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MALADAPTIVE EATING BEHAVIORS AND DEPRESSIVE SYMPTOMS IN
OBESE AND NORMAL WEIGHT DIETERS AND NON-DIETERS


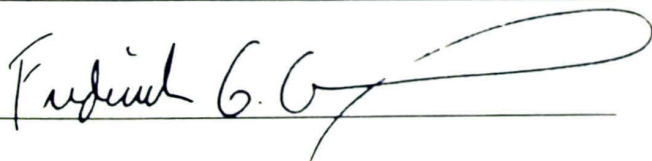
REBECCA GAYLE TOWNSEND

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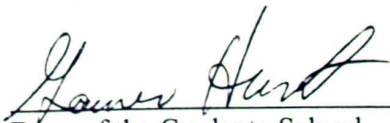
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Dr. Janice D. Martin, Major Professor

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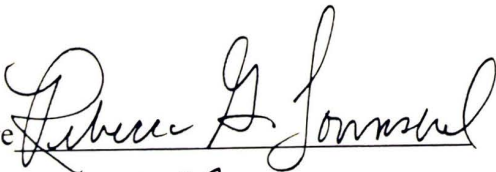

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MALADAPTIVE EATING BEHAVIORS AND DEPRESSIVE SYMPTOMS IN
OBESE AND NORMAL WEIGHT DIETERS AND NON-DIETERS

A Thesis
Presented for the
Master of Arts
Degree
Austin Peay State University

Rebecca Gayle Townsend

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ABSTRACT

The current study was designed to explore the relationship between maladaptive eating behaviors and depressive symptoms in persons dieting and not dieting. It was hypothesized that there would be significant differences between maladaptive eating behaviors and depressive symptoms across groups of dieting and non-dieting participants and that there would be a positive correlation between maladaptive eating behaviors and depressive symptoms across all participant groups. It was further hypothesized that the obese dieters group would have lower maladaptive eating behaviors and depressive symptoms than the non-dieting obese participants and that the obese participant groups would have higher maladaptive eating behaviors and depressive symptoms than participants in the normal weight group.

The participants for this project were recruited from members of commercial and medical/hospital based weight loss programs, college students and volunteers from the community. Participants were divided into three groups. Control group one consisted of thirty-nine overweight persons dieting; control group two had thirty-five overweight persons not dieting; control group three consisted of forty-eight persons who were not overweight. A series of analyses of variance (ANOVA's) were used to determine significant ($\alpha = .05$) differences between groups.

Results suggest that there is a continuum of self-reported maladaptive eating behaviors and depressive symptoms from dieting obese persons to non-dieting obese persons to normal weight persons. The only significant difference in either dimension is between obese dieters and normal weight participants. Further investigations suggest

that there is significantly more self-reports of maladaptive eating and depressive symptoms between dieters, obese or normal weight, and non-dieters who are either obese or normal weight.

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INTRODUCTION

Eating is the means by which humans acquire nutrients which physically enable their bodies to function. We eat in order to survive. However, in the twentieth century eating has become a social issue as well as a biological necessity and has been associated with several clinical diagnoses, most of which are viewed in a negative manner by society. Anorexia Nervosa (AN), Bulimia Nervosa (BN), Binge Eating Disorder (BED), and Obesity have rich research histories. Many studies have found that people suffering from these conditions experience a great deal of negative feelings (Andrews & Jones, 1990; Brownell & Wadden, 1991; Eldredge & Agras, 1996; Goldstein, Goldsmith, Anger, & Leon, 1996).

Maladaptive eating behavior has many varying definitions. These definitions are readily manifested in the criteria employed for diagnosing eating disorders. However, studies have shown that persons who do not meet criteria for an eating disorder may also display maladaptive eating behaviors (Grilo & Shiffman, 1994; Johnson, Schlundt, Barclay, Carr-Nangle, & Engler, 1995). Other studies have shown that there is a difference in degree of maladaptive eating behaviors experienced in those who have been clinically diagnosed with an eating disorder and those who have not (Goldfein, Walsh, LaChaussee, Kissileff, & Devlin, 1993; Marcus, Wing, Hopkins, 1988).

The plethora of maladaptive eating behaviors is exhibited in a unique pattern for each individual. Some individuals may experience strong emotions, positive or negative, connected with eating. Others may exhibit behaviors related to purging or excessive exercise after they eat, have guilt feelings after eating, feel they cannot control their eating,

or will not eat in front of others (Eldredge & Agras, 1996; Fairburn, 1995; Lingswiler, Crowther, & Stephens, 1989).

One of the many etiological causes of maladaptive eating behaviors has been found to be the emotions one is experiencing (Johnson et al., 1995; Lingswiler et al., 1989). Much research suggests that negative emotions and depressive symptoms are present prior to a manifestation of maladaptive eating behaviors (Andrews & Jones, 1990; Eldredge & Agras, 1996). Although not only obese participants have been found to experience negative feelings, obese participants have been cited as having more intense urges to satiate their emotions by eating (Brownell & Wadden, 1991; Fitzgibbon, Stolley, & Kirschenbaum, 1993; Golstein et al., 1996).

Purpose

The purpose of the current study is to explore the relationship between maladaptive eating behaviors and depressive symptoms in a sample of obese persons who are actively trying to lose weight, a sample of obese persons not actively trying to lose weight, and a sample of normal weight participants.

Research Questions

1. Will there be significant differences between maladaptive eating behaviors and depressive symptoms across groups of dieting participants and non-dieting participants ($\alpha = .05$)?
2. Will there be a significant positive correlation between maladaptive eating behaviors, as measured by the Maladaptive Eating Behaviors Scale (MEBS; Hawkins, McDermott, Seeley, & Hawkins, 1992), and depressive symptoms, as measured by the Beck

Depression Inventory (BDI; Beck, 1967), across all participant groups ($\alpha = .05$)?

