THE PREVALENCE OF EMOTIONAL EATING AND ITS RELATION TO AFFECT REGULATION IN A TURKISH SAMPLE OF OBESE, OVERWEIGHT AND NORMAL WEIGHTED WOMEN

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The Prevalence of Emotional Eating and Its Relation to Affect Regulation in a Turkish Sample of Obese, Overweight and Normal Weighted Women

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Thesis Abstract

Nur Evirgen, "The Prevalence of Emotional eating and its Relation to Affect Regulation in a Turkish Sample of Obese, Overweight and Normal Weighted Women"

This study investigated the prevalence of emotional eating and binge eating and their relation to variables associated with affect regulation within different weight categories. Emotional eating and binge eating have been associated to unhealthy eating patterns leading to health problems such as obesity, which is defined to be a biological, psychological and social epidemic. Participants in this study were comprised of 204 women with body mass index ranging from 16.9 to 52.07, ninety-eight of which were receiving professional intervention for weight loss. The Dutch Eating Behavior Questionnaire and Bulimia Investigatory Test Edinburg were used to assess eating styles and binge eating. Negative Mood Regulation Expectancies Scale, Trait Anger and Anger Expression Scales and the Toronto Alexithymia Scale were used to assess psychological variables related to affect regulation. The prevalence of emotional eating was found to be significantly higher in obese and overweight samples compared to the normal weighted sample. Results implied binge eating to be a form of emotional eating. Furthermore emotional eating and binge eating were found to be associated to variables related to affect regulation. Implications of the results in the light of previous studies, and recommendations for future research are discussed.

Tez Özeti

Nur Evirgen, “Obez, Kilolu ve Normal kilolu Kadınlarda Duygusal Sebeplere Bağlı Yeme Davranışı ve Duygu Düzenlemesi ile İlişkisi”

Bu çalışmada farklı kilo gruplarında duygusal sebeplere bağlı yeme ve tıkanırcasına yeme (binge eating) davranışlarının sıklığı ve duygu düzenlemesi ile bağlantıları incelenmiştir. Çalışmada benden kitle endeksler 16,9 ile 52,07 arasında değişen 204 kadın katılımcı yeralmıştır. Katılımcıların 98i kilo vermek için profesyonel destek almaktaydı. Yeme biçimleri, Hollanda yeme davranışları ölçeği, ile ve tıkanırcasona yeme davranışı, Edinburgh Bulimia değerlendirme testi ile tespit edilmiştir. Duygu düzenlemesi ile alakalı psikolojik değişkenleri ölçmek için Olumsuz ruh halini düzeltme beklenitileri ölçeği, Sürekli öfke ve öfke ifade tarzı ölçeği ile Toronto aleksitimi ölçeği kullanılmıştır. Duygusal sebeplere bağlı yeme ve tıkanırcasına yeme davranışı kilolu ve obez kişlerde normal kiloda olanlara oranla anlamlı bir şekilde daha sık rapor edilmiştir. Bulgular tıkanırcasına yeme davranışının da bir tür duygusal sebeplere bağlı yeme biçimi olduğunu ortaya koymuştur. Duygusal sebeplere bağlı yeme ve tıkanırcasına hyeme davranışları duygu düzenlemesi ile ilgili değişkenlerle anlamlı bir şekilde bağlantılı bulunmuştur. Önceki çalışmaların ışığı altında bulguların önemi tartışılmış ve gelecekteki çalışmalar için önerilerde bulunulmuştur.

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CONTENTS

CHAPTER I

INTRODUCTION

The Obesity Epidemic

The Definition of Obesity

Overweight and obesity are defined as an abnormal or excessive accumulation of fat in the body which may impair health (World Health Organization, 2006). According to the World Health Organization, individuals who are 20% above their ideal body weight are classified to be obese. The Body Mass Index (BMI) is accepted as a simple measure of body fat and is calculated by dividing weight in kilograms by height in meters squared. Normal weight is defined by a BMI between 18.5 and 24.9. Overweight is defined as a BMI ranging from 25 to 30; and obesity is defined as BMI of 30 and above. A BMI between 35 and 40 is considered to indicate severe obesity, while BMI of 40 and above designates morbid obesity (World Health Organization, 2006). However the body mass index is a rough measure of obesity; it does not yield an accurate assessment of body fat in extremely muscular individuals or elderly people who have lost a lot of muscle tissue (Stien & Colditz, 1994; Seidell & Flegal, 1997). Further more risk factors associated with excess weight are also known to be dependent on factors such as the percentage and distribution of fat within the body (Stien & Colditz, 1994; Lohman, 2002); therefore other measures are also taken into consideration while assessing obesity. These include the calculation of waist hip ratio, skin fold measurement, and assessment of body fat percentage, which is roughly dependent on the body mass index, age, and gender of the individual (Seidell & Flegal, 1997).

Obesity as a Health Problem

One of the most extensive international data available on obesity rates comprised by the World Health Organization's Global Database on body mass index show that although the prevalence of obesity varies across countries, ranging from .07%, in India, to 78%, in Nauru; large rises in obesity have been observed all over the world over the past few decades (World Health Organization, 2006). This rise in the prevalence of obesity is claimed to be leading its way to a global health issue (World Health Organization, 2006; Stein & Colditz, 2004; Delibaşı et al., 2007). Excess weight increases the risk for many common diseases such as type 2 diabetes, heart disease, hypertension, stroke, cancer (World Health Organization, 2009), and many health problems such as arteriosclerosis, gallstones, high level of cholesterol, osteoarthritis, gout, asthma, sleep apnea, menstrual irregularities and pregnancy complications (World Health Organization, 2006; Stein & Colditz, 2004).

Other than constituting a health problem obesity also limits physical functioning and leads to a decrease in the quality of life (Seidell & Tijhuis, 2002,). People who are overweight are found to subjectively rate their health more poorly (Ferraro & Yu, 1995); and are reported to express more complaints about common illnesses such as colds, muscle pain, skin infection and bruising, than those who are of normal weight (van Wayenburg, et al., 2008). Further more people who have weight problems may suffer from adverse consequences of dieting (Wadden, & Stunkard, 1985), and society's negative stereotypic views of the obese (Wadden, & Stunkard, 1985; Van Strien 1989; Friedman & Brownell, 1995).

The importance of maintaining an ideal body weight is also closely associated with physical appearance (Hayes & Ross, 1987). Although obesity is equally important for both men and women in respect to issues related to physical health, concerns about

weight are greater among women than men, since social norms encouraging thinness seem to be stronger for women (Ross & Mirowsky, 1983; Hayes & Ross, 1987; Dwyer, Feldman & Mayer, 1970).

The Prevalence and Correlates of Obesity in Turkey

In Turkey the prevalence of obesity has been reported to increase by 17.7 % over a ten year period between the years 1990 and 2000 (Yumuk, 2005). The prevalence of overweight was determined to be 19% within the population; 17.4% being men and 20.4% women, while obesity was observed in 15.6% of the population; 7.8% in men, and 22.1% in women (Delibaş, et al., 2007). Overall in the year 2000, 34.6 % of the Turkish population was estimated to be either obese or overweight (Yumuk, 2005). These findings draw attention to the need for preventive measures to be taken against weight gain for the Turkish population (Delibaş, et al, 2007).

