The effects of negative emotions on binge eating among bulimics: Comparisons among anger, anxiety, and depression[†]

Won-Hyun So[‡]

Department of Psychology, State University of New York at Albany

The goal of this study was to investigate the influences of overall and specific negative emotions affecting eating behaviors, especially, binge eating. This study first examined the influence of each specific negative emotion (anxiety, anger, and depression) on binge eating of bulimics through self-report questionnaires, and then conducted a laboratory experiment in order to clarify a causal relationship between binge eating and anxiety. With 357 results of BULIT-R, K-EAT, DEBQ, and EES tests, this study first showed that negative emotions had significant correlations with binge eating. Moreover, it also demonstrated that anxiety was the most influential negative emotion that affected eating behaviors by bulimic and normal eaters. The laboratory experiments were conducted with 52 participants in order to examine a causal relationship between anxiety and binge eating. The result indicated that bulimic eaters eat more when they are irritated or worried, but normal eaters eat less in the same situation.

Keywords: negative emotion, anxiety, anger, depression, eating behavior, binge eating

Eating disorders were first described in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III; American Psychiatric Association, 1980) and the diagnostic criterion was presented in DSM-III-R (APA, 1987) and DSM-IV (APA, 1994). Eating disorders have been generally classified into two types: anorexia nervosa and bulimia nervosa. Early studies on eating disorders were focused on anorexia nervosa causing a deliberate distinctive loss of weight by a fear of distorted body image, while recent studies on eating disorder have been focused more on bulimia nervosa, *binge eating*, and compulsive behaviors. In addition to these two types of eating disorders, there is another type of eating disorder described in the DSM-IV, so-called *over-eating* disorder, which is described as an eating disorder not classified as otherwise. This is so called because it applies to clinical cases that can neither satisfy the criteria of anorexia nervosa nor those of bulimia nervosa described in DSM-IV. Binge eating and overeating disorders are currently a growing field of ongoing studies in Korea (Ga & Hyun, 2006; Kong, 2001; Lee, 2007).

An episode of binge eating is characterized by excessive eating in a fixed period of time an amount of food that is larger than most people would eat under similar circumstances. The common results of binge eating are negative emotions such as depression which prohibits binge eaters from maintaining a normal life (Fairburn 1981).

In America, 1.9% of the total population suffers from bulimia nervosa; whereas, about 18% of female university students are estimated to suffer from binge eating (Lynch, et al., 2000; Thelen, McLaughlin-Mann, Pruitt, & Smith, 1987). Dunn and his colleagues (2003) also mentioned that disordered eating is very prevalent among youth, with at least one of the following: fasting, skipping meals to lose weight, using of diet pills, vomiting, taking laxatives, smoking cigarettes, and binge eating (Dunn, Neighbors, & Karuner, 2003). The important point is that eating disorders such as binge eating are not well known to the general public so that one cannot expect to get special assistance or help because it is not available for those who are suffering from the early stage of this disorder (Croll, Neumark- Sztainer, Story, & Ireland, 2002).

There have been several different theoretical models to investigate the source of binge eating. First, according to the Restraint Eating Model, binge eating starts from dissatisfaction with one's weight and it is a result of a constant weight control (Herman & Polivy, 1980). The Cognitive Behavior Model, first presented by Fairburn (1981), has its focus on cognitive-behavioral therapy for binge eating. The primary elements of the cognitive treatment are eating three meals a day; introducing gradual inclusion of unwelcome food on the menu; and understanding and revising a distorted view on food ingestion, weight, and physical figure are introduced as procedures to

prevent a recurrence of excessive eating (Fairburn & Wilson, 1993).

Although previous studies supported the Restraint Eating Model, the empirical cases have been increasingly demonstrating that it is not a sufficient explanation (Cohen, Sherwin, & Fleming, 1987; Ruderman, 1986). For example, Laberg, Wilson, Eldredge, and Nordly (1991) found that when bulimic females were in negative affective states, they were more likely to attend to pictures of food and show an increase in food craving. Other studies also reported that negative affect precedes binge eating in bulimics (e.g., Davis et al., 1988; Lingswiler et al., 1989).

