please explain. _____
    _____

20. Have you ever been on a diet? (If no, skip to item 27.) _____ If yes, approximately how many diets have you been on? _____

21. If you have successfully dieted in the past, how long were you able to maintain your weight loss? _____

22. How long have you been dieting? _____

23. Do you feel that your success or failure when dieting, effects how you feel about yourself? _____ If yes, please explain. _____
_____

24. Approximately how many days can you maintain a stringent diet, before bingeing? _____ (If you don't binge eat, then skip to item 27).

25. If you eat a "forbidden food" (i.e. ice cream, candy bar, etc.) while dieting, how likely are you to binge for the remainder of the day?
_____

26. Do you feel your life would be different if you didn't binge eat?
_____If yes, please explain._____
_____

27. Do you feel that you are underweight, normal weight or overweight?
_____

28. Has anyone expressed concerns about your weight (e.g. doctor, family member, etc.)? _____ If yes, please explain.
_____
_____

29. What is your height? _____

30. What is your weight? (***We understand that this may be a sensitive question, and you are free to not answer it. However, it would help us tremendously, (and it's confidential) if you would answer this question honestly.) _____

31. Please use the remainder of this page to tell us your experiences with dieting, binge-eating, etc. We are truly grateful for your insights and participation.

APPENDIX C:

BECK DEPRESSION INVENTORY

Beck Depression Inventory (Beck, 1967)

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY. Circle the number beside the statement you picked. *Be sure to read all of the statements in each group before making your choice.*

1. 0 I do not feel sad.
   1 I feel sad.
   2 I am sad all the time and I can't snap out of it.
   3 I am so sad or unhappy that I can't stand it.

2. 0 I am not particularly discouraged about the future.
   1 I feel discouraged about the future.
   2 I feel I have nothing to look forward to.
   3 I feel that the future is hopeless and that things cannot improve.

3. 0 I do not feel like a failure.
   1 I feel I have failed more than the average person.
   2 As I look back on my life, all I can see is a lot of failures.
   3 I feel I am a complete failure as a person.

4. 0 I get as much satisfaction out of things as I used to.
   1 I don't enjoy things the way I used to.
   2 I don't get real satisfaction out of anything anymore.
   3 I am dissatisfied or bored with everything.

5. 0 I don't feel particularly guilty.
   1 I feel guilty a good part of the time.
   2 I feel quite guilty most of the time.
   3 I feel guilty all of the time.

6. 0 I don't feel I am being punished.
   1 I feel I may be punished.
   2 I expect to be punished.
   3 I feel I am being punished.

7. 0 I don't feel disappointed in myself.
   1 I am disappointed in myself.
   2 I am disgusted with myself.
   3 I hate myself.

8. 0 I don't feel I am worse than anybody else.
   1 I am critical of myself for my weaknesses and mistakes.
   2 I blame myself for my faults.
   3 I blame myself for everything bad that has happened.

9. 0 I don't have any thoughts of killing myself.
   1 I have thoughts of killing myself, but I would not act them out.
   2 I would like to kill myself.
   3 I would kill myself if I had the chance.

10. 0 I don't cry anymore than usual.
    1 I cry more now than I used to.
    2 I cry all of the time now.
    3 I used to be able to cry, but now I can't even cry even though I want to.

11. 0 I am no more irritated now than I ever am.
    1 I get annoyed or irritated more easily than I used to.
    2 I feel irritated all the time now.
    3 I don't get irritated at all by the things that used to irritate me.

12. 0 I have not lost interest in other people.
    1 I am less interested in other people than I used to be.
    2 I have lost most of my interest in other people.
    3 I have lost all of my interest in other people.

13. 0 I make decisions about as well as I ever could.
    1 I put off making decisions more than I used to.
    2 I have greater difficulty in making decisions than before.
    3 I can't make decisions at all anymore.

14. 0 I don't feel I look any worse than I used.
    1 I am worried that I am looking old or unattractive.
    2 I feel that there are permanent changes in my appearance that make me look unattractive.
    3 I believe that I look ugly.

15. 0 I can work about as well as before.
    1 It takes an extra effort to get started at doing something.
    2 I have to push myself very hard to do anything.
    3 I can't do any work at all.

16. 0 I can sleep as well as usual.
    1 I don't sleep as well as I used to.
    2 I wake up 1-2 hours earlier than usual and find it hard to go back to sleep.
    3 I wake up several hours earlier than I used to and cannot get back to sleep.