In studies worldwide obesity is found to be positively associated to biological and demographic factors such as age, being female, number of children a woman has, cessation of smoking, alcohol consumption, and lack of physical activity, and to socio-cultural factors such as marital status, lower income and education (Seidell & Flegal, 1997; Delibaş et al, 2007). Similarly in Turkish samples obesity is positively correlated to age, marital status, number of children a woman has, alcohol consumption, and cessation of cigarette smoking, and negatively correlated with level of education, household income, physical activity, (Erem et al., 2004; Delibaş et al., 2007), and employment status, (Ersoy & İmamoğlu, 2006) . Plutchik (1976) observed that the degree to which a person is overweight is also related to the number of overweight members in the individual's close family. Changes in social roles, such as getting married or divorced, and entering or leaving a job are also found to be associated with

changes in body weight (Glucksman, Rand & Stunkard, 1978; Sobal, Rauschenbach & Frongillo, 2003).

The Etiology of Obesity

Weight gain occurs when the consumption of energy exceeds its expenditure (Stein & Colditz, 2004). An interaction of a number of biological factors, with behavioral and environmental influences contributes to this problem (Hill & Peters, 1998). Biological theories of obesity attribute the cause of obesity to biologically determined factors such as genetics and metabolic susceptibility to weight gain, while psychosomatic theories of obesity draw attention to the contribution of behavioral factors such as overeating and lack of exercise. However the rate of increase in obesity places further emphasis on the role of behavioral and environmental changes over time rather than variances in biological factors (Hill & Peters, 1998, Stein & Colditz, 2004). Hill (2006) emphasizes an interaction of many environmental changes over the past years such as the increase in sedentary time spent with computers and DVDs in work and leisure, leading to decreased energy expenditure; and environmental circumstances promoting a high energy, high fat diet, such as the availability of high energy dense foods and food commercials, leading to an increase in energy consumption (Hill, 2006, Prentice, 2001).

The metabolism of energy is reported to be adaptive to changes in order to prevent weight loss as a compensatory reaction to food restriction; but does not change as a compensatory reaction to being overfed (Hill, Sparling, Shields & Heller, 1987). Thus an increase of energy intake, due to environmental and behavioral influences, may lead to an increase in body mass unless overeating is consciously avoided and regular physical activity is carried out (Hill et. al, 1987). Therefore if no weight

management action is taken, it is predicted that there will be a natural course of further weight gain within the population (Hill, 2006), which is currently being observed in the increasing rate of obesity over the past decades (Hill, 2006, World Health Organization 2006). Interventions directed towards the prevention and treatment of obesity have focused on modifying and maintaining a healthy lifestyle through regular exercise and a balanced diet. However faced with failures in accomplishing and maintaining weight loss, researchers have recommended concentrating on psychological factors contributing to weight gain such as overeating and sedentary behavior (Friedman & Brownell, 1995).

Theories of Overeating

There are a number of theories attributing the etiology of overeating to various causes. In line with the biological theories of obesity, which attribute the cause of obesity to genetic and metabolic factors, the restraint theory explains overeating behavior as a counter regulatory act to counterbalance the effects of restrained food intake (Herman and Polivy, 1975). The Psychosomatic theories of obesity attribute the development and maintenance of obesity to overeating which is psychologically determined. (Kaplan and Kaplan 1957, cf. Van Strien et al., 1986). In line with the psychosomatic theories of obesity, the externality theory explains overeating in response to environmental food cues, and the theory of emotional eating explains overeating as a reaction to emotional distress. The dual pathway model of overeating on the other hand claims that overeating is determined by an interaction of both emotional factors and counter-regulatory behavior resulting from restrained food intake (Stice, 2001; Stice, Shaw, Nemeroff, 1998). Each of these theories are briefly reviewed.

Restraint Theory

The restraint theory attributes overeating and weight gain to dieting. In 1972 Nisbett suggested that each individual has a natural body weight which is homeostatically maintained and that overweight people have a higher than average ideal body weight (cf. Arnow et al. 1995). Herman & Polivy (1975) posit that social pressure to be thin may lead to excessive dieting behavior in people who have a higher than average ideal body weight. Dieting deprives the body of the necessary supply of food required for reaching a natural state of satiety. This deprivation leads to an increased responsiveness to food cues and overeating takes place as a counter-regulatory act to correct this imbalance. According to this theory overeating occurs after a period of restrained eating as uncontrolled eating takes the place of excessive control and restriction over food intake when commitment to the diet is abandoned (Herman & Polivy, 1975). It has also been suggested that disinhibition in dieters occurs due to factors which interfere with self control such as alcohol consumption and certain emotional states like anxiety and depression (Polivy & Herman, 1976), since it is suggested that restrained eating requires a certain amount of cognitive capacity to consciously control eating (Boon, Stroebe, Schut, & Jansen, 1998). In one study Polivy and Herman (1976) found that restrained eaters gained weight, while unrestrained eaters lost weight when they were depressed.

Some recent studies draw attention to the fact that since people who are overweight are more likely to diet, any association between body mass and restrained eating may imply that being overweight predicts restrained eating rather than the other way around (Snoek, Van Strien, Janssens, & Engels, 2008). Arnow et al. (1995) found no association between emotional eating and scores on the cognitive restraint subscale

of the three factor eating questionnaire among obese binge eaters who reported eating in response to negative emotions. This suggests that overeating may take place regardless of restraint on eating (Arnow et al., 1995). Furthermore although correlations between binge eating and dietary restraint imply that restrained eating leads to counter regulatory overeating, it is also suggested that binge eating may cause restrained eating and that people who binge may later restrain food intake in order to avoid weight gain (Stice, 1998). Studies investigating the order of the initial manifestation of dieting and overeating have yielded controversial results. For example the observed percentage of dieting prior to binge eating has varied between studies ranging from as low as 8.7 percent (Wilson, Nonas, and Rosenblum, 1993), to as high as 80 percent (Bulik, Sullivan, Carter, and Joyce, 1997).

Externality Theory

The Externality theory attributes the cause of weight gain to overeating in response to external cues. According to this theory the consumption of food is not driven by hunger but by external motivators such as the availability, smell, taste and appearance of food, the presence of other people eating and food being offered in social gatherings. Schachter and Rodin (1974) link external eating behavior to an associated personality trait of externality which implies oversensitivity to external stimuli. In a series of experiments Schachter (1968) found that obese individuals were more vulnerable to external cues. In a time manipulation experiment, obese individuals compared to normal weight controls, ate more when they believed it was past their regular time for eating, regardless of their state of hunger (Schachter & Gross, 1968). Nonetheless some studies suggest that eating in response to external cues can be observed in all weight categories, not just in the overweight or obese (Rodin 1981).

Theory of Emotional Eating

Emotional eating is defined as eating in response to one's emotions instead of physical cues of hunger or environmental motivators (Bruch, 1973; Van Stien, 1986). The concept of emotional eating was first introduced in 1957 by Kaplan and Kaplan (Ganley, 1989). According to their anxiety-reduction model, eating reduces anxiety; therefore overeating, resulting in weight gain and eventual obesity, is maintained due to its anxiety regulatory function (Ganley, 1989).

Cannon (1915) posited that emotional distress inhibits gastric motility, and Carlson (1916) notes that emotional distress results in increased levels of sugar in the blood stream (cf. Heatherton, Herman & Polivy, 1991; Wing, Blair, Epstein, & McDermott, 1990). Therefore the normal reaction to emotional arousal, and that which is generally observed, is the suppression of hunger and loss of appetite (Heatherton et al., 1991). However studies confirm that while some may eat less, some people are prone to eat more when stressed (Willenbring, Levine, & Morley, 1986; Oliver & Wardle, 1999). Overeating in reaction to emotional distress is suggested to be acquired by some people as a result of early learning experiences in which eating is used as a way of coping with negative feelings (Bruch, 1973). It is suggested that food may be used to repress or numb intense feelings, avoid dealing with difficult issues, to escape boredom, to feel energized, or calm and relaxed or for reward and punishment (Hooker & Convisser, 1983).