3. Will the dieters group have significantly lower maladaptive eating behaviors, as measured by the MEBS, and depressive symptoms, as measured by the BDI ($\alpha = .05$) when compared to the non-dieting group members with high BMI's?
4. Will the obese dieters group and obese non-dieters group have significantly higher maladaptive eating behaviors, as measured by the MEBS, and depressive symptoms, as measured by the BDI, than participants in the normal weight group ($\alpha = .05$)?

Hypotheses

1. There will be significant differences between maladaptive eating behaviors and depressive symptoms across groups of dieting participants and non-dieting participants ($\alpha = .05$).
2. There will be a significant positive correlation between maladaptive eating behaviors, as measured by the MEBS, and depressive symptoms, as measured by the BDI, across all participant groups ($\alpha = .05$).
3. The dieters group will have significantly lower maladaptive eating behaviors, as measured by the MEBS, and depressive symptoms, as measured by the BDI ($\alpha = .05$) when compared to the non-dieting group members with high BMI's.
4. The obese dieters group and obese non-dieters group will have significantly higher maladaptive eating behaviors, as measured by the MEBS, and depressive symptoms, as measured by the BDI, than participants in the normal weight group ($\alpha = .05$).

CHAPTER II

REVIEW OF THE LITERATURE

The research reviewed revealed the depth of factors which contribute to maladaptive eating behaviors and depressive symptoms in persons who are actively trying to lose weight and persons who are not actively trying to lose weight. The literature reviewed did conclude that there does exist a relationship between maladaptive eating behaviors and depressive symptoms, but the degree of the relationship is dependent upon confounding factors. These factors include the existence of eating disorders, level of obesity, age onset of obesity, emotions experienced prior to and after eating, and other psychological stressors.

The studies examined included participants who were involved in commercial weight loss programs, medical model weight loss programs, and behavior modification programs. The participants covered a wide age range, but most of the participants in the various studies were females.

Maladaptive eating behaviors/emotional eating

The literature reviewed demonstrated that there appears to be a relationship between negative emotions and the frequency of maladaptive eating behaviors. Although the research found that negative emotions seemed to cause more maladaptive eating behaviors, it was also revealed that more maladaptive eating behaviors produced more intense negative emotions, thus creating a cycle.

Eldredge and Atras' (1996) study included 156 participants who were enrolled in a commercial weight loss program. The study was concerned with two specific issues in relation to weight control, concern regarding body appearance and emotional eating. The

participants were interviewed and separated into three groups: 35 were labeled as having BED, 53 were classified as having an Eating Disorder, Not Otherwise Specified, and 68 participants without any signs of eating disorders were placed in the control group. Self report measures were used to determine whether the obese persons were over concerned about their weight and body shape. Another important issue addressed was whether eating in response to negative emotions was different for those participants who were diagnosed with BED than for those who were non-bingers but also obese. After collecting the data from four self-report surveys, Eldredge and Agras found that participants with BED had a greater concern about their weight and body shape and tended to eat in response to their emotions more than obese participants who were classified as non-bingers.

Andrews and Jones (1990) investigated variables related to eating behaviors. Participants were 29 females who were members of Weight Watchers, a commercial weight loss program. The researchers requested participants to complete two forms on five out of seven consecutive days. The forms were to be completed after a meal and after a snack. The participants used the forms to rate their feelings before eating and after eating, and to indicate the source of the feelings if they could. On the same form, participants evaluated the food's attractiveness, its visibility and availability, and whether the participant ate alone or with someone. Ninety-five percent of the participants were aware of the events which were related to their feelings and caused eating. As emotions intensified, participants reported that their intake of high caloric non-nutritional food increased, but as more food was eaten, the more negative their feelings and emotions

became. The authors concluded that there seemed to be a cycle in the participants' eating behaviors. They found that excessive eating caused negative feelings which in turn caused more eating, leading to more negative feelings. The limitations of the study appear to be the low number of participants and the measures which were used were not thoroughly explained nor empirically validated.

Marcus et al. (1988) compared 68 obese females on mood, eating behaviors, and reactions to behavior modifications in a weight control program. The study examined negative emotions and maladaptive eating behaviors. The participants were divided into three categories, depending upon their degree of bingeing. The three groups were participants with little or no problems, moderate problems, and serious problems. The participants were placed into groups after taking a self-report measure, the Binge Eating Scale (BES; Gormally, Black, Datson, & Rardin, 1982). The study revealed that participants who dropped out of the weight control program reported more serious maladaptive eating behaviors, such as bingeing episodes. It was also found that persons who binge and had lost weight on the program gained weight back more rapidly than the other participants. The researchers concluded that participants who were obese and had binge eating problems had more abnormal eating behaviors than the obese non-bingeing group.

Lingswiler et al. (1989) investigated the emotional and somatic results of binge eating episodes. The study consisted of 54 women who were interviewed using DSM-III diagnostic criteria for BN and then divided into three groups. There were 19 participants with BN, 15 participants with non-purging binges, and 20 normal control participants.

The participants' task was to rate 21 emotional and somatic states experienced after every eating episode for one week. The results revealed that the two eating disorder groups experienced significantly more negative emotions and somatic symptoms after a binge episode than the control group did following any of their eating episodes. There was also evidence that the negative feelings of the clients with BN and clients with BED were different if the binge involved a participant's loss of control over the amount of food consumed. For participants with BN, it was found that all eating episodes induced negative responses, regardless of the sense of control. For clients with BED, only the times when they ate uncontrollably did they experience negative emotional and somatic repercussions.