17. 0 I don't get more tired than usual.
    1 I get tired more easily than I used to.
    2 I get tired from doing almost anything.
    3 I am too tired to do anything.

18. 0 My appetite is no worse than usual.
    1 My appetite is not as good as it used to be.
    2 My appetite is much worse now.
    3 I have no appetite at all anymore.

19. 0 I haven't lost much weight, if any lately.
    1 I have lost more than 5 pounds.
    2 I have lost more than 10 pounds.
    3 I have lost more than 15 pounds.
    I am purposely trying to lose weight by eating less. Yes ____ No____

20. 0 I am no more worried about my health than usual.
    1 I am worried about physical problems such as aches and pains; or upset stomach or constipation.
    2 I am very worried about physical problems and it's hard to think of much else.
    3 I am so worried about my physical problems, that I cannot think about anything else.

21. 0 I have not noticed any recent change in my interest in sex.
    1 I am less interested in sex than I used to be.
    2 I am much less interested in sex now.
    3 I have lost interest in sex completely.

22. 0 My mood brightens when something positive has happened.
    1 My mood sometimes brightens when something positive has happened.
    2 My mood rarely brightens when something positive has happened.
    3 My mood never brightens when something positive has happened.

23. 0 I haven't gained much weight, if any lately.
    1 I have gained more than 5 pounds.
    2 I have gained more than 10 pounds.
    3 I have gained more than 15 pounds.
    If you've gained weight, was it intentional?_____

24. 0 I don't sleep anymore than usual.
    1 I sleep more than I used to.
    2 I sleep one to two hours a day more than I used to.
    3 I am sleeping 2 hours or more each day, than I used to .

25. 0 I always feel sluggish, especially in my arms and legs.
    1 I often feel sluggish, especially in my arms and legs.
    2 I sometimes feel sluggish, especially in my arms and legs.
    3 I never feel sluggish, especially in my arms and legs.

26. 0 I rarely worry about what other people will think of me, when I know it doesn't make any difference.
    1 I sometimes worry about what other people think of me, when I know it doesn't make any difference.
    2 I often worry about what other people think of me, when I know it doesn't make any difference.
    3 I always worry about what other people think of me, when I know it doesn't make any difference.

27. 0 I rarely take criticism personally.
    1 I sometimes take criticism personally.
    2 I often criticism personally.
    3 I always criticism personally.

28. 0 My appetite is much bigger than it used to be.
    1 My appetite is moderately bigger than it used to be.
    2 My appetite is slightly bigger than it used to be.
    3 My appetite has not change recently.

29. 0 When something exciting or fun is about to happen, I don't feel more cheerful.
    1 When something exciting or fun is about to happen, I rarely feel more cheerful.
    2 When something exciting or fun is about to happen, I usually feel more cheerful.
    3 When something exciting or fun is about to happen, I always feel more cheerful.

30. 0 I sleep approximately 5-7 hours of per day. (Include both night sleep and naps)
    1 I sleep approximately 7 1/2-9 hours per day. (Include both night sleep and naps)
    2 I sleep approximately 10-12 hours per day. (Include both night sleep and naps)
    3 I sleep more than 12 hours per day. (Include both night sleep and naps)

31. 0 My legs and/or arms often feel so heavy that it seems difficult to move them.
    1 My legs and/or arms sometimes feel so heavy that it seems difficult to move \ them.
    2 My legs and/or arms rarely feel so heavy that it seems difficult to move them.
    3 My legs and/or arms never feel so heavy that it seems difficult to move them.

32. 0 I don't make excuses (or screen phone calls) to avoid people and/or social situations.
    1 I sometimes make excuses (or screen phone calls) to avoid people and/or social situations.
    2 I frequently make excuses (or screen phone calls) to avoid people and/or social situations.
    3 I always make excuses (or screen phone calls) to avoid people and/or social situations.

33. 0 I am eating much more than usual.
    1 I am eating slightly more than usual.
    2 I am eating the same as usual.
    3 I am eating less than usual.

34. 0 I have never felt rejected (or rebuffed) and later discovered that I was mistaken (e.g. the person's look, action or words were not intended to be rejecting).
    1 I have rarely felt rejected (or rebuffed) and later discovered that I was mistaken.
    2 I have sometimes felt rejected (or rebuffed) and later discovered that I was mistaken.
    3 I have frequently felt rejected (or rebuffed) and later discovered that I was mistaken.