The Dual Pathway Model of Overeating

Integrating the theory of restraint eating and emotional eating, the dual pathway model draws a link between dissatisfaction with body weight and overeating behavior; and

suggests that this occurs through two separate pathways (Stice, 1998, 2001). One of these pathways is in line with the restraint theory and proposes that dissatisfaction with body weight leads to excessive dieting which later leads to uncontrolled eating (Stice, 2001). The second path proposes that negative affect associated with body dissatisfaction and too much dieting leads to uninhibited overeating, or binge eating (Stice, 1998, 2001). (See appendix 10)

Although some longitudinal studies have found dieting to be related to an increase in bulimic pathology (e.g., Stice, 2001; Stice and Agras, 1998), Van Strien, Engels, Van Leeuwe, and Snoek (2005) found strong associations between dissatisfaction with body weight and restrained eating but no correlation between restrained eating and overeating. However significant correlations were found between body dissatisfaction and negative affect (Groesz, Levine, and Murnen, 2002; Van Strien et al., 2005); and between negative affect and overeating (Waters, Hill, & Waller, 2001; Van Strien et al., 2005), supporting the negative affect pathway of the model. There is also evidence that food intake increases with increased restraint under conditions of emotional arousal (Cools, Schotte, & McNally, 1992), or in certain emotional or physical states which inhibit self control, such as alcohol consumption (Herman & Polivy, 1976). Van Strien et al. (2005) extend the negative affect pathway of the model to include lack of introspective awareness and emotional eating as mediating factors in the link between negative affect and overeating; suggesting the role of affect regulation in overeating behavior.

Emotional Aspects of Overeating and its Relation to Affect Regulation

Affect regulation refers to processes involved in coping with heightened levels of positive and negative emotions, and actions taken by an individual to influence which emotions are experienced and how these are experienced and expressed (Kopp, 1989, Gross, 1998). Taylor, Bagby and Parker (1997) have considered eating disorders as disorders of self regulation with problems related to affect regulation as the primary deficit. Thus emotional overeating is suggested to be a manifestation of disturbance in affect regulation (Devlin 2007); and Ganley (1989) concludes affect reduction to be the most important determinant of emotional eating.

Theoretical background

Psychosomatic theories of obesity attribute the cause of overeating to a confusion of internal states of arousal with feelings of hunger, because overeating, be it initiated by external cues or emotional states, occurs in the absence of hunger (Robbins & Fray, 1980 cf. van Strein et al., 1986). Bruch (1973) claims that this confusion may result from early learning experiences in which one cannot differentiate feelings of hunger from other sources of discomfort. Food being offered by the parent for non nutritional reasons, may lead to an association and confusion between the need to eat and the need for maternal care and comfort (Bruch 1973). This is noted to be especially pronounced if food is offered to soothe the infant facing physical or emotional discomfort, or is given as a reward for good behavior (Glucksman, Rand, and Stunkard, 1978). Winnicott (1971) observed that the development of the infant's capacity for healthy object differentiation was aided by a proper feeding experience with a "good-enough mother". Anna Freud (1972) believed that the early association between feeding and

the mother became resolved in children by the age of two; however although they were consciously separated, the unconscious link between them remained intact. Thus feeding is considered to be a central aspect of the early mother child relationship, and any aspect of this relationship may be associated to food and eating. (Glucksman 1989). Taylor, Bagby and Parker (1997) emphasize the importance of the role of early family relationships in the development of affect and self regulatory capacities. Goodsitt (1983) proposed that "obese individuals have limited capacity for self-soothing and overeat in order to reproduce a sensorimotor representation of the mother and her soothing activities, which have not been properly internalized." Food has been suggested to have a self soothing function for the obese who use it as "substitute gratification and replacement for lost or disappointing love objects." (Castelnuovo-Tedesco & Reiser, 1988). Levy (1934) attributed the cause of eating disorders to "affect hunger" defined as the "emotional hunger for maternal love and the other feelings of being cared for in the mother-child relationship" (cf. Glucksman 1989). On basis of Levy's suggestion that obese individuals project "affect hunger" onto food, Glucksman (1989) likens the role of food to be representing a "transitional object" for the obese individual to cope with feelings of separation and negative affect such as anxiety and loneliness. Therefore food may be consumed for the feelings that get associated with it. Kaplan and Kaplan (1957) found 27 affective and psychodynamic factors associated with overeating: "Diminishing anxiety, achieving pleasure, achieving social success and acceptance, relieving frustration and deprivation, expressing hostility self-indulgence, rewarding oneself, expressing defiance, submitting (e.g., to parental authority), self-punishment in response to guilt, exhibitionism, attaining and care, justifying failure, testing love, counteracting a feeling of being unloved, distorting reality, identifying with an overweight

parent, sedating oneself, avoiding competition in life, avoiding changing the status quo, proving one's inferiority, avoiding maturity, diminishing fear of starvation, consciously fulfilling the wish to become fat, handling anxiety from infantile oral frustration, a diversion from monotony and diminishing feelings of insecurity." It was concluded that overeating could be linked to any unresolved psychodynamic conflict arising at each stage of the psychosexual development (cf. Slochower 1987).

Wise & Wise (1979) view overeating as a physical manifestation of emotional problems stemming from unresolved developmental conflicts; and overeating is claimed to be a resolution to problems rooted in oral, anal or genetic stages of development. Likewise some psychoanalytic theories attribute overeating and the cause of obesity to a fixation at the oral stage of development (Glucksman 1989). Rubin (1970) identifies an obese profile with common characteristics, some of which include compulsive oral activities such as overeating, smoking, talking and tactile stimulation of the lips and mouth (cf. Buchanan, 1973). Overeating is thus viewed as regression to an oral level under stressful conditions.

Plutchik (1976) also reported that overweight individuals ate in response to emotions in the absence of perceived hunger and that they were aware of their overeating. Buchanan (1973) mentions that some practices with obese patients in psychoanalytic group therapy have involved translating feelings of hunger into other feelings such as anxiety, rage, guilt, hostility, loneliness, and depression. Buchanan (1973) also observed problems related to isolation and autonomy. It has been proposed that as a result of intrusive parenting, which does not allow the child to develop an autonomous self, the child does not learn to rely on and interpret his own internal cues but instead relies on external regulation (Bruch 1973). Therefore in the absence of the

external regulatory parent in adult life, experiences of isolation are associated with feelings of "emptiness" which are resolved by "reinvoking the external regulator" thus eating (Buchanan 1973).

Binge Eating as a Form of Emotional Eating

Binge eating is defined by the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders as "eating, in a discrete period of time, an amount that is larger than most others would consume in similar circumstances, and is accompanied by a sense of loss of control over what or how much one is eating." (American Psychiatric Association, 2000).

Many studies imply that binge eating is multiply determined (Ruderman 1986). However binge eating has also been suggested to be an attempt at affect regulation for some individuals (Yanovski, 2002; Whiteside et al, 2007). Studies have found the occurrence of night eating and binge eating to be coinciding to stressful periods in life (Mendelson, Weinberg, and Stunkard, 1961), and precipitated by feelings of isolation, helplessness and separation anxiety (Buchanan,1973). Dominy, Johnson & Koch (2000) found obese women with binge eating disorder reported less satisfaction from life and more depression than those with no eating disorders and normal weight controls. Heatherton & Baumeister (1991) posit that binge eating occurs as a means of escaping from negative self awareness. Arnow et al. (1995) found higher levels of binge eating associated with emotional eating and observed that although emotional eating was not the target of therapy in a group of obese binge eaters, changes in binge eating as a result of treatment was accompanied by changes in subscales of emotional eating on the emotional eating scale. Ganley (1989) concludes that most studies

confirm binge eating to be associated to and influenced by emotions; thus binge eating may be conceptualized as a form of emotional eating.