The Emotional Eating Model emphasizes the role of emotion in excessive eating, thus giving an alternative perspective to those who cannot be explained under the Restraint Eating Model (Fairburn & Wilson, 1993). The main point of this model is that binge eating behavior is due to extreme stress and an attempt to be free from unpleasant moods (Heatherton & Baumeister, 1991). The Personal Relation Model stresses understanding interpersonal problems associated with eating disorders as a focus of the treatment (Fairburn & Wilson, 1993 Chua, Touyz & Hill, 2004). The basic assumption of the Personal Relation Model is that eating disorders come from the negative emotions associated with undesirable interpersonal relations (Swinbourne & Touyz, 2007). Therefore, its treatment focuses on dealing with undesirable interpersonal relations

and the negative emotions related to them. Previous studies have indicated that there is a significant correlation between negative affective states and binge eating (e.g., Heatherton & Baumeister, 1991; Swinbourne & Touyz, 2007; Klerman, et al., 1984). However, there have been relatively limited studies investigating the relationship between specific negative emotions (such as anxiety, depression, and anger) and binge eating among bulimics (So, 2000). Therefore, the primary purpose of this study is to examine the influences of these specific negative emotions as well as the overall negative affective states on disordered eating behaviors.

Study 1

The goal of Study I was to examine the influences of overall and specific negative emotions: anxiety, anger, and depression on eating behaviors.

Methods

Participants

A total of 317 non-clinical college females, who were recruited from four universities in Seoul, Korea, participated in the study in partial fulfillment of a research experience requirement for their introductory psychology courses. The average age of the participants was 21 years old (SD = 2.67).

All participants completed Bulimia Test Revised (BULIT-R), Korean version of Eating Attitudes Test-26 (KEAT-26), Dutch Eating Behavior

Questionnaire (DEBQ), and Emotional Eating Scale (EES). The 28 weight-control items of BULIT-R were used for getting binge scores. The K-EAT was used for measuring general unhealthy eating behaviors which had three subscales: dieting, bulimia and food preoccupation and oral control. The DEBQ was used for measuring eating behaviors with three subscales: restrained, emotional, and external eating patterns. The EES was used for measuring the degree of emotional eating, with three subscales: EES anxiety, EES anger, and EES depression. Subjects were grouped into three groups: bulimic, non-bulimic, and normal by using suggested clinical cutoffs in the Korean population: Bulimics were determined by using the BULIT-R; participants who scored 88 or higher were determined as bulimics, and participants who scored lower than 88 were determined as non-bulimics followed by the previous studies (e.g., Lee, 2007). Normal eaters were determined by KEAT-26 in previous studies, raw score of 13 (STEN score from 0 to 6) was used as a cutoff, and 13 or lower was determined as normal eaters who do not have problematic eating attitudes and behaviors (e.g., Rhee, Lee, Park, Sohn, Chung, Hong, et al., 1998).

Measures

Korean version of Eating Attitudes Test-26 (KEAT-26). The KEAT-26 (Rhee, et al., 1998) is the Korean version of the Eating Attitudes Test (KEAT-26). The KEAT-26 is adapted and trans-lated from the Eating Attitudes Test-26 (EAT-26 Garner et al., 1982) for Korean populations. The KEAT-26 includes 26 items and asked respondents to indicate the degree to which they behave on a scale ranging from 0 to 3 (0: sometimes, rarely, and never; 1: often; 2: usually; and 3: always). Sample items were "avoid eating when I am hun-gry" and "find myself preoccupied with food." Rhee et al. (1998) report an alpha reliability of .81. The cross-cultural validity of the scale has been supported by previous studies (e.g., Rhee, Go, Lee, Whang, and Lee, 2001)

Bulimia Test Revised (BULIT-R). The BULIT-R is a self-report instrument designed to assess a broad range of eating-disorder behaviors, particu-larly bulimic symptoms (Thelem, Farmer, Wonderlich & Smith, 1991). A cutoff score of 88 was suggested to indicate bulimic symptoms. The alpha reliabilities of BULIT-R typically range from .90 to .97 (Lee, 2007).