35. 0 Recently, my clothes fit more loosely then they used to.
    1 My clothes fit the same as they always have.
    2 Due to recent weight gain, my clothes fit slightly tighter than they used to.
    3 Due to recent weight gain, my clothes fit much tighter than they used to.

APPENDIX D:

PENN STATE WORRY QUESTIONNAIRE

Penn State Worry Questionnaire (Meyer, 1984)

Enter the number that best describes how typical or characteristic each item is of you, putting the number next to each items.

1	2	3	4	5
Not at all typical		Somewhat typical		Very typical

_____ 1. If I don't have enough time to do everything, I don't worry about it.

_____ 2. My worries overwhelm me.

_____ 3. I don't tend to worry about things.

_____ 4. Many situations make me worry.

_____ 5. I know I shouldn't worry about things, but I just can't help it.

_____ 6. When I'm under pressure, I worry a lot.

_____ 7. I am always worrying about something.

_____ 8. I find it easy to dismiss worrisome thoughts.

_____ 9. As soon as I finish one task, I start to worry about everything else I have to do.

_____10. I never worry about anything.

_____11. When there is nothing more I can do about a concern, I don't worry about it anymore.

_____12. I've been a worrier all my life.

_____13. I notice that I have been worrying about things.

_____14. Once I start worrying, I can't stop.

_____15. I worry all of the time.

_____16. I worry about projects until they are done.

APPENDIX E:

WEIGHT EXCLUSIVE FEAR OF NEGATIVE EVALUATION/BRIEF FEAR OF NEGATIVE EVALUTION

Weight Exclusive Brief FNE/Brief FNE (Leary, 1983)

For the following statements please indicate how characteristic each item is of you using the following ratings scale:

1=Not at all characteristic of me
2=Slightly characteristic of me
3=Moderately characteristic of me
4=Very characteristic of me
5=Extremely characteristic of me

IMPORTANT: Items 1-12 are weight specific and items 13-24 concern your overall experiences.

___ 1. I worry about what other people will think of my weight even when it doesn't make any difference.
___ 2. I am unconcerned with my weight, even if I know people are forming an unfavorable impression of me.
___ 3. I am frequently afraid of other people noticing my weight.
___ 4. I rarely worry about what kind of impression, someone is forming of me, because of my weight.
___ 5. I am afraid that people will not approve of me, because of my weight.
___ 6. I am afraid that people will find fault with me, because of my weight.
___ 7. Other people's opinion of my weight, do not bother me.
___ 8. When I am talking to someone, I worry about what they may be thinking about my weight.
___ 9. I am usually worried about what kind of impression made, based on my weight.
___10. If I know someone is judging my weight, it has little effect on me.
___11. Sometimes I think I am too concerned with what other people might think of my weight.
___12. I often worry, that because of my weight, the things I say and do will be perceived as wrong.
___13. I worry about what other people will think of me even when it doesn't make any difference.
___14. I am unconcerned even if I know people are forming an unfavorable impression of me.
___15. I am frequently afraid of other people noticing my shortcomings.
___16. I rarely worry about what kind of impression I am making on someone.
___17. I am afraid that people will not approve of me.
___18. I am afraid that people will find fault with me.
___19. Other people's opinion of me do not bother me.
___20. When I am talking to someone, I worry about what they may be thinking about me.
___21. I am usually worried about what kind of impression I make.
___22. If I know someone is judging me, it has little effect on me.
___23. Sometimes I think I am too concerned with what other people think of me.
___24. I often worry that I will say or do the wrong things.

APPENDIX F:

THE RESTRAINT SCALE

Restraint Scale (Herman, 1976)

Please answer the following items using the alternatives to the below the question.

1. How often are you dieting?
   Never Rarely Sometimes Often Always

2. What is the maximum amount of weight (in pounds) that you have ever lost in one month?
   0-4 5-9 10-14 15-19 20+

3. What is your maximum weight gain within a week?
   0-1 1.1-2 2.1-3 3.1-5 5.1+

4. In a typical week, how much does your weight fluctuate?
   0-1 1.1-2 2.1-3 3.1-5 5.1+

5. Would a weight fluctuation of 5 pounds affect the way you live your life?
   Not at all Slightly Moderately Very Much

6. Do you eat sensibly in front of others and splurge alone?
   Never Rarely Often Always

7. Do you give too much time and thought to food?
   Never Rarely Often Always

8. Do you have feelings of guilty after overeating?
   Never Rarely Often Always

9. How conscious are you of what you are eating?
   Not at all Slightly Moderately Extremely

10. How many pounds over you desired weight were you at your maximum weight?
    0-1 1-5 6-10 11-20 21+

APPENDIX G:

THE BULIMIA SCALE

Bulimia Test (BULIT) (Smith and Thelen, 1987)

Answer each question by circling the appropriate letter. Please respond to each item as honestly as possible; remember, all of the information you provide will be kept strictly confidential.