Studies Suggesting the Role of Emotional Eating in Affect Regulation

Coping with negative affect

It is generally accepted that emotional eating may be precipitated by all kinds of negative emotion (Bruch 1973). However some studies suggest that there are specific types of negative affect which precipitate overeating (Arnow et al., 1995). For example Arnow et al. (1992) note that binge eaters reported feelings of anger and frustration 42 percent of the time, and feelings of sadness and depression only 16 percent of the time before binge eating (cf. Arnow et al 1995). Eldredge, Agras, and Arnow (1994) found that those who reported overeating in response to emotions such as anger and depression gained more weight than those who reported overeating in response to anxiety. However Ganley (1989) concludes that the occurrence of emotional eating is associated with different emotions in each individual; and Wiser and Telch (1999) propose that not the experience of negative affect itself but the strategy used to regulate it influences overeating in binge eaters.

Many studies provide support for the use of food as a coping mechanism to avoid or deal with negative feelings (Hooker & Convisser, 1983; Thompson, Berg & Shatford, 1987; Geliebter & Aversa, 2003). Slochower (1983) suggests an association between overeating in response to diffuse emotions and an inability to label emotions and implies that negative emotions lead to a sense of helplessness rather than mastery in obese individuals as they are unable to cope with unpleasant emotions they cannot name (cf. Slochower, 1987). Thus overeating is developed to handle painful affect

whose source is undefined and is not easily controlled or coped with by other means (Slochower 1987).

Alexithymia, Difficulty in Identifying and Expressing Emotion

While explaining overeating behavior, Bruch (1973) attributes the confusion of internal states of arousal with feelings of hunger to a lack of introspective awareness. Lack of introspective awareness has been claimed to be highly associated with alexithymia (Larsen, Van Strien, Eisinga, & Engels , 2006). Alexithymia is a construct which involves "difficulty in identifying, and expressing affect, distinguishing between feelings and the bodily sensations of emotional arousal, difficulty describing feelings to others, an impoverished fantasy life, and a stimulus-bound, externally oriented, cognitive style" (Nemiah, Freyberger & Sifneos, 1976; Taylor, Bagby & Parker, 1991 cf. Taylor et al., 1997). Although alexithymia was first put forward to explain psychosomatic symptoms, it is now accepted to be part of all affective disorders and frequently observed in normal, healthy functioning individuals (Taylor et al., 1997).

Pinaquy, Chabrol, Simon, Louvet and Barber (2003) found an association between alexithymia and binge eating among overweight women with binge eating disorder. However studies focusing on the relationship of alexithymia and obesity, and various eating disorders among the obese have yielded controversial results. While some studies do not find alexithymia to be characteristic of the obese (Morosin & Riva, 1997 cf. Deveci et al., 2006); or to be associated to any eating pathology among the obese (De Zwann et al., 1995), there are some studies which reveal an association between alexithymia and obesity (Legorreta, Bull, Kiely, 1998; De Chouly, De Lenclave, Florequin, & Bailly, 2001 cf. Deveci et al 2006). Some studies carried out with the obese population in Turkey have not been able to determine a significant

relationship between alexithymia and body mass index (Deveci, Demet, Özmen, Özmen, Hekimsoy, 2005); or alexithymia and binge eating pathology among the obese (Vardar, Tuğlu, Arıkan, Çalıyurt, & Vardar, 2003). Furthermore no significant associations were determined between alexithymia and success rates in weight loss treatments (Deveci et al., 2006). No studies in Turkey have focused on the relationship between alexithymia and emotional eating in obese or overweight individuals.

Larsen et al (2006) found that self reported emotional eating was associated to alexithymia in both men and women who were obese, and this association was stronger in men. Emotional eating may be related to various components of alexythymia such as difficulty in expressing emotions as well as difficulty in labeling emotions. For example, Hooker and Convisser (1983) suggest that food is used to suppress and numb feelings and that women resort to eating instead of expressing negative feelings, such as anger, which they find difficult or inappropriate to express. Whiteside et al. (2007) found binge eating to be associated to difficulty in defining and making sense of emotional states. Slochower (1983) proposes that overeating occurs more in response to diffuse emotions rather than clearly labeled emotions. Findings of a pilot study conducted by Slochower (1983) indicates that overweight individuals have more difficulty in identifying or labeling emotions when compared to normal weight controls; therefore obese or overweight individuals may perceive clearly labeled emotions as diffuse (cf. Slochower 1987). Van Strien et al (1989) observed that *post hoc* inspection of factor loadings on items related to two dimensions of emotional eating in the Dutch eating behavior questionnaire revealed that this distinction between diffuse and clearly labeled emotions was less obvious among obese subsamples. In another study in which a distressful situation was manipulated, alexithymic individuals were observed to increase food intake, while the opposite was true for nonalexithymic

individuals. Therefore in these studies alexithymia was concluded to be a predictive factor of emotional overeating (Van Strien & Ouwens, 2007).

Anger

Buchanan (1973) found an association between eating and negative emotions such as isolation, anger and depression in obese individuals. Eldredge, Agras and Arnow (1993) found that more obese binge eaters reported eating in response to feelings of anger and depression as oppose to anxiety; and those who reported overeating in response to anger gained more weight. Telch, Agras and Linehan (2001) tested binge eaters before and after receiving dialectic behavioral therapy for binge eating and found that in the post treatment evaluation, weight loss and abstinence from binge eating coincided with decreased scores on the "eating in response to anger" subscale of the emotional eating scale, while no such significant changes were observed for other subscales related to eating in response to anxiety or depression.

Buchanan (1973) reports that among obese patients, oral symbols such as "toothy smiles, knives cutting food, or ravenous hunger" are observed to symbolize anger in dreams and suggests that overeating may be frequently used as a substitute for expressing anger. Glucksman et al. (1978) indicate an association between weight gain and inability to deal with feelings such as anger, hostility and frustration in obese patients. Thompson et al. (1987) stated that "food may be used to avoid or cope with anger". Hooker and Convisser (1983) use the term "swallowing the anger" to describe eating in response to anger as; and conclude that when expressing anger is perceived to be inappropriate, women especially, turn to food in order to get rid of the discomfort associated with the feeling, and to avoid confronting it's source and dealing with the consequences of expressing it.

Studies Investigating the Prevalence of Emotional Eating and Binge Eating in Affect Regulation for the Obese

The psychosomatic theories of obesity posit that obese individuals eat in response to negative emotions. Studies in line with these theories, report that a greater percentage of obese subjects compared to non-obese subjects eat in response to negative emotions (Rand, 1982), such as depression, anxiety and impulsivity (Plutchik, 1976). By means of self report questionnaires Geliebter & Aversa (2003) assessed eating in response to a variety of negative or positive emotional states or situations within a group of overweight, normal weight and underweight individuals. When compared to normal weight and underweight individuals, overweight subjects reported eating more when experiencing negative emotional states or situations than the normal and underweight subjects.

Eating in response to emotion has also been related to stressful life events such as bereavement, moving, occupational change, marriage, divorce or childbirth (Buchanan, 1973, Rand, 1982). Seventy-nine percent of obese as oppose to only nine percent of normal weighted people were reported to gain weight at these stressful periods of life (Rand, 1982).

In a study conducted by Rand and Stunkard (1977), analysts reported that weight gain in obese individuals was correlated with negative psychodynamic constellations, such as feelings of depression, insecurity, anxiety, and frustration; while in normal weighted individuals these negative constellations were related to weight loss (cf. Glucksman, Rand & Stunkard 1978).