Dutch Eating Behavior Questionnaire (DEBQ). The DEBQ (Van Strien et al., 1986) assesses a structure of an individual's eating behavior. It has three subscales of emotional eating (13 items), ex-ternal eating (10 items), and restrained eating (10 items). In the current study, the alpha reliabilities of subscales were .90, .93, and .79 for restrained, emotional, and external eating respectively.

Emotional Eating Scale (EES). The EES (Arnow, Kenardy & Agras, 1995) is a self-report instrument to assess association of negative re-sponses with the loss-of-control eating and emo-

tional eating. It has three subscales: anger/Frustration, anxiety, and depression subscales. All three subscales correlated highly with measures of binge eating, providing evidence of construct validity. In the current study, the alpha reliabilities of subscales were .80, .75, and .75 for anger/frustration, anxiety, and depression.

Results

Initial Analysis

Prior to the main analyses, the data's fit with the multivariate normality assumption was tested. According to Shaphiro-Wilk's test, the only eating behavior that satisfied the normality assumption for all groups (i.e., total, bulimic, and normal groups) was external eating ($p > .05$). Accordingly, non-parametric analyses were used.

The Effects of Emotions on Binge Eating: Anxiety, Anger, and Depression

First, emotional eating had stronger positive correlations with BULIT-R scores ($r = 0.23$, 0.28 and 0.36, where $p<.001$, EES depression, EES anger, and EES anxiety, respectively) than with KEAT-26 ($r = 0.15$, 0.26 and 0.25, where $p<.001$, EES depression, EES anger, and EES anxiety, respectively). This finding implied that emotional

Table 1. Comparison of Emotional Eating Patterns of Bulimics and Normals

Scales	Bulimics (N=26)		Normals (N=171)		*s*
	M	SD	M	SD	
EES Total Scores	28.077	13.888	17.421	10.355	3461.00***
EES Anxiety	13.192	9.550	7.713	6.114	3411.00**
EES Anger	7.962	4.737	4.520	3.809	3510.00***
EES Depression	6.923	3.486	5.187	3.197	3218.50*

Note. $N = 197$, * $p<.05$, ** $p<.01$, *** $p<.001$.

Table 2. Comparison of Emotional Eating Patterns of Bulimics and Non-Bulimics

Scales	Bulimics (N=26)		Non-Bulimics (N=291)		*s*
	M	SD	M	SD	
EES Total Scores	28.077	13.888	19.390	10.810	6373.00***
EES Anxiety	13.192	9.550	8.813	6.470	5970.00**
EES Anger	7.962	4.737	5.266	4.052	6082.00**
EES Depression	6.923	3.486	5.311	3.299	5777.00*

Note. $N = 317$, * $p<.05$, ** $p<.01$, *** $p<.001$.

eating was associated more with binge eating than with dieting and oral control.

Second, the mean differences between the bulimic and normal groups and the bulimic and non-bulimic groups were examined in the area of emotional eating. Since EES scores, anxiety, anger, and depression did not meet the normality assumption, the Wilcoxon test was used. Table 1 and Table 2 showed that EES scores (anxiety, anger, and depression) had stronger influences on the bulimic group than on the normal or non-bulimic group. Specifically, from comparing the amount of mean differences of the bulimic group with those of the normal group, anxiety and anger had more effects on binge eating than depression. In the comparison of the mean differences between the bulimic and non-bulimic groups, anxiety had stronger effects on binge eat-

ing than anger and depression.

The results demonstrated that general negative affective states are significantly correlated with binge eating, and each negative emotion also showed a significant correlation with binge eating. Figure 1 showed that among the three negative emotions, anxiety seemed to be more influential on differentiating between the bulimic and normal groups, while depression seemed to be less influential.