Johnson et al. (1995) explored the maladaptive and adaptive eating behaviors of 70 participants, 44 classified as obese binge eaters and 26 as normal weight without eating disorders. All participants were instructed to keep standardized food diaries which addressed several different variables: meal, time of day, day of week, presence of others, location, mood, hunger, and nutritional value of the food. The results indicated that the participants with bingeing episodes were more likely to eat alone and at home than the other participants. They also showed more evidence of being emotionally disturbed and less likely to experience physiological hunger prior to eating. Johnson and colleagues also found that being aware of their moods allowed the participants to predict that one binge would likely be followed by another. Thus, the authors concluded that a binge episode actually increases the chances of subsequent binges, suggesting that emotional hunger is a better predictor of eating than physiological hunger.

In a critical analysis of emotions and eating behaviors of persons who are obese, Allison and Heshka (1993) contend that persons who are obese may report that their eating binges are induced by psychological stress because society has accepted this as a cause of obesity. The authors believe that exposure to weight reduction programs encourages overweight people to view stress as a primary reason they have maladaptive eating behaviors. Allison and Heshka also state that treatment programs which teach that eating may be emotionally triggered are perhaps causing this to actually happen. People who are obese learn to eat when they are emotionally upset, thus creating a self-fulfilling prophecy. While this may be a possibility, society also views obesity as a control problem; people who are overweight do not have enough self-control to stop eating. If this societal rule is felt by people who are obese, they may react by not eating in public because they do not want to be embarrassed. Delaying the satisfaction of their hunger may cause them to overeat once they are alone, triggering negative feelings about themselves.

Fitzgibbon et al.(1993) compared psychological distress among three groups of 59 participants each, people who were obese and seeking treatment, people who were obese and not in treatment, and people of a normal weight. All participants completed self-report measures which assessed characteristics of borderline personality disorder, psychopathology, propensity for binge eating, coping skills for stressful situations, and eating behaviors. The results suggested that people who are obese and seeking treatment had a higher rate of psychological distress. Fitzgibbon and colleagues contended that this group may have more personal adversity in weight loss programs than the other groups. The obese treatment group also revealed more episodes of binge eating. None of the

participants in the obese group seeking treatment met the criteria for any psychological disorders. One limitation of the study involves the manner in which the participants were classified as obese and normal weight. The researchers employed the Metropolitan Life Insurance Company height and weight charts from 1983. A more accurate measure of obesity is the Body Mass Index (BMI) formula (Fairburn, 1995).

Ryden and Johnsson (1989) examined a personality measure, a mood check list, and a defense mechanism test for psychological vulnerabilities and eating behaviors in people who were obese. After gathering data from 30 female participants, the results of the data suggested that overeating occurs due primarily to anxiety and poor impulse control. Since the study took place in Sweden and the measurements used in the study are unfamiliar in the United States, coupled with the small number of participants employed by the study, the generalizability appears limited to the Swedish population.

Wilson, Nonas, and Rosenblum (1993) assessed binge eating patterns in 170 participants who were obese. Seventy-one were males and 99 were females, all of whom were participants in a weight control program affiliated with a hospital. The participants were given a series of questionnaires and surveys to determine their history of eating disorders, weight history, history of alcohol/drug and cigarette use, and familial history of obesity and depression. Wilson and colleagues found that the participants who were classified as binge eaters expressed more feelings of life dissatisfaction and poor self-image. The binge eater group also appeared to think about food more often and had tendencies to feel isolated from society due to their eating behaviors.

Grilo and Shiffman (1994) examined the emotional reactions of people who have

had episodes of binge eating. The 50 female participants were between the ages of 19 and 45. The participants were initially interviewed to determine the pre-existence of binge eating behaviors. The participants were then asked to report to the researchers by phone immediately following a binge. At that time they were interviewed concerning types and quantities of food they had consumed. This was to monitor the amount of calories consumed, to determine the intensity of the binge. The participants were asked if they had feeling of loss of control over their eating, and what the environmental, social, and emotional setting was like during the binge. Grilo and Shiffman found that most of the participants were not physically hungry prior to a bingeing episode and that most of the participants attributed the binges to internal factors, which in turn appeared to cause guilt feelings after the binge. They concluded that the participants who experienced intense internal attributes and guilt before and after a binge were more likely to have another bingeing episode sooner.

Gormally, Black, Datson, and Rardin (1982) developed two measurements to aid in the assessment of the prevalence of binge eating in patients who are obese. The study had two sample groups. The first group included 65 females, while the second group consisted of 32 females and 15 males. All of the participants were between the ages of 24 and 67. The majority were middle class and white. The Binge Eating Scale (BES) contained 16 characteristics of binge eating, including thoughts, feelings, and behaviors associated with binge episodes. The Cognitive Factors Scale (CFS) was devised to measure whether a person had unrealistic standards for dieting and maintaining a diet. The researchers determined that their instruments were beneficial in assessing binge eating

behaviors in people who are obese. They found that one of the differences in the severity of binges was associated to feelings of control, with a complete lack of control occurring prior to a large binge. Gormally et al. noted that an “all or nothing” mind set toward dieting often leads to more bingeing episodes, with the binge eater feeling as if she/he has failed. Goldfein et al. (1993) investigated the eating behaviors associated with BED. Participants included 10 women who met the proposed DSM-IV criteria for BED and 10 women who denied any binge episodes, present or past. The participants were served meals on three nonconsecutive days after they had answered questionnaires regarding their weight history, dietary restraint, concern about weight, and emotions related to binge episodes. The meals were served in a laboratory setting, with the foods being measured before and after the meals. Before one meal the participants were told to eat normally, without restriction or overeating. The two other meals were served with the instructions to eat as much as possible, without regard to overeating. There were significant differences found on the BES, with the BED group reporting significantly higher scores. The results suggested that the group with BED had higher caloric consumptions at the meals and their eating time was much longer than the group without BED. Goldfein and colleagues also found that the group with BED reported higher rates of dietary restraint, hunger, disinhibition, and weight fluctuation. The meals were served in a laboratory setting, which may have deterred the groups from eating what they may have in the privacy of their homes. Current research suggests that many binge eaters eat in private due to embarrassment.