Fitzgibbon, Stolley, & Kirschenbaum (1993) found that obese individuals differ significantly from normal weight controls in respect to coping styles. They revealed that obese individuals use less engaged coping and tend to use strategies to avoid thinking about and actively dealing with stressors. Zoccali et al. (2008) investigated the use of defense mechanisms in an obese sample and found significantly lower scores on all subscales of the defense mechanisms inventory for obese subjects compared to normal weight controls. This may reveal an inadequate defensive structure and a vulnerability to emotional states and stressful life events; and it was suggested that overeating may function as a substitute defense mechanism for the obese (Zoccali et al., 2008).

A number of studies find episodes of binge eating to be highly common among the obese and it has been suggested that binge eating may be a contributing factor to the development of obesity (Telch, Agras and Rossiter, 1988; Yanovski, 2002,). Wilson, Nonas, and Rosenblum (1993) report that 64% of obese subjects had started binge eating before becoming obese. None the less there are also studies which do not find binge eating (Edelman 1981 cf. Ganley 1989) or emotional eating (Masheb & Grilo, 2006) to be related to BMI or degree of overweight (Pudel, Metzdorff, and Oetting, 1975, cf. Van Strien et al., 1986). Furthermore although emotional and psychological variables such as depression, anxiety, and low self-esteem have been associated to obesity, some researchers debate that they may be more likely to be resulting from obesity rather than causing it (Wadden, & Stunkard, 1985; Hayes & Ross, 1986). Emotional eating is also suggested to be present in all weight categories (Van Strien, 1986), but some researchers find high frequencies of emotional eating to be associated with poor weight control and high body mass index and conclude that

emotional eating interferes with attempts at weight loss (Hoiberg, Berard & Watten,1980; Blair, Lewis, & Booth, 1990; Ozier et al., 2008).

Aim of this Study

This study aims to investigate the prevalence of emotional eating and its relation to body mass and affect regulation. Emotional eating is examined together with external eating and restrained eating patterns because antecedents in these situations which trigger overeating behaviour have been hypothesised to interact (Polivy & Herman 1976, Van Strien et al., 1986; Stice, 2001). Herman and Polivy (1975) suggest that strong emotions have an influence on self control in restrained eaters and lead to overeating. In line with this, Leon and Chamberlain (1973) had found that dieters were more likely to report emotional arousal to be triggering eating behavior, compared to those who were not dieting, who were more likely to report feelings of hunger. Van Strien et al. (1986) found a positive relationship between emotional eating and external eating, which can be interpreted in line with the psychosomatic theory attributing overeating to an interaction of both emotional and external cues. Slochower (1983) notes that emotional arousal may increase sensitivity to external cues in overweight individuals (cf. Van Strien et al., 1986). According to Schachter & Rodin (1974), a high degree of emotionality is one of the manifestations of the externality trait.

In line with previous studies pointing to an association between emotional, external and restrained eating patterns and weight gain the present study aims to investigate the prevalence of emotional, external and restrained eating and binge eating in a sample of women, with body mass index above 25, who are classified according to the World Health Organization criteria to be either overweight or obese, compared to a

control group of women of normal weight. With the aim of establishing an association between emotional eating and affect regulation this study will investigate certain psychological correlates of emotional eating which may be related to affect regulation within the overweight and obese population and normal weighted controls.

Previous studies in Turkish literature have investigated the association between eating styles and neurotic personality traits among various weight groups (Tekok, 1988). Many studies with overweight individuals, which have investigated the prevalence and psychological correlates of binge eating and night eating (Kaşıkçıoğlu, 1998; Erol, Toprak & Yazıcı, 2006) and the prevalence and psychological correlates of obesity such as depression, anxiety, self esteem, alexithymia, self efficacy, and changes in weight (Baş & Dönmez, 2009; Delibaşı, et al., 2007; Deveci et al., 2005, 2006, Yumuk, 2005; Erem, et al., 2004,) have yielded controversial results regarding variables related to affect and affect regulation. There are no studies which have investigated the association between affect regulation and emotional eating. In this study alexithymia as assessed by the Toronto alexithymia scale, negative mood regulation expectancy, assessed by the negative mood regulation expectancy scale, and expression of anger assessed by the trait anger expression scale, are investigated as variables related to affect regulation.

The following hypotheses are tested:

Hypothesis 1. Compared to normal weight controls participants who are obese or overweight are expected to report more emotional eating as assessed by the emotional eating subscale of the Dutch Eating Behavior Questionnaire.

Hypothesis 2. Emotional eating is expected to be associated to variables related to affect regulation such that emotional eating scores, assessed by the emotional eating subscale of the Dutch Eating Behavior Questionnaire, are expected to be:

A. Negatively correlated to scores on the negative mood regulation expectancies scale,

B. Positively correlated to scores on the Toronto alexithymia scale.

C. Positively correlated to anger and repressed anger as assessed by the "trait anger" and "anger in" subscales of the trait anger and expression scales.

Hypothesis 3. Compared to normal weight controls, obese and overweight individuals are expected to report more binge eating as assessed by the Bulimia Investigatory Test Edinburgh.

Hypothesis 4. Participants who report binge eating, as assessed by the Bulimia Investigatory Test Edinburgh, are expected to report more emotional eating as assessed by the emotional eating subscale of the Dutch Eating Behavior Questionnaire, compared to participants who report no binge eating.

Hypothesis 5. Compared to participants who report no binge eating, those who report binge eating as assessed by the Bulimia Investigatory Test Edinburgh will be expected to:

A. Obtain lower scores on the negative mood regulation expectancies scale.

B. Obtain higher scores on the Toronto alexithymia scale and subscales.

C. Obtain higher scores on the "trait anger" and "anger in" subscales of the trait anger and expression scales.

CHAPTER II:

METHOD

Participants

The present study includes 204 women age between 16 and 66, with a mean age of 34.7, and mean body mass index of 27.82, ranging from 16.9 to 52.7. Seventy participants were classified as obese, 52 as overweight and 82 as normal.

Data was gathered from individuals who were applying for or receiving professional help aimed at weight loss. Twelve of the participants were attending private clinics providing professional interventions which included dietary control, or dietary control coupled with acupuncture aimed at regulating appetite. Sixteen of the participants were individuals applying for weight analysis and guidance at a private nutritional guidance center providing dieting information and nutritional supplements for weight regulation, and a center providing nutritional guidance coupled with a passive exercise program aimed for weight reduction and body reshaping. Sixty participants were attending a diet polyclinic and receiving dietary control for weight loss at a local hospital. A comparison group of 116 individuals working in established work places in İzmir and İstanbul were also included in the study. Five participants in this group who claimed to be receiving professional help for weight loss were included in the treatment group.

Data obtained from participants seeking treatment for weight loss with body mass indices below 24, and overweight or obese individuals who were not seeking treatment for weight loss were retained for analyses of factors associated with body mass and the effect of seeking professional help for weight loss. The duration of

current interventions and the number and types of previous attempts for weight loss were assessed, but the participants were not excluded from the study on basis of their previous attempts.

Since the body mass index used in this study is not claimed to be a valid measurement of body fat in elderly people (Stien & Colditz, 1994), the elderly were not included in the study; and data obtained from such individuals were excluded from the analyses. Those who were determined to have a physical problem, which may be contributing to excessive amount of weight gain, were not included in the study.

Measures

Measure of Obesity

Despite its limitations, the body mass index was used in this study as a criteria for distinguishing between obese, overweight and normal weighted participants because it is relatively easy to determine, and highly correlated with body fat in most adults, it has been accepted to be a reliable and valid measure in screening for obesity and overweight in the adult population (Stein & Colditz, 2004, US Preventive Services Task Force, 2003). The body mass index was obtained for each participant by dividing weight in kilograms by height in meters squared.