Study 2

The aim of study 2 was to examine the causal relationship between anxiety and binge eating through a laboratory experiment. Additionally, this study considered the individual differences of food consumption capacity while investigating the causal relationship between negative emotion and
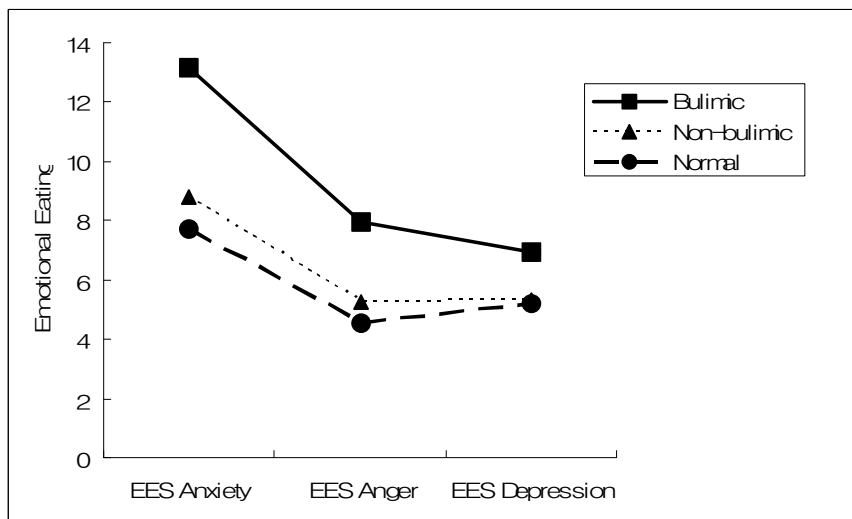

Figure 1. Mean emotional eating scores (anxiety, anger, and depression) for non-bulimic, bulimic, and normal eaters

binge eating.

Method

Participants and Experimental Design

Twenty-four non-clinical bulimic eaters and twenty-eight normal eaters participated in the laboratory experiment. They were all randomly selected out of the bulimic and normal groups in Study I respectively. Participants were randomly assigned to Low Anxiety (LA) or High Anxiety (HA) conditions. Additionally, high anxiety with no food consumption group was added as a control group.

With an alpha level of .05, there were no stat-

istically significant mean differences among the five conditions for age, as shown in Table 3. However, there were more people in dieting among bulimic groups than normal groups. Table 3shows the cell means and standard deviations for age, dieting, BMI, bulimic scores, and anxiety scores as a function of anxiety conditions.

Procedure

Participants were instructed to come without having a meal for four hours before the experimental session. They met in a classroom at the beginning of the experimental session. Participants were asked to sign a consent form to agree to take part in the study. Then, they were

Table 3. Demographic Information, Bulimic scores and Anxiety scores for Each group

| Variable | Bulimic | | | Normal | | *F*-test | Post-hoc comparison |
	HA Food n=10 A Mean (SD)	HA No Food n=4 B Mean (SD)	LA Food n=10 C Mean (SD)	HA Food n=14 D Mean (SD)	LA Food n=14 E Mean (SD)		
Age	20.22 (2.77)	20.33 (2.31)	22.78 (2.05)	21.21 (1.76)	22.14 (1.35)	0.250[1]	
Dieting	0.56 (0.53)	0.67 (0.58)	0.56 (0.53)	0.00 (0.00)	0.08 (0.28)	6.140[***,1]	B > E, D
BMI	21.13 (2.22)	21.46 (2.05)	21.59 (1.90)	20.00 (2.19)	18.95 (1.23)	4.640[*,1]	E < C, B
Bulimic Score	97.00 (6.23)	89.00 (12.17)	97.75 (11.07)	45.79 (9.74)	51.50 (10.45)	66.130[***]	A,C,B > E,D
Anxiety Scores							
Before Food Consumption	43.60 (7.66)	49.25 (6.08)	32.10 (5.43)	39.79 (8.15)	26.79 (3.36)	17.290[***]	D > C,E A> C,E B > D, C,E
After Food Consumption	46.00 (14.09)	51.00 (8.49)	34.50 (4.93)	41.57 (11.35)	32.93 (4.95)	5.200[*]	B > C,E

Note. BMI = Weight / Height^2 N = 52. [1] *Non-parametric statistic* ** *p*<.05, **p*<.01, ***p*<.001.

asked to answer demographic questions (i.e., age, dieting, height, and weight) and affect information.