Depressive symptoms

The literature examined concerning depressive symptoms concluded that the higher level of obesity an individual has the higher the level of co-existing depressive symptoms. The studies also found that persons who experience weight cycling in their efforts to lose weight possess higher levels of depressive symptoms. One study concluded that maladaptive eating behaviors and obesity may contribute to the onset of Major Depressive Disorder.

Goldstein et al. (1996) examined differences in presenting psychiatric symptoms in 66 participants who were enrolled in a commercial weight loss program and 52 participants who were in general outpatient medical treatment for obesity. The ages of the participants ranged from 18 to 65. The researchers interviewed the participants using several self-report measures, including a depressive symptoms scale, a body shape questionnaire and a demographic questionnaire. The results suggested that participants enrolled in a commercial weight loss program were experiencing a higher degree of depressive symptoms than those being treated in a medically based program. They also found that depressive symptoms were positively correlated with the degree of obesity in all participants. The participants in a commercial weight loss program expressed more body dissatisfaction than the other participants. Neither group had elevated levels of anxiety as measured by the Spielberger State and Trait Anxiety Inventories (SSTAI; Spielberger & Krasner, 1989). The authors concluded that persons who are overweight and have existing depressive symptoms may believe that weight loss would alleviate their feelings of depression, as they attribute their despondency to their weight issues. One limitation of

the study is the need for a follow-up to determine if depressive symptoms were reduced with weight loss.

In an overview of treating and assessing obesity in individuals, Brownell and Wadden (1991) discuss the frequency of literature citations in which people of all body types have reported that they overeat in privacy to avoid feelings of shame and societal disapproval. The literature review also reported that 25-40% of the participants in commercial weight loss programs engage in binge eating on a regular basis. Brownell and Wadden clarified that the studies reviewed confirmed findings that the same participants who binge eat appear to show more depressive symptoms and are also more likely to drop out of weight loss programs.

Fitzgibbon and Kirschenbaum (1991) investigated the possible correlation between binge eating, psychological distress, and eating patterns in persons who are obese. The participants for the study included 133 females and 34 males who were new members of People at Risk Weight Control Program. The participants were administered a number of self-report measures which assessed their eating behaviors, psychological distress, physical exercise, and weight history. The examination of data revealed that two variables were significantly correlated with eating behaviors either a severe present and historical pattern of binge eating and/or elevated psychological distress.

Foreyt and colleagues (1995) examined the psychological correlates of weight fluctuation in 246 persons at a normal weight and 251 persons at an obese weight. Foreyt and colleagues hypothesized that those persons who evidenced weight fluctuations would reveal a higher level of depression and more life stress than those whose weight did not

tend to fluctuate. The participants were asked for historical information including their weight history, present height and weight, and gender. Other self-report measures included a weight cycling questionnaire, a survey which addressed the participants' well-being and psychological stressors, a measure of depression, a scale to describe urges which lead to overeating behaviors, and a listing of life changing events. The results of the study suggested that overeating and weight gain were the result of psychological distress. It was also found that maladaptive eating behaviors may be a manifestation of negative life events and depression, thus causing weight gain and weight fluctuation. These results were present in both participants of normal weight and participants who are obese.

Faubel (1989) explored body image and depression in women who are obese and not in treatment for obesity. The sample consisted of three groups of 27, ranging in age between 20 and 60 years old. One group of participants were of a normal weight for their height and had no symptoms of an eating disorder; the second group of women were classified with early onset obesity, meaning they were obese before the age of 13. The third group was composed of women with adult-onset obesity, becoming obese at age 17 or later. Faubel was interested in three specific issues, body image, depression, and the age of onset of obesity. Weight groups were determined by the use of the 1983 Metropolitan Life Insurance Company weight and height chart. If a woman was 20% overweight she would be included in one of the obesity groups. The normal weight group included participants who were within 10% of normal weight for their height. The participants' body image was assessed using the Body Self-Relations Questionnaire (Winstead & Cash, 1983) and their level of depression was measured by the BDI. Faubel

found that there was not a significant difference between the groups for either body image or depression. The research concluded that although other studies have found that women who are obese are depressed and dissatisfied with their body, there exists a subgroup of obese women who are satisfied with their bodies and have no more depressive symptoms than the normal population.

Mussell and colleagues (1995) investigated binge eating habits, dieting practices, obesity, and mood disorders among participants who were in treatment for BED ($Ss=30$). Most of the participants were obese with their bingeing episodes beginning during adolescence. The participants were administered self-report measures which assessed the onset of their binge eating, dieting and obesity. Mussell and colleagues found that binge eating may begin for some during adolescence, but the psychological distress that has been associated with bingeing does not develop until adulthood. The authors also stated that there may be a connection between BED, obesity, and the development of Major Depressive Disorder.