Measures of Eating Styles and Binge Eating

Dutch Eating Behavior Questionnaire

Emotional, restrained and external eating styles were assessed by the Dutch Eating Behavior Questionnaire (Van Strein et al. 1986). This questionnaire was developed as a 5 point Likert scale to assess three styles of eating behavior, restrained, emotional

and external eating independently. It has 33 items with 13 items assessing two dimensions of emotional eating, 10 items assessing restrained and 10 items assessing external eating. Subjects were asked to rate each statement according to how much it applies to them; 1 - never, 2- rarely, 3- sometimes,4- usually and 5- frequently.

Factor analysis of the DEBQ reveals factor loadings on restrained eating, external eating and two dimensions of emotional eating. One dimension of emotional eating involves eating in response to diffuse emotions; while the other involves eating in response to clearly labeled emotions (Van Strien et al 1986). Diffuse emotions include emotions such as: bored, idle or lonely (4 items). Clearly labeled emotions include emotions such as anger and irritation (9 items). The questionnaire has five scales: 1. Eating in response to diffuse emotions scale (4 items) 2. Eating in response to clearly labeled emotions scale (9 items), 3. Combined emotional eating scale (13 items), 4. Restrained eating scale (10 items). 5. External eating scale (10 items). Scores on each of the five scales, are obtained by dividing the sum of item scores by the total number of items on that scale. Item number 31 is scored in reverse (Van Strien et al., 1986). (see appendix B). Chronbach alpha reliability coefficients for three subscales, restrained, emotional and external eating styles was initially determined in the Dutch sample as .95, .94, and .80 respectively.

The DEBQ was translated into Turkish by Tekok (1988) and was found to have the same factor structure as the original questionnaire. The reliability coefficients for the restrained, emotional and external eating subscales were reported to be $\alpha = .91$, $\alpha = .92$, and $\alpha = .72$ respectively and the questionnaire was determined to be reliable for use in Turkish samples. Previous factor analysis of the DEBQ indicated that items loading on emotional eating accounted for 45 percent of the variance in scores for the Turkish sample, compared to 24.5 percent of variance predicted by emotional eating in

the Dutch sample (Tekok, 1988). In the present study the reliability coefficients for the restrained, emotional and external eating subscales were $\alpha = .87$, $\alpha = .95$, and $\alpha = .85$ respectively; with the emotional eating accounting for 29.2% of the variance in scores.

Bulimic Investigatory Test, Edinburgh

The presence of Binge eating patterns was assessed by the Bulimic Investigatory Test, Edinburgh (BITE). Developed by Henderson and Freeman in 1987, BITE is a questionnaire including questions on eating habits and concerns about eating, shape and weight as found in bulimia nervosa. It consists of 33 items with one item containing four questions making a total of 36 questions. Thirty questions relate to symptoms, and require a yes or no answer; each item answered yes receives a score of one; the first five items are scored in reverse. Six questions relate to the severity of symptoms and have five to seven response options. A score of 20 or above on the symptoms subscale indicates the presence of binge eating, a score between 10 and 19 implies unusual eating patterns and a score below 10 indicates no binge eating (Henderson & Freeman, 1987), (See appendix C). The severity subscale is used to assess the frequency with which an individual may be binge eating, fasting or engaging in purgative behavior (Henderson & Freeman, 1987). The reliability coefficient Chronbach alpha is reported to be .87 for the symptoms subscale; and .62 for the severity subscale (Henderson & Freeman, 1987).

The Turkish version of BITE has acceptable levels of validity and reliability in university students (Kıran, Akargun, Kara & Kutanis, 2000, cf. Erol et al, 2006); and has been used to investigate the prevalence of binge eating in a Turkish sample of obese women attending obesity clinics (Kaşıkçıoğlu, 1998, Vardar, et.al, 2003) and young adults, (Kızıltan, Karabudak, Ünver, Sezgin, & Ünal, 2006). The reliability

coefficient Chronbach alpha for the symptoms subscale in the present sample was found to be .87. Scores on the severity subscale were not included for analysis in this study.

Measures of Psychological Variables

Toronto Alexithymia Scale

Affective awareness and difficulty in expressing emotions was assessed by the Toronto Alexithymia scale (Bagby, Parker and Taylor, 1994). The Toronto Alexithymia scale is a paper and pencil, 20 itemed likert type self report questionnaire. Subjects are asked to rate each item on a scale ranging from 1 to 5 where 1 indicates never, 2 - rarely, 3 - sometimes, 4 - frequently and 5 - always. Items 4, 5, 10, 18 and 19 are scored in reverse. Higher scores imply intensity of alexithymia. The scale has 3 subscales: Difficulty in identifying emotions (TAS-1) is assessed by items 1,3,6,7,9,13,14; difficulty in expressing emotions (TAS-2) is assessed by items 2,4,11,12,17; and external oriented thinking (TAS-3) is assessed by items 5,8,10,15,16,18, 19,20 (see appendix 4). In multicultural studies reliability coefficients Chronbach alpha for the total scale are reported to range from .68 to .84; and for subscales TAS-1, TAS-2 and TAS-3, Chronbach alpha reliability coefficients range from, .67 to .85, .48 to .82 and .27 to .83 respectively (Taylor, Bagby & Parker, 2003). The Toronto alexithymia scale has been adapted for use in Turkish samples by Sayar, Güleç and Ak in 2001 (cf. Sayar, Güleç & Topbaş, 2004). In the present sample, the reliability coefficient for the total scale was found to be α=.81, and for the subscales difficulty in identifying emotion, difficulty in expressing emotion and external oriented thinking Chronbach α =.87, .58 and .26 respectively. Due to its low internal consistency, scores on the

external oriented thinking subscale were not included in the analysis as a separate measure although it was part of the total score.

Negative Mood Regulation Expectancies Scale

Negative mood regulation expectancy was a variable related to affect regulation which was assessed by the Negative Mood Regulation Expectancies Scale developed by Cantanzaro and Means (1990) to assess beliefs in one's ability to elevate a negative mood state. The Scale is a 30 itemed pen and pencil self report questionnaire. Respondents indicate how much they agree with each of the items on a 1-5 scale with 1 indicating strongly disagree, to 5 indicating strongly agree. Items 3, 5, 8, 11, 14, 18, 19, 21, 22, 24, 25, 27, 28 and 30 are scored in reverse. Higher scores indicate a stronger belief that one can eliminate a negative mood (Cantanzaro & Means 1990). (See appendix E). The scale was translated into Turkish by Kaymakçıoğlu in 2001 (Kaymakçıoğlu, 2001). Reliability coefficient Cronbach alpha for the Turkish sample was reported to be .88. split half reliability was .86 (Öner 2008). The reliability coefficient was found to be .88 in the present sample.