The experiment consisted of two phases. In the first phase, the initial amount of food (i.e., popcorn) that participants consumed without any anxiety manipulation was measured. This was to determine the baseline food consumption for each participant. The experimenter provided two types of popcorn (A and B, 100g of each type) and a questionnaire with filler questions regarding participants' taste preference between the two types of popcorn provided. Participants were asked to eat as much of the two types of popcorn as they wanted and then answer the questions.

In the second phase, in order to temporarily in-

Table 4. Effects of Anxiety on the Eating Behavior of Bulimics and Normals

| | Bulimics | | | | | | Normals | | | | | | | Kruskal–Wallis test | Post-hoc comparison |
| | High–anxiety food (n=10) | | | Low–anxiety food (n=10) | | | High–anxiety food (n=14) | | | Low–anxiety food (n=14) | | | | |
	Mean	SD	Rank mean	Mean	SD	Rank mean	Mean	SD	Rank mean	Mean	SD	Rank mean		
(P)	6.40	3.57	33.75	4.03	1.76	21.50	4.71	3.77	23.43	5.00	2.54	27.64	4.122	
(C)	35.20	33.93	36.60	39.20	31.12	19.90	24.64	13.78	12.75	52.29	17.89	30.89	21.34***	A>B,C>D>C
(C–P)	66.70	32.38	37.00	35.20	30.31	20.15	19.93	10.91	12.25	47.29	17.24	30.93	22.64***	A>B,C>D>C

Note. (P) The amount of popcorn eaten *before* anxiety instruction (C) The amount of cookies eaten *after* anxiety instruction (C-P) The amount of cookies eaten *adjusted,* * $p<.05$, ** $p<.01$, ***$p<.001$.
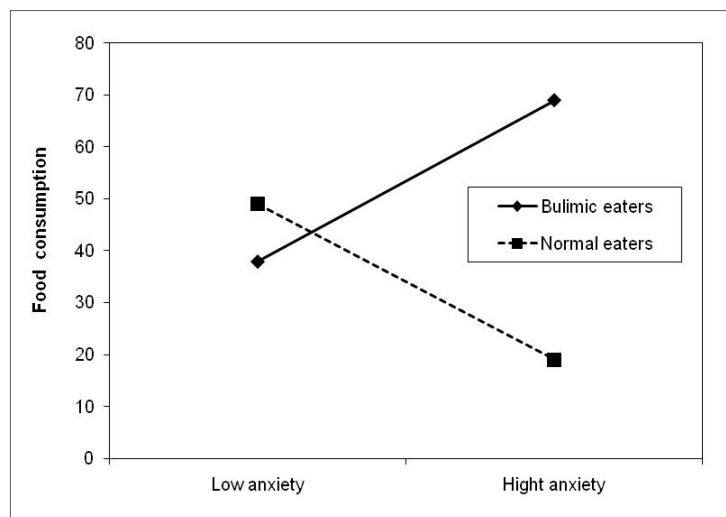

Figure 2. Interaction effect between eating behavior and anxiety

duce a high anxiety condition, a common method used by social and cognitive psychologists was used (e.g., McKenna, 1972; Pine, 1985). In the high anxiety condition, participants were informed that they would undergo a mild electrical skin test later. In the low anxiety condition, participants were not told they would receive any electrical skin test, but would have another taste-preference test afterwards.

Then, they were asked to complete a questionnaire consisting of 18 mood manipulation check questions. Next, participants were given 15 minutes to consume two types of cookies (A and B), as much as they wanted, and decide which one they preferred more while completing another taste questionnaire. Then participants were debriefed and released.

Mood Measure

Initial anxiety measure. The initial anxiety level before the experimental manipulation was measured with a modified version of the multiple affect adjective checklist (Gotlib & Meyer, 1986). The modified version asked respondents to indicate, on a scale ranging from 1 (not at all) to 7 (very much), the degree to which they experienced 18 different feelings (e.g., worried, upset, satisfied). In the current study, alpha coefficient for the depression subscale (10 items) was .85 and for the anxiety subscale (8 items) was .84. Only the anxiety scale was used for statistical analyses.