Summary

The research reviewed revealed a relationship between maladaptive eating behaviors and depressive symptoms in dieting persons with obesity. This relationship was examined across several different settings, medical weight loss programs, commercial weight loss programs, and without dieting. Patients diagnosed with eating disorders, participants who were obese and not dieting, and persons without eating disorders but dieting have all been used as participants with different outcomes.

The studies examined suggested that people with eating disorders have higher levels of depressive symptoms and maladaptive eating behaviors, but this group does not necessarily include all persons who are obese. It appears that people who are obese and experience episodes of binge eating have higher levels of depressive symptoms and maladaptive eating behaviors. Some research suggests that people who are obese but not dieting have significantly higher levels of depression or maladaptive eating behaviors than the average population. However, other studies have found that this population of persons who are obese and not dieting do not differ in their levels of depressive symptoms and maladaptive eating behaviors from the average population. College students who are not actively trying to lose weight do not appear to have significant levels of maladaptive eating behaviors.

The current study evaluated three groups of participants to determine if there are significant differences in symptoms of depression and maladaptive eating behaviors. The groups were divided as participants who are obese and actively trying to lose weight, obese and not actively trying to lose weight, and participants who are not obese.

CHAPTER III

METHODS

Design

The current study used a three group post-test design. The three groups are participants who are overweight and actively trying to lose weight, participants who are overweight and not actively trying to lose weight, and participants who are not overweight. The three groups were compared on measures of maladaptive eating behaviors and depressive symptoms.

Participants

Participants for the current study were recruited from two groups. The first group, participants who are obese and dieting, were members of commercial and medical/hospital based weight loss programs in the local community. The participants in the study who are obese and not dieting and normal weight participants were University students and volunteers from the community.

Definition of Terms

Maladaptive Eating Behaviors: A number of behaviors engaged in prior to, during, or following an eating episode define a maladaptive eating behavior. These include eating as a result of an emotion, eating a large amount so quickly the person is unaware of the quantity or quality of the food(s), eating alone to avoid possible embarrassment, purging after eating, using laxatives before or after eating, feeling out of control around food and experiencing feelings of guilt about food. For the purposes of the current study, maladaptive eating behaviors will be measured by the Maladaptive Eating Behaviors Scale (MEBS; Hawkins, McDermott, Seeley, & Hawkins, 1992), with the higher the overall

score, the higher the manifested maladaptive eating behaviors.

Obesity: Obesity is a term that relates body weight to stature. For the purpose of the current study, obesity will be measured using the Body Mass Index (BMI) formula, $(\text{BMI} = \text{weight [in kg]} / \text{height [in cm]}^2)$. A BMI between 20-26 is considered a healthy weight, 27-30 is overweight, and 30 and over is significantly overweight (Fairburn, 1995). For the purpose of the current study, participants with BMI's of 27 or higher will be considered overweight.

Dieter Group: For the purpose of the current study, a person who is actively trying to lose weight will be defined as having a BMI of 27 or greater and engaged in a commercial or medically based weight loss program.

Non-Dieter Group: For the purpose of the current study, a person not actively trying to lose weight will be defined as one who is not engaged in any type of organized weight loss program. A person who is not currently following a published diet, taking any diet supplements (Slim Fast, Dexatrim, etc.) and not engaged in any commercial or medically based weight loss program will be included in this group.

Materials

A demographics questionnaire (Appendix A) was administered to every participant in the study. The questionnaire included information on age, weight, height, number of previous weight loss attempts, largest weight loss/weight gain, and weight cycling episodes.

The MEBS (Appendix B) was employed to measure maladaptive eating behaviors. The scale is comprised of seventeen statements. The participants will be requested to rate

how they relate to each one. The scoring criteria are as follows: 0 = rarely or none of the time (less than day); 1 = some or a little of the time (1-2 days); 2 = occasionally or a moderate amount of time (3-4 days); 3 = most or all of the time (5-7 days). The MEBS has an internal consistency of .91, using Cronbach's alpha (Hawkins, et al., 1992). The MEBS was given to 138 college-aged females and 96 college-aged males (mean age 20.1 years). Approximately 85% of the group was white, 1% black, and 14% were of other racial groups. After internal consistency was calculated, a stepwise analysis was performed. The results suggested that the female participants had four maladaptive eating behaviors which were correlated to depressive symptoms, as measured by the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), while the male participants had only one maladaptive eating behavior which correlated with depressive symptoms. The study determined that there were specific maladaptive eating behaviors which were related to depressive symptoms for females only.

The BDI (Beck, 1967) is a scale which measures depressive symptoms. It has been widely used in a number of studies. The BDI has also been employed in research related to eating and eating disorders and has been found to be an adequate measure of depressive symptoms in participants with eating disorders (Kuehnel & Wadden, 1994; Pulos, 1996). The BDI has 21 statements related to depressed mood. The BDI is scored using a Likert-type scale, and is totaled to find the degree to which the person is experiencing depressive symptoms. Kuehnel & Wadden employed the BDI in a study which examined binge eating, weight cycling and psychopathology. The BDI was used to examine the depressed mood of participants. More specifically, Pulos (1996) investigated

the validity of the BDI with participants who had been diagnosed with eating disorders. Pulos compared 93 women with bulimia and 17 women with anorexia with Beck's original normative sample. The results determined that the BDI is a valid measurement of depressive symptoms in females with eating disorders.

Procedure

Participants were recruited from local commercial and medical/hospital based weight loss programs, Austin Peay State University and volunteers from the community. Participants were informed about the purpose of the study and told that they had the right to refuse to answer any of the questions or discontinue their participation in the study at any time. Participants signed an informed consent statement prior to receiving the questionnaires. A demographic survey was passed out in group sessions to be filled out independently by the participants, followed by the BDI and MEBS. To ensure confidentiality, informed consent forms and questionnaires are maintained separately.