Trait Anger and Anger Expression Scales

Trait anger and expression of anger was assessed by the Trait Anger and Anger Expression scales of the State – Trait Anger and Anger Expression Inventory which was first developed in 1983 by Spielberger, Jacobs, Russell and Crane; and was adapted into Turkish by Özer in 1994 (Öner, 2008). The scale is a self report pen and paper likert type questionnaire consisting of 34 items, with items 1 to 10 assessing trait anger and 24 items construing 3 subscales assessing how anger is expressed. High scores on the "expression of anger in" subscale indicate that anger is repressed. High

scores on the "expression of anger out" subscale imply that anger is outwardly expressed; whereas high scores on the "anger controlled" subscale indicate that anger is controlled (Forgays, Forgays & Spielberger, 1997). Each of the subscales assessing the expression of anger has 8 items. "Expression of anger in" is assessed by items 13, 15, 16,20, 23, 26, 27 and 31, "expression of anger out" is assessed by items 12, 17, 19, 22, 24, 29, 32 and 33; and "anger controlled" is assessed by items 11, 14, 18, 21, 25, 28, 30 and 34. Subjects are expected to rate each item on a 1-4 scale according to how well the item describes them (Öner, 2008). (See appendix 6). Chronbach alpha reliability coefficients for trait anger, controlled anger, expression of anger out and repressed anger subscales have been reported to be .83, .85, .75 and .76 respectively for the female samples (Spielberger, Reheiser, & Sydeman, 2005). The scale has been reported to be valid and reliable for use in Turkish samples (Öner, 2008). Reliability coefficients for trait anger, controlled anger, expression of anger out and anger in subscales in the Turkish sample have been reported to be α=.79, α=.84, α=.78 and α =.62 respectively (Öner, 2008). In the current study reliability coefficients Chronbach alpha for the four subscales were found to be α=.88, α=.80, α=.79, and α=.56 respectively.

Demographic Information Form

The demographic information sheet was used to gather information on participant's age, gender, marital status, level of education, occupation, and whether the participant was currently dieting or receiving professional assistance for weight loss, and if so what type of assistance was being received and for how long. The participants were also asked to report information on previous attempts at weight loss, and their perception of, and satisfaction with their current weight. Participants were asked brief

questions about their health status and belief about factors contributing to their weight gain. (See appendix A).

Procedure

An informed consent form informing the participants about the main subject matter of the study was handed out before the questionnaires (see appendix7). The participants were handed the battery of questionnaires to fill in along with the demographic information form and an empty envelope. The order of the questionnaires in each set was counterbalanced. The set of two questionnaires on eating habits were presented before the set of questionnaires on psychological measurements of affect regulation. Participants who consented to take part in the study anonymously filled in and returned the questionnaires in sealed envelopes, which were handed to them with the questionnaires. Objective measurements of weight and height were obtained from 88 participants; for the rest of the 116 participants self reported measures of weight and height were used. Self reported measures of height and weight have been reported to be highly correlated with objective measures (Attie & Brooks-Gunn, 1989). Body mass indices were calculated for each participant from objective or self reported measures of weight and height.

CHAPTER III:

RESULTS

Data Reduction

Out of the 332 batteries handed out, 252 were returned. A total of 44 participants had missing data. Among these, 17 who had not completed the demographic information sheet, or had items left blank on each of the questionnaires were excluded from the study. Twenty seven participants who completed the demographic information sheet but had items left unanswered on one of the questionnaires, were excluded from the analysis concerning the questionnaire, but their data was retained for analyses on the rest of the variables. Overall data from 208 participants was retained. Outliers were determined on basis of body mass index and age. One participant with a very low body mass index of 14. 9, and three participants aged 75, 70 and 68, were excluded from the study. Overall data from 204 participants was analyzed. The weight categories to which the participants were initially assigned are presented in Table 1.

Table 1: Frequency and Percentages of Weight Categories in the Sample

Weight category	Frequency	Percentage
Underweight	4	2,0
Normal	78	38,2
Overweight	52	25,5
Obese	39	19,1
Severely Obese	20	9,8
Morbid Obese	11	5,4
Total	204	100

With the aim testing the plausibility of including the four slightly underweight participants into the normal group, twelve independent samples t-tests were conducted comparing the normal and underweight participants on eating styles, binge eating and variables related to affect regulation. Significant differences were found between the normal, (M = 3.108, SD = .775) and underweight, (M = 2.050, SD = 1.156) groups on restrained eating style subscale scores, [$t(79) = -2.601$, $p < .02$, $\eta^2 = .03$]. This difference may result from the restrained eating patterns of normal weighted participants who were trying to lose weight. Likewise independent samples t-tests comparing normal and underweight subjects who were not dieting or receiving help for weight loss yielded insignificant differences among normal, (M = 2.784, SD = .738) and underweight, (M = 2.050, SD = 1.156) groups for restrained eating, [$t(48) = -1.828$; $p = .07$, $\eta^2 = .01$]. Therefore the underweight participants were included for analyses under the normal group.

With the aim of combining severely and morbidly obese participants together with the obese, twelve one way between groups ANOVA tests were conducted comparing obese, severely obese and morbid obese groups on eating styles, binge eating and variables related to affect regulation. A significant difference was found between groups on the Anger Out subscale of the anger expression scales, [$F(2,64) = 3.644$; $p < .05$]. However the homogeneity of variances assumption does not hold for anger out subscale scores, (*Levene statistic* = 6.171, $p < .005$); further analysis with Welch robust test of equality of means and Kruskal Wallis test indicate insignificant differences between groups on anger out subscale scores; [*Welch test statistic* = 3.360, $p = .054$; $\chi^2(2,n = 67) = 5.073$; $p = .08$]. These groups were collapsed into one category, labeled obese.

Characteristics of the Sample

Participants were assigned into obese, overweight or normal weight subsamples according to their body mass index; and for further analyses they were assigned into two subcategories according to whether they were currently receiving professional assistance for weight loss or not. The mean age of the sample was 34.7, with age ranging from 16 to 66. Body mass index ranged from 16.9 to 52.07, with a mean of 27.82. Ninety three participants, 45.6 percent of the sample, were currently seeking professional assistance for weight loss. Forty five of these were assessed prior to receiving any weight loss intervention; however for those who were receiving intervention the mean duration was 14 weeks. A Chi Square test of independence revealed a significant association between weight status and satisfaction with body size, [χ^2 (2,n = 204) = 65.222, p < .001]. None of the obese participants were satisfied with their weight, and 90% were currently trying to lose weight by dieting or seeking professional assistance for weight loss. Five (9.6 %) of the overweight participants reported being satisfied with their weight. These participants had a BMI ranging between 25.15 and 28.52. However 37.8% of the normal weighted participants were currently dieting or receiving professional assistance for weight loss and only 52.4% were satisfied with their weight.

Table 2: Distribution of Participants into Categories in Respect to Weight and Intervention Received For Weight Loss

Weight Category	Number of Participants With Intervention	Number of Participants With No Intervention	Total Number of Participants
Obese	54	16	70
Overweight	20	32	52
Normal	19	63	82
Total	93	111	204

Table 3: Range and Means of Age and Body Mass Index

Weight Category	Mean Age	Age Range	Mean BMI	BMI Range
Obese	35,3	17 - 66	35.58	16.9 – 25.00
Overweight	37,6	16 - 66	27.20	25.0 – 29.41
Normal	32,2	19 - 56	21.58	30.04 – 52.07
Total	34,7	16 - 66	27.82	16.9 – 52.07

Note : BMI: Body Mass Index.

A total of 8 subjects reported having received psychiatric or psychological treatment for problems related to their weight, and 87 (70 %) of the participants claimed to have received some kind of professional assistance for weight loss in the past. Hundred and twenty four participants, 60.8 % of the sample, claimed to be currently trying to lose weight and 40, (19.6 %) claimed to be trying to maintain their current weight. Thirty nine participants, (19 % of the sample) were not taking any action for weight control. Only 29.4 % of the participants claimed to be exercising. Thirty one percent of the sample were smokers and 40.9 % claimed to consume alcohol regularly or occasionally. Fifty two percent of the participants reported at least one member of their immediate family to be either obese or overweight About 39% of the normal weighted subsample compared to 65.2% of the obese and 55.8% of the overweight subsamples

reported at least one member of their close family to be either overweight or obese, [χ^2 (2, n = 203) = 10.657, p < .005].