Manipulation check. The same 18 different feelings used to measure initial anxiety level were used as a manipulation check. In order to reduce the possibility that the mood manipulation check itself led participants to guess the true purpose of the study and relate their tasks to a mood state, they were presented in a different order.

Dependent Measure

The amount of food consumption after the anxiety manipulation was measured by calculating the difference value between cookie consumption and popcorn consumption (i.e., the baseline food consumption capacity). This individual difference of the baseline consumption amount was used to control the individual differences. The two brand cookies used in this study were determined via pre-experimental ratings from a pilot test study. They were the kinds most favored by college females. The amount of popcorn and cookies consumed by participants were measured by a digital scale.

Results

Initial Analyses

Data screening.   Prior to the main analyses, whether or not the data satisfied the multivariate normality assumption was tested for all groups. According to Shaphiro-Wilk's test, the variables that satisfied normality assumption ($p > .05$) for all groups (i.e., bulimic and normal) were BMI, bulimic scores, and anxiety scores. Accordingly, non-parametric analyses were used for age, dieting, and the amount of cookies eaten.

Manipulation check. Before testing the influence of anxiety on the amount of cookies eaten, it was examined whether participants in a high-anxiety condition experienced higher anxiety than in a low-anxiety condition. Table 3 shows that participants in the high-anxiety condition reported higher levels of anxious mood than did participants in the low-anxiety condition, F (4, 47) = 17.290, p < .001. Thus, there is strong evidence that the anxiety manipulation had its desired effect.

Main Analyses

Binge eating (bulimic vs. normal group) and anxiety (high vs. low) conditions for food consumption were compared. Table 4 indicates that: (a) the results of the Kruskal-Wallis test indicated that there was a statistically significant difference in the amount of each group's cookie consumption (χ^2(4, N =52) = 21.343, p <.001) and (b) cookie consumption subtracted by popcorn consumption (χ^2(4, N =52) = 22.635, p <.001). The amount eaten in the high-anxiety condition was higher than the low-anxiety condition in bulimic eaters. However, the amount eaten following the low-anxiety instruction was higher than the high-anxiety instruction in normal eaters, as shown in Figure 2. Furthermore, the ANOVA analysis result showed that there was a statistically significant interaction effect between eating behavior and anxiety (F(4, 45) = 33.960, p<.001). This result indicated that bulimic eaters eat more when they are irritated or worried, but normal eaters eat less in the same situation.

Discussion

In this study, the relationship between binge eating and negative emotions has been examined. The purpose of Study 1 was to examine the influences of global negative affective states and specific negative emotions (i.e., anxiety, anger, and depression) on eating behaviors. First, it was found that emotional eating had a higher positive correlation with bulimic symptoms than with dieting and oral control. Second, it is shown that emotional, restrained, and external eating patterns, in that order, explained binge eating. Third, anxiety had stronger effects on binge eating than anger and depression when comparing the amount of mean differences between the bulimic group and the normal group, and between the bulimic and non-bulimic groups. It is suggested that anxiety was the most distinctive of the three emotions.

The aim of Study 2 was to investigate the influence of the anxiety level on binge eating of the bulimic and normal groups through a laboratory experiment. It was found that there was a significant difference in the weight of cookies consumed between the bulimic and the normal group while participants were in a high-anxiety condition. Bulimics consumed more cookies than normal eaters, especially when the bulimic group was in a high- anxiety condition.

There were some limitations in this study:

First, all participants were non-clinical, female, university students. It would be beneficial to examine whether clinically diagnosed bulimics would show the same results. Second, the participants' preferences for the cookies were not measured. However, the participants randomly assigned to the different conditions showed the mean differences across experimental conditions. Moreover, the two brands of cookies used in this study were determined via pre-experimental ratings from a pilot test study, and they were the kinds most favored by college females.

In spite of the above limitations, however, this study demonstrated: (a) the correlations between the general negative affective states and binge eating for Korean college females and (b) the differential effects of specific negative emotions on binge eating. This study also extends its scope to participants who are bulimic eaters, while previous studies only showed the causal relationships between negative emotions and obese eaters (or restrained eaters). Moreover, in the present study, the causal relationship was examined, whereas the previous studies employed self-observation and self-reporting methods.