CHAPTER IV

RESULTS

The 122 participants ranged in age from 18 to 62, with the mean equal to 33.16. Among the participants, the majority were female 102 (83.61%) and 18 (14.75%) were male, 2 participants did not specify their sex (1.64%). With respect to race, 98 (80.33%) were Caucasian, 16 (13.11%) were African-American, 6 (4.92%) participants were of other racial groups, and 2 (1.64%) participants declined to report their race. Educational years for the participants ranged from 10 to 20 years, with the mean being 15.03. For the 122 participants, the mean BMI was 28.85. BMI's among participants ranged from 17 to 45.

The 122 participants were divided into three groups according to their BMI and their self-report of whether or not they were presently dieting. If a participant had a BMI ≥ 27 , she or he was placed in a group classified as obese. The group of obese dieters had a total of 39 participants (BMI (\underline{M} = 32.74, \underline{SD} = 5.15)). Thirty-five participants fell in the group of obese non-dieters (BMI (\underline{M} = 32.94, \underline{SD} = 4.92)). The remaining 48 participants had a BMI ≤ 26 , and were classified as normal weight (BMI (\underline{M} = 22.71, \underline{SD} = 2.30)). Within the group of normal weight participants, 25 reported they were dieting, and 23 stated they were not dieting. The groups were compared for differences which could influence the results, specifically age and education. There were no significant differences among the groups on the variables of age and education.

The range of scores on the MEBS for the total sample of participants was 0 to 41, with a mean of 10.82 and a standard deviation of 9.58. For the participants who were in the group of obese dieters, the mean on the MEBS was 14.97. The group of obese non-

dieters had a mean of 10.37, while the normal weight participants had a mean score on the MEBS of 7.71.

The differences between groups on the BDI were similar. The mean for the total sample was 11.34 with a standard deviation of 8.91. The scores ranged from 0 to 42. In the group of obese dieters, the BDI mean was 14.13. The participants who were in the group of obese non-dieters had a mean of 12.71 on the BDI. The normal weight participants had a mean score of 8.08 on the BDI.

A MANOVA between groups ($F(2, 119) = 8.69, p < .001$) suggests there is an overall significant difference between the obese dieters, obese non-dieters, and normal weight participant's scores on the MEBS and the BDI. Post hoc analyses were conducted to further define differences (see Appendixes C and D).

Analyses of variance (ANOVA's) with Bonferroni Corrections for familywise error rate (Pedhazur, 1982), with significance set at $p < .025$, were individually performed with the MEBS and BDI comparing the three groups. Results of the first ANOVA revealed a significant effect for the scores of the MEBS ($F(2, 119) = 6.71, p = .002$). Univariate Sheffe analyses of the MEBS across groups suggested that the group of obese dieters' ($M = 14.97, SD = 10.81$) scores were significantly different from the normal weight participants' scores ($M = 7.77, SD = 7.65$) ($p < .01$); the obese dieters' scores were not significantly different from the obese non-dieters ($M = 10.37, SD = 9.06; p = .102$) and the obese non-dieters' scores were not significantly different from the scores of the normal weight group ($p = .445$).

Results of the second ANOVA revealed a significant difference across groups on the BDI ($F(2, 119) = 6.00, p = .003$). Univariate Sheffe analyses of the BDI across groups suggested that the obese dieters' ($M = 14.13, SD = 10.58$) scores were significantly different from those of the normal weight participants ($M = 8.03, SD = 6.65$) ($p < .01$); the obese dieters' scores were not significantly different from those of the obese non-dieters ($M = 12.71, SD = 8.38; p = .778$), and obese non-dieters' scores were not significantly different from normal weight participants ($p = .06$).

Pearson correlations were conducted to determine the relationship between the MEBS and BDI for each of the three groups. In the group of obese dieters there was a moderately positive relationship between maladaptive eating behaviors and depressive symptoms ($r = 0.47, p < .01$). Similarly, the relationship between maladaptive eating behaviors and depressive symptoms in the group of normal weight participants was also moderately positive ($r = 0.44, p < .01$). However, the group of obese non-dieters revealed a relationship between maladaptive eating behaviors and depressive symptoms which was non-significant ($r = .24, p = .175$).

When the 122 participants were divided based on the self-report of dieting and not dieting, 64 (52.46%) participants reported that they were dieting and 58 (47.54%) stated they were not dieting. Two 2-tailed t-tests with Bonferroni Correction (Pedhazur, 1982) were conducted to examine the relationship of the scores of the MEBS and the scores of the BDI between dieters and non-dieters. There was a significant difference between dieters' and non-dieters' scores on the MEBS ($p = .009$). There was not a significant difference between dieters and non-dieters ($p = .902$) on BDI scores. In the group of

dieters, there was a positive relationship between scores on the MEBS and scores on the BDI ($r = 0.51, p < .001$). There was also a positive relationship between scores on the MEBS and scores on the BDI in the group of non-dieters ($r = 0.31, p < .01$).

CHAPTER V

DISCUSSION

The current study explored the relationship between maladaptive eating behaviors and depressive symptoms in persons dieting and not dieting. It was hypothesized that there would be significant differences between maladaptive eating behaviors and depressive symptoms across groups of dieting and non-dieting participants. Further, there would be a positive correlation between maladaptive eating behaviors and depressive symptoms across all participant groups. It was further hypothesized that the obese dieters would have lower maladaptive eating behaviors and depressive symptoms than the non-dieting obese participants, and that the obese participants would have higher incidences of maladaptive eating behaviors and depressive symptoms than participants in the normal weight group.