1. Do you ever eat uncontrollably to the point of stuffing yourself (i.e., going on eating binges)?
   a. once a month or less (or never)
   b. 2-3 times a month
   c. once or twice times a week
   d. 3-6 times a week
   e. Once a day or more

2. I am satisfied with my eating patterns.
   a. Agree
   b. Neutral
   c. Disagree a little
   d. Disagree strongly

3. Have you ever kept eating until you thought you'd explode?
   a. Practically every time I eat
   b. Very Frequently
   c. Often
   d. Sometimes
   e. Seldom or Never

4. Would you presently call yourself a "binge eater"?
   a. Yes, absolutely
   b. Yes
   c. Yes, probably
   d. Yes, possibly
   e. No, probably not

5. I prefer to eat:
   a. At home alone
   b. At home with others
   c. In a public restaurant
   d. At a friend's house
   e. Doesn't matter

6. Do you feel you have control over amount of food you consume?
   a. Most or all of the time
   b. A lot of the time
   c. Occasionally
   d. Rarely
   e. Never

7. I use laxatives or suppositories to help control my weight.
   a. Once a day or more
   b. 3-6 times a week
   c. Once or twice a week
   d. 2-3 times a month
   e. Once a month or less (or never)

8. I eat until I feel to tired to continue.
   a. At least once a day
   b. 3-6 times a week
   c. Once or twice a week
   d. 2-3 times a month
   e. Once a month or less (or never)

9. How often do you prefer eating ice cream, milk shakes, or puddings during a binge?
   a. Always
   b. Frequently
   c. Sometimes
   d. Seldom or never
   e. I don't binge

10. How much are you concerned about your eating binges?
    a. I don't binge
    b. Bothers me a little
    c. Moderate concern
    d. Major concern
    e. Probably the biggest concern in my life

11. Most people I know would be amazed if they knew how much food I can consume in one setting.
    a. Without a doubt
    b. Very probably
    c. Probably
    d. Possibly
    e. No

12. Do you ever eat to the point of feeling sick?
    a. Very frequently
    b. Frequently
    c. Fairly often
    d. Occasionally
    e. Rarely or never

13. I am afraid to eat anything for fear that I won't be able to stop.
    a. Always
    b. Almost always
    c. Frequently
    d. Sometimes
    e. Seldom or never

14. I don't like myself after I eat too much.
    a. Always
    b. Frequently
    c. Sometimes
    d. Seldom or never
    e. I don't eat too much

15. How often do you intentionally vomit after eating?
    a. 2 or more times a week
    b. Once a week
    c. 2-3 times a month
    d. Once a month
    e. Less than once a month (or never)

16. Which of the following describes your feelings after binge eating?
    a. I don't binge eat.
    b. I feel O.K.
    c. I feel mildly upset with myself.
    d. I feel quite upset with myself.
    e. I hate myself.

17. I eat a lot of food, when I'm not even hungry.
    a. Very frequently
    b. Frequently
    c. Occasionally
    d. Sometimes
    e. Seldom or never

18. My eating patterns are different from eating patterns of most people.
    a. Always
    b. Almost always
    c. Frequently
    d. Sometimes
    e. Seldom or never

19. I have tried to lose weight by fasting or going on "crash" diets?
    a. Not in the past year
    b. 2-3 times in the past year
    c. 4-5 times in the past year
    d. More than 5 times in the past year

20. I feel sad or blue after eating more than I'd planned to eat.
    a. Always
    b. Almost always
    c. Frequently
    d. Sometimes
    e. Seldom, never or not applicable

21. When engaged in an eating binge, I tend to eat foods that are high in carbohydrates (sweets and starches).
    a. Always
    b. Almost Always
    c. Frequently
    d. Sometimes
    e. Seldom, or I don't binge

22. Compared to most people, my ability to control my eating behavior seems to be:
    a. Greater than others' ability
    b. About the same
    c. Less
    d. Much less
    e. I have absolutely no control