It is implied from Studies 1 and 2 that: (a) under highly negative emotional conditions such as anxiety, anger, and depression, a warning should be given to the potential bulimic group regarding the danger of binge eating and (b) the development of clinical training to control negative emotions among binge eaters is desirable.

References

American Psychiatric Association (APA) (1987). *Diagnostic and statistical manual of mental disorders: DSM III-R.* (3rd ed. rev.). Washington D. C.

American Psychiatric Association (APA) (1994). *Diagnostic and statistical manual of mental disorders: DSM IV* (4th ed.). Washington D. C.

Arnow, B., Kenardy, J., & Agras, W. S. (1995). The Emotional Scale: The development of a measure to assess coping with negative affect by eating. *International Journal of Eating Disorders, 18*, 79-90.

Chua, J. L., Touyz, S., & Hill, A. J. (2004). Negative mood-induced overeating in obese binge eaters: an experimental study. *International Journal of Obesity, 28,* 606-610.

Cohen, I. T., Sherwin, B. B., & Fleming, A. S. (1987). Food cravings, mood and the menstrual cycle. *Hormones and Behaviour, 21,* 457-470.

Croll, J., Neumark-Sztainer, D., Story, M., & Ireland, M. (2002). Prevalence and risk and protective factors related to disordered eating behaviors among adolescents: Relationship to gender and ethnicity. *Journal of Adolescent Health, 31,* 166-175.

Davis, R., Freeman, R. J., & Garner, D. M. (1988). A naturalistic investigation of eating behavior in bulimia nervosa. *Journal of Consulting and Clinical Psychology, 56,* 273-279.

Dunn, E. C., Neighbors, C., & Karuner, M. E. (2003). Assessing readiness to change beinge eating and compensatory behaviors. *Eating behaviors, 4,* 305-314.

Fairbun, C. G., & Wilson, G. T. (1993). *Binge eating; Nature, assessment and treatment*. New York: Guilford Press.

Fairburn, C. G. (1981). A cognitive-behavioral approach to the management of bulima. *Psychological Medicine*, *11*, 707-710.

Ga, I., & Hyun, M. (2006). The relationships among family dysfunction, shame proneness, perceived social support, and bulimic behaviors in college females. *The Korean Journal of Health Psychology*, *11*, 209-223.

Garner, D. M., Olmsted, M. P., & Garfinkle, P.E. (1982). The eating attitudes test: Psychometric features and clinical correlates. *Psychol Med 12*, 871-876.

Gotlib, I. H., & Meyer, J. P. (1986). Factor analysis of the multiple affect adjective checklist: A separation of positive and negative affect. *Journal of Personality and Social Psychology, 50*, 1161-1165.

Heatherton, T. F., & Baumeister, F. F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin, 110,* 86-108.

Herman, C. P., & Polivy, I. (1980). Restrained eating. In A. B. Stunkard (ED.), *Obsesity*. Philadelphia: Saunders.

Klerman, G. L., Weissman, M. M., Rounsaville, B. J., & Chevron, E. S. (1984). *Interpersonal psychotheraphy of depression*, New York: Basic Books.

Kong, S. (2001). A study on binge eating, eating attitude, self-esteem and depression of female binge eaters. *Journal of Korean Society of Maternal and Child Health, 5*, 185-197.

Laberg, J. C., Wilson, G. T., Eldredge, K., & Nordly, H. (1991). Effects of mood on heart rate reactivity in bulimia nervosa. *International Journal of Eating Disorders, 10,* 169-178.

Lee, S. (2007). The evaluation of dual-pathway model on bulimia: measurement of negative emotion experience and need of distinguishing negative emotion regulation from negative emotion. *The Korean Journal of Clinical Psychology, 26,* 883-902.

Lingswiler, V. M., Crowther, J. H., & Stephens, M. A. P. (1989). Affective and cognitive antecedents to eating episodes in bulimia and binge eating. *International Journal of Eating Disorders, 8,* 533-539.