Differences in Maladaptive Eating Behaviors Across Participant Groups

Comparison across groups of maladaptive eating behaviors suggested an overall significant difference. Obese dieters reported significantly more maladaptive eating behaviors than normal weight participants, according to univariate analyses. Alternatively, non-dieting obese persons and normal weight persons reported similar levels of maladaptive eating. There was not, however, a significant difference between obese dieters' and obese non-dieters' reports of maladaptive eating behaviors. This reveals a continuum of maladaptive eating patterns, from obese dieters to obese non-dieters to normal weight participants. Simply, maladaptive eating behaviors progressively increase among the groups with normal weight participants having the least reported incidences, obese non-dieters experiencing slightly more incidences and obese dieters reporting the

largest incidences of maladaptive eating behaviors.

Although dieters and non-dieters may have the same maladaptive eating behaviors, they may view these behaviors differently due to the act of dieting or an acute desire to be thinner. Since maladaptive eating is socially unacceptable and the focus of significant outreach, persons may be less prone (or more prone) to disclose based on personality variables. The self-report measures employed by the study are also seen as a limitation due to the possibility that participants may 'fake good,' 'fake bad,' or have a distorted perception of appropriate eating habits. Someone who is dieting may be more prone to hiding food or eating in private than someone who is not dieting, thus, dieters' scores on the MEBS may be higher than non-dieters' scores. These confounding variables, rather than innate tendencies, may be the cause of the higher level of reported maladaptive eating behaviors in dieters.

There was no significant difference between the BMI's of the obese dieters and obese non dieters, suggesting that maladaptive eating is not based exclusively on weight. It, therefore, may be concluded that maladaptive eating behaviors more likely result from an interaction between an individual's present weight and the desire of the individual to be thinner or, at least, effectively control his or her weight. While there is some disparity in the incidence of maladaptive eating behaviors between obese non-dieters and obese dieters, the incidence of depressive symptoms between obese dieters and obese non-dieters is comparatively greater. This is commensurate with the findings of other studies in this area; the act of dieting may in itself be a catalyst of maladaptive eating behaviors. In the process of dieting, individuals tend to prohibit their intake of fat-laden or high caloric

foods. The limitation of these ‘forbidden’ foods by the obese dieter potentially results in a higher desire for this ‘forbidden’ food. Hence, when such food is consumed maladaptive eating behaviors are triggered, such as a binge or feelings of guilt, resulting in depression. Ultimately, it is, at least, apparent that elevated BMI is not determinative of the occurrence of maladaptive eating behaviors.

Differences in Depressive Symptoms Across Participant Groups

Comparisons across groups for self-reported symptoms of depression suggested significant differences across the three groups. Obese dieters reported significantly more depressive symptoms than normal weight participants, according to univariate analyses. However, obese non-dieters showed no significant differences from either the normal weight participants or the obese dieters. Hence, the groups reveal a continuum of depressive symptoms similar to the continuum revealed for maladaptive eating behaviors. Namely, obese dieters reveal the greatest number of depressive symptoms, obese non-dieters report slightly less incidences of depressive symptoms and normal weight participants reveal the least number of depressive symptoms.

The current results indicate that depression, or dissatisfaction, may be a major contributor to maladaptive dieting behavior or conversely that maladaptive eating behaviors trigger or maintain depressive symptoms. Therefore, it is difficult to determine in the current study if depressive symptoms were present prior to the onset of dieting.

Depression is a subjective experience and therefore highly impacted by participants’ biases and beliefs. However, all groups are assumed to be equally affected.

Depressive symptoms may be better accounted for if a depression screening was given before a participant begins to diet, during the diet, and after the diet.

Relationship Between MEBS and BDI

There was a significant relationship found between maladaptive eating behaviors and depressive symptoms in obese dieters and normal weight participants. The same relationship in the obese non-dieters was not significant. One explanation for this finding may be a shared factor, such as self-esteem, which was not accounted for in this study. The combination of dieters and non-dieters in the group of normal weight participants may have also affected this relationship; however, when dieters were compared with non-dieters, irrespective of weight, results suggested that dieters report significantly more maladaptive eating behaviors but not more depressive symptoms than non-dieters.

Depression and maladaptive eating behaviors may or may not be co-morbid with other disorders. Demographic information on depressive disorders and diagnoses was collected from participants in an effort to evaluate these effects. Other confounding variables were expected to be randomly distributed across all groups. Education level and age were found to be randomly distributed across all groups.

Limitations

One of the limitations of the current study was the limited geographical location. The sample was recruited from one mid-size town in the Southern United States. Although the university sample is drawn from an international population, the university population as a whole is predominantly from the Southern United States.

The previous research with the MEBS (Hawkins et al., 1992) focused on less severe mood and maladaptive eating behaviors found in non-clinical samples; however, it has not been previously used with an “overweight actively trying to lose weight” group. The variables assessed are, however, the variables used to diagnose eating disorders and are therefore felt to be appropriate for the current study.

The dieting participants who were trying to lose weight through commercial or medically based programs possess pre-existing motivation to improve their lives by learning to eat in a healthy manner. This motivation may skew their perception of levels of depressive symptoms as well as maladaptive eating behaviors. People in a commercial or medically based program may differ psychologically from people who desire to be thin or diet in other ways but do not seek help in this manner. Participants from the dieting group may be in the process of altering any maladaptive eating behaviors they may have experienced in the past, be especially sensitive to perceived maladaptive eating behaviors, or be oblivious to them. Metabolic rates, hereditary factors and lifestyle characteristics of participants may also be viewed as confounding factors in the current study.