23. One of your best friends suddenly suggests that you both eat at a new restaurant buffet that night. Although you'd planned on eating something light at home, you go ahead and eat out, eating quite a lot and feeling uncomfortably full. How would you feel about yourself on the ride home?
    a. Fine, glad I'd tried that new restaurant
    b. A little regretful that I'd eaten so much
    c. Somewhat upset with myself
    d. Upset with myself
    e. Totally disgusted with myself

24. I would presently label myself a "compulsive eater" (one who engages in episodes of uncontrolled eating).
    a. Absolutely
    b. Yes
    c. Yes, probably
    d. Yes, possibly
    e. No, probably not

25. What is the he most weight you've ever lost in a month?
    a. Over 20 pounds
    b. 12-20 pounds
    c. 8-11 pounds
    d. 4-7 pounds
    e. Less than 4 pounds

26. If I eat too much at night I feel depressed the next morning.
    a. Always
    b. Frequently
    c. Sometimes
    d. Seldom or never
    e. I don't eat too much at night.

27. Do you believe that it is easier for you to vomit than it is for most people?
    a. Yes, it's not a problem at all for me
    b. Yes, it's easier
    c. Yes, it's a little easier
    d. About the same
    e. No, it's less easy

28. I feel that food controls my life.
    a. Always
    b. Almost Always
    c. Frequently
    d. Sometimes
    e. Seldom or never

29. I feel depressed immediately after I eat to much.
    a. Always
    b. Frequently
    c. Sometimes
    d. Seldom or never
    e. I don't eat too much

30. How often do you vomit after eating in order to lose weight?
    a. Less than once a month (or never)
    b. Once a month
    c. 2-3 times a month
    d. Once a week
    e. 2 or more times a week

31. When consuming a large quantity of food, at what rate of speed do you usually eat?
    a. More rapidly than most people have ever eaten in their lives
    b. A lot more rapidly than most people
    c. A little more rapidly than most people
    d. About the same rate as most people
    e. More slowly than most people (or not applicable)

32. What is the most weight you've ever gained in one month?
    a. Over 20 pounds
    b. 12-20 pounds
    c. 8-11 pounds
    d. 4-7 pounds
    e. Less than 4 pounds

33. Females Only. My last menstrual period was
    a. Within the past month
    b. Within the past 2 months
    c. Within the past 4 months
    d. Within the past 6 months
    e. Not within the past 6 months

34. I use diuretics (water pills) to help control my weight.
    a. Once a day or more
    b. 3-6 times a week
    c. Once or twice a week
    d. 2-3 times a month
    e. Once a month or less (or never)

35. How do you think your appetite compares with that of most people you know?
    a. Many times larger than most
    b. Much larger
    c. A little larger
    d. About the same
    e. Smaller than most

36. Females only. My menstrual cycle occurs once a month:
    a . Always
    b. Usually
    c. Sometimes
    d. Seldom
    e. Never

37. I use exercise to help control my weight.
    a. 5 times a week or more
    b. 3-4 times a week
    c. Once or twice a week
    d. Once or twice a month
    e. Less than once a month (or never)

38. My average cardiovascular workout (running, biking, aerobics, etc.) lasts approximately (one session):
    a. I don't workout.
    b. 10-20 minutes
    c. 20-45 minutes
    d. 45 minute- 1 hour and 15 minutes
    e. 1 hour and 15 minutes plus

39. I try to burn all or most of the calories I consume through exercise:
    a. Never
    b. Rarely
    c. Sometimes
    d. Most of the time
    e. Always

APPENDIX H:

FOOD DIARY

Food Diary

Instructions: Please record your food consumption for the following week. Try not deviate from your normal food consumption, as we are trying to get an accurate picture of what your eating patterns actually are. If you happen to binge eat, during this time, please complete the item pertaining to bingeing. For the purpose of this study, a binge is defined in the following way:

1. Consuming more calories in a two hour period, than most people would during a two hour period, under similar circumstances. Similar circumstances is in reference to times, where most people consume excessive amounts of calories (e.g. Thanksgiving, etc.). Thus, excessive consumption during Thanksgiving dinner would probably not be labeled a binge. However, excessive consumption during routine situations (e.g. watching television, studying, etc.) would be labeled a binge.

2. You feel a lack of control, during the binging episode (e.g. you feel like you can't stop).

For the purpose of this project, any of the following symptoms define anxiety: worried, stressed, conflicted, panicked, worrying excessively about an interaction between you and another person, afraid, overwhelmed, unsettled. In sum, anything that makes you feel nervous and/or anxious.