Lynch, W. C., Everingham, A., Dubitzky, J., Hartman, M. & Kasser, T. (2000). Does binge eating play a role in the self-regulation of moods? *Integrative physiological and Behavioral Science, 35,* 298-313.

McKenna, R. J. (1972). Some effects of anxiety level and food cues of the eating behavior of obese and normal subjects: A comparison of the schachterian and psychosomatic conceptions. *Journal of Personality and Social Psychology, 22,*311-319.

Pine, C. J. (1985). Anxiety and eating behavior in obese and nonobese American Indians and white Americans. *Journal of Personality and Social Psychology*, *49,* 774-780.

Rhee, M. K., Go, Y. T., Lee, H.K., Whang, E. J., Lee, Y. H. (2001). A validation of the Korean version of Eating Attitudes Test-26. *Korean Journal Psychosom Med, 9,* 153-163.

Rhee, M. K., Lee, Y. H., Park, S. H., Sohn, C. H., Chung, Y. C., Hong, S. K., et al. (1998). A standardization study of the Eating Attidues Test-26: Korean Version (KEAT-26): Reliability and factor analysis. *Korean Journal Psychosom Med, 6,* 155-175.

Ruderman, A. J. (1986). Dietary restraint: a theoretical and empirical review. *Psychological Bulletin, 99,* 247-262.

So, W. (2000). *The effects of negative emotions on binge eating among bulimics: Comparisons*

among anger, anxiety, and depression. Master's thesis. Korea University, Seoul, South Korea.

Swinbourne, J. M., & Touyz, S. W. (2007). The co-morbidity of eating disorders and anxiety disorders: A review. *European Eating Disorders Review, 15,* 253-274.

Thelen, M. H., Farmer, J., Wonderlich, J., & Smith, M. C. (1991). A revision of the Bulimia Test: BULIT-R. *Psychological Assessment, 3,* 119-124.

Thelen, M, H., McLaughlin-Mann. L., Pruitt, J., & Smith, M. (1987). Bulimia: Prevalence and component factors in college women. *Journal of Psychosomatic Research, 31,* 73-78.

Van Strien, T., Frijters, J. E., Bergers, G. P., & Defares, P. B. (1986). The Dutch eating behavior questionnaire for assessment of restrained, emotional and external eating behavior. *International Journal of Eating Disorders, 5,* 295-315.

부적 정서가 신경성 폭식자의 과식행동에 미치는 영향: 분노, 불안 및 우울의 비교

소 원 현

뉴욕주립대학교 (올바니) 심리학과

본 논문은 부적 정서가 폭식자의 과식 행동에 미치는 영향을 연구 검토한 것이다. 연구 1에서는 분노, 불안 및 우울 각각의 부적정서들이 폭식자의 과식행동에 미치는 효과를 자기보고식 질문지 법을 통하여 알아보았으며, 연구2 에서는 불안과 폭식행동의 인과관계를 실험실 연구를 통해 증명하였다. 서울시내 3개 대학에 재학 중인 여학생 357명을 대상으로 신경성 폭식증 검사 개정판과 한국판 식사 태도 검사, 섭식 행동 유형 척도 검사, 정서적 섭식 척도 검사를 실시하여, 그 결과 부적 정서 (불안, 분노, 우울)는 폭식 행동과 유의미한 상관관계가 있으며, 또한 다양한 부적 정서들 중 불안이 폭식을 가장 잘 설명해 주는 것으로 나타났다. 연구 2에서는 52명의 신경성 폭식자 및 정상 섭식인을 대상으로 한 실험 연구를 통하여 불안과 폭식행동의 인과관계를 검증하였다. 낮은 불안조건에서는 두 집단이 통계적으로 유의미한 과자섭취량의 차이를 보이지 않았으나, 높은 불안 조건에서는 폭식 집단에서 유의미하게 더 많은 양의 과자를 섭취한 반면, 정상 집단은 오히려 섭취량이 감소하였다.

주요어: 부적 정서, 불안, 분노, 우울, 섭식행동, 폭식행동