Further research needs to address a larger, more diverse population and to include measures of body image and self-esteem to further define the interaction of depression, weight, and maladaptive eating behaviors.

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APPENDIXES

APPENDIX A

DEMOGRAPHIC SURVEY

1. Current weight: _____
2. Current height: _____
3. Age: _____
4. Sex: Male Female
5. Highest educational level achieved: _____
6. Marital Status: Single Married
7. Number of children: _____
8. Race: _____
9. Are you presently on a diet or trying to lose weight? YES NO

If you answered YES to number 9 please answer the following:

- * Are you participating in a commercial weight loss program (Weight Watchers, Nutri-System, Jenny Craig)? YES NO

If yes, please name the program. _____

- * Are you using an over-the-counter product (Slim Fast, Dexatrim) to help you lose weight?

YES NO

If yes, please name the product. _____

- * Are you using medications prescribed by a medical doctor (Fen-Phen, Redux) to help you lose weight? YES NO

If yes, please name the product. _____

If you have used any other ways to lose weight, please state.

* How much weight are you trying to lose? _____ lbs.

* How long have you currently been trying to lose weight? _____ weeks

10. Do you currently smoke cigarettes? YES NO

*If yes, how many cigarettes do you smoke each day? _____

11. Persons' weights change during their adult lives. Mark one answer that best describes you during your adult life. Please do not include times when you were sick or pregnant.

(Mark only one).

_____ Weight has stayed the about the same (within 10 pounds)

_____ Steady gain in weight

_____ Weight has gone up and down by more than 10 pounds

About how many times has your weight gone up and down by more than

10 pounds? Please do not include times when you were pregnant or sick.

_____ 1-3 times

_____ 4-6 times

_____ 7-10 times

_____ 11-15 times

_____ More than 15 times

12. Have you tried to lose weight in the past? YES NO

* If yes, how many times have you tried to lose weight in the past? _____

* How much did you lose? _____

* Did you gain any of the weight back? YES NO

If yes, how long from the time you lost the weight until the time you gained weight

back? _____ How much did you gain? _____ lbs.

13. Do you exercise? YES NO

* If you answered yes, please answer the following:

* How many times a week do you participate in an aerobics activity (at least 20 minutes of walking, jogging, aerobics, biking, etc.)? _____

* How many times a week do you participate in weight lifting, circuit training, or other muscle building exercises? _____

* Why do you exercise? (Please mark only one, the one that best applies)

_____ to lose weight

_____ for physical fitness

_____ for stress reduction

_____ to gain more energy

_____ to have a better self-image

_____ other, please specify: _____

14. Have you ever been diagnosed with a mood disorder (Major Depressive Disorder, Bi-

Polar/Manic Depression)? YES NO

15. Has your family physician ever prescribed you a medication for depression, anxiety, or

nerves (Prozac, Paxil, Zoloft..)? YES NO

* If yes, are you currently taking the medication? YES NO

* If yes, please name the medication: _____

16. Do you consider yourself to be overweight? YES NO

17. Do you think you are a yo-yo dieter (dieting and losing, but then gaining the weight back)? YES NO

APPENDIX B

The Maladaptive Eating Behavior Scale

This scale consists of 17 statements. After reading each statement, using the key below, answer to best describe your behaviors over the past week, including today.

0 - rarely or none of the time (less than 1 day)

1 - some or a little of the time (1-2 days)

2 - occasionally or a moderate amount of time (3-4 days)

3 - most or all of the time (5-7 days)

1. I ate so much food so fast that I didn't know how much I ate or how it tasted.
0 1 2 3

2. I ate something because I felt lonely.
0 1 2 3

3. I ate a lot of fattening food in secret so no one would know about it.
0 1 2 3

4. I ate something because I was upset or nervous.
0 1 2 3

5. I feel uncomfortable eating in the presence of others.
0 1 2 3

6. I ate something because I felt bored.
0 1 2 3

7. I forced myself to vomit after eating.
0 1 2 3

8. I got up during the night to eat food simply because I knew it was there.
0 1 2 3

9. I went without eating solid food for 24 hours in order to lose weight.
0 1 2 3

10. I ate so much that my stomach hurt.
0 1 2 3

- 0 - rarely or none of the time (less than 1 day)
 1 - some or a little of the time (1-2 days)
 2 - occasionally or a moderate amount of time (3-4 days)
 3 - most or all of the time (5-7 days)

11. I buy fattening food and hide it in the house so no one would know about it.
 0 1 2 3

12. I have taken a laxative before or after eating.
 0 1 2 3

13. I feel that I think too much about food.
 0 1 2 3

14. I feel out of control where food is concerned.
 0 1 2 3

15. I hate myself because there are times when I cannot stop eating.
 0 1 2 3

16. I feel guilty because I cannot stop eating.
 0 1 2 3

17. I feel guilty after eating.
 0 1 2 3

APPENDIX C

Table 1
Analysis of Variance for Depression and Maladaptive Eating Behaviors

		E	
Source	df	Depression	Maladaptive Eating
Group	2, 119	5.99**	6.71**

APPENDIX D

Table 2
Univariate Sheffe Analysis Between Obese Dieters, Obese Nondieters and Controls on
Scores on the MEBS and BDI

Source	df	Obese Dieters	Obese Nondieters	Controls	p
		M (SD)	M (SD)	M (SD)	
MEBS	2, 119	14.97(10.81)	10.37(9.06)	7.77(7.65)	*
BDI	2,119	14.13(10.58)	12.71(8.38)	8.03(6.65)	*