We understand that these are sensitive questions, and the information you provide will be held in the strictest of confidence. Additionally, no where in this study do we request your name; Thus, there is no way anyone could identity you as the respondent. It is not our intention to pass judgment, we are Simply trying to better understand binge-eating. *Again, we appreciate your time and effort on this project.*

Day One: According to the definition on the previous page, did you binge today? If yes, please list what you ate before, during and after the binge? Also, indicate the time at which you began and ended bingeing?

What were you feeling before you binged? _____

Did you feel anxious **before** you binged? _____
If yes, please rate the level of anxiety you experienced **before** bingeing. (Circle One)

0_____ 1_____ 2_____ 3_____ 4_____ 5_____ 6_____ 7_____ 8
None Slight Moderate A lot As much as you can imagine

Did you feel depressed **before** you binged? _____
If yes, please rate your depression **before** you binged (Circle One)
0_____ 1_____ 2_____ 3_____ 4_____ 5_____ 6_____ 7_____ 8
None Slight Moderate A lot As much as you can imagine

Did you feel anxious **after** bingeing? _____
If yes, please rate your anxiety **after** bingeing? (Circle One)
0_____ 1_____ 2_____ 3_____ 4_____ 5_____ 6_____ 7_____ 8
None Slight Moderate A lot As much as you can imagine

Did you feel depressed **after** bingeing? _____
If yes, please rate your depression **after** bingeing? (Circle One)
0_____ 1_____ 2_____ 3_____ 4_____ 5_____ 6_____ 7_____ 8
None Slight Moderate A lot As much as you can imagine

What did you feel during the binge (if anything)?

APPENDIX I:

DEBRIEFING STATEMENT

Debriefing

You have just participated in a study concerning a potential relationship between binge-eating, anxiety and depression. Binge-eating disorder is characterized by consuming more food in a descrete period of time (approximately 2 hours), than most people would under similar circumstances. It also involves sensing a lack of control or an inability to stop eating, once a binge has begun. It was hypothesized, that some people binge eat to reduce anxiety, and depression is a potential consequence of binge eating.

Thank you for your participation! I am most grateful for your time and effort. Many of the questions were very sensitive in nature, and your courage is appreciated. Eating disorders are very common in our culture. However, if you experience distress over any feelings evoked by this study, please don't hesitate to contact Dr. Eugene Wong at (909)-880-5573 or the University Counseling Center at (909)-880-5040.

Results of this study will be given in group form only; no individual participant's data will be distributed. If you are interested in the results of this study, they will be posted on the bulletin board of the psychology department. In addition, if you would like an individual copy of the results or have any questions or concerns, please contact me (Kimberly Olson) or Dr. Eugene Wong at the above number. Again, thank you for your participation.

APPENDIX J:

PARTIAL CORRELATIONS

Anxiety Types	Atypical Depression
	Bivariate Correlations
Fear of Negative Evaluation	.260
Weight Exclusive Fear of Negative Evaluation	.377*
Dietary Restraint	.486*
Generalized Anxiety	.362*

Anxiety Types	Atypical Depression
Partial Correlations Controlling for Binge Eating	
Fear of Negative Evaluation	---
Weight Exclusive Fear of Negative Evaluation	.214
Dietary Restraint	.320*
Generalized Anxiety	.247

* Significance established at $p < .05$ $N = 39$

APPENDIX K:

DIRECTION OF PREDICTION

Direction of Prediction

Comparisons	Means	Standard Deviation
Anxiety Prior to Binge-Eating	12.2500	10.3609
Anxiety After Binge-Eating	8.2368	9.6294
Depression Prior to Binge-Eating	9.1410	12.6994
Depression After Binge-Eating	13.9744	14.9675

N=39. Both comparisions are significant at $p < .05$.

APPENDIX L:

CORRELATIONS

Correlations

B= Bulimia Scale, **RS**= Restraint Scale, **FNE**= Brief FNE, **WFNE**= Weight Exclusive FNE, **PSWQ**= Penn State Worry Questionnaire, **BDI**= Beck's Depression Inventory

	B	RS	FNE	WFNE	PSWQ	BDI
B	---	—	—	—	—	—
RS	**.719****	—	—	—	—	—
FNE	.097	.130	—	—	—	—
WFNE	**.558****	**.591****	.056	—	—	—
PSWQ	**.307****	**.297****	.034	**.357****	—	—
BDI	**.597****	**.449****	.032	**.474****	**.453****	—

** Correlation is significant at the 0.05 level (2-tailed).

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