Seven participants were reported to have no formal education, 45 had primary, and 79 had secondary school education; 69 of the participants were university graduates or post graduates. Data related to education was missing for 4 participants. Chi square test of independence indicated a significant association between educational status and weight group, [χ^2 (8, n = 200) = 49.686, p < .001].

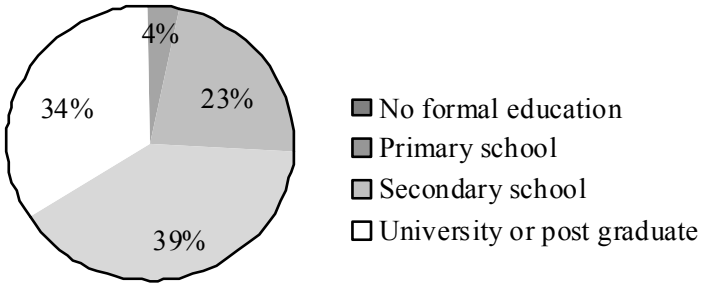

Figure 1. Distribution of participants in respect to educational status

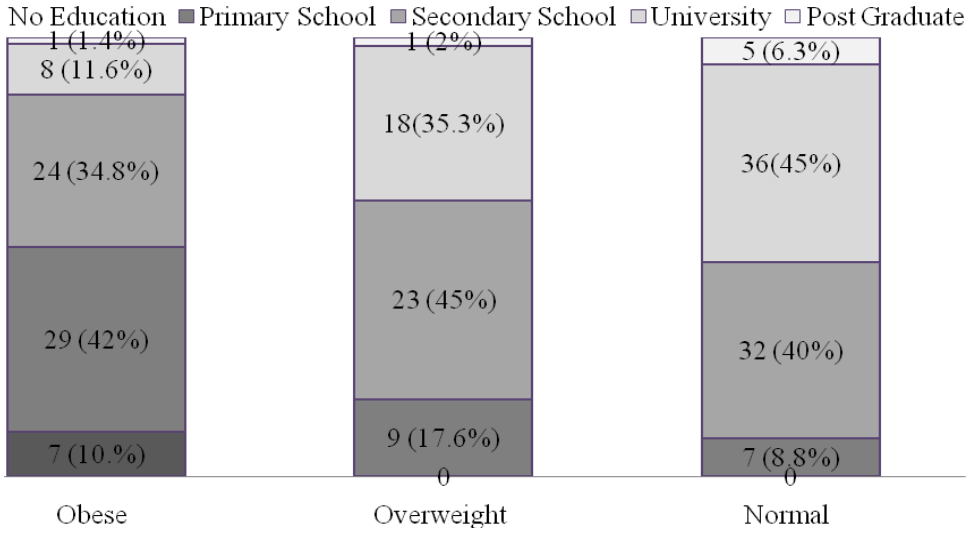

Figure 2. Distribution of Participants in Respect to Educational Status in Each Weight Sample

About 50.5%, 103, of the participants were currently employed. Among the rest of the participants 84 were housewives, 3 were retired and 13 were studying; data related to occupational status was missing for one participant. Chi Square test of independence indicated a statistically significant association between employment status and weight group, [$\chi^2(4, n = 203) = 45.539, p < .001$].

Figure 3. Distribution of participants in respect to employment status in each weight sample

Data on marital status revealed that 107 of the participants were married, 75 single, 15 divorced and 7 widowed. Chi Square test of independence indicated a statistically significant association between marital status and weight group, [$\chi^2 (6, n = 204) = 22.005, p < .001$].

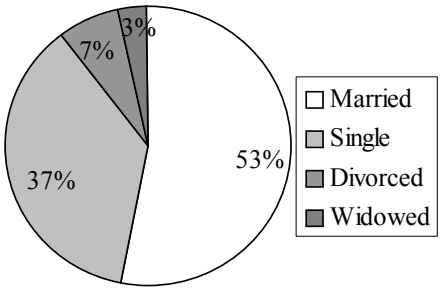

Figure 4. Distribution of participants in respect to marital status

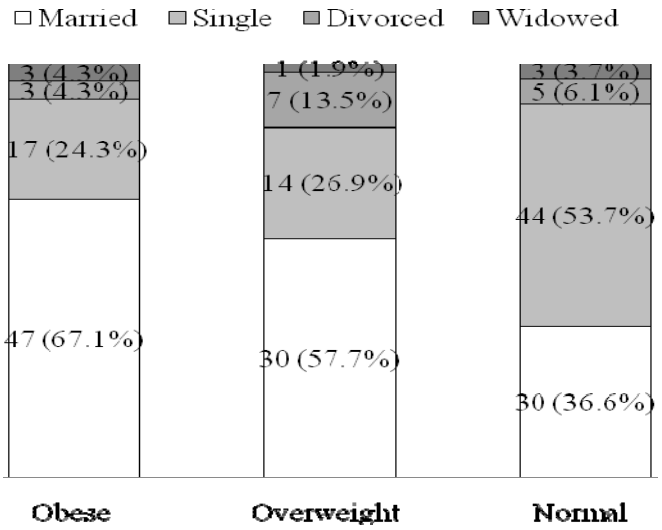

Figure 5. Distribution of participants in respect to marital status in each weight sample

Pearson product-moment correlations between body mass index and some of the other demographic variables show that BMI is positively correlated with child number, [$r(201) = .38$, $p < .001$], weight fluctuation, [$r(194) = .66$, $p < .001$], and number of previous attempts at weight loss, [$r(198) = .20$, $p < .005$]; and negatively correlated with age of onset of perceived weight problems, [$r(154) = -.21$, $p < .01$]. The correlation between BMI and age is found to be marginally significant, [$r\ (204) = .13$, $p = .07$]. One way between groups ANOVA indicated significant differences between groups in respect to BMI for alcohol use, [$F\ (2,200) = 17.820$, $p < .001$, $partial\eta^2 =$

.15]. No difference between groups was found in respect to BMI among smokers and non smokers, [F (2,199) = .819, p = .44, $partial \eta^2$ = .01].

Post Hoc comparisons using Tukey HSD showed that participants who reported no alcohol consumption were found to have higher BMI, (M = 30.05, SD = 6.79) than those who claimed to consume alcohol, (M = 23.30, SD = 3.17), ($p < .001$). However when the association between alcohol consumption and weight was investigated using one way between groups ANOVA tests, conducted separately within each weight category, no significant differences in mean BMI was observed between those who consumed alcohol and those who did not.

Results Related to the Hypotheses

Eating Styles and Body Mass

The first hypothesis predicted that obese and overweight participants would report more emotional eating than normal weighted participants. One way between groups MANOVA test yielded a significant difference between weight groups on combined eating style scale scores, [F(6,390) = 2.846, $p < .01$, $Wilks' \lambda$ = .92, $partial\ \eta^2$ = .04]. However the only difference between groups to reach statistical significance at Bonferroni adjusted alpha level of .017 was on the emotional eating subscale, [F(2,197) = 6.565, $p < .005$, $partial\ \eta^2$ = .06]. *Post Hoc* multiple comparisons using Games-Howell indicated that the obese, (M = 2.525, SD = 1.054) and overweight, (M = 2.412, SD = 1.085) samples had significantly higher mean scores on the emotional eating scale, than the normal sample, (M = 1.976, SD = .821) at alpha levels .005 and .05 respectively. Obese and overweight samples were not found to differ significantly

on emotional eating. No significant difference was observed among weight groups in respect to restrained, [F (2,197) = .017, p = .98] and external eating styles, [F (2,197) = .85, p = .4].

Table 4: Means and Standard Deviations of Eating Styles Subscale Scores for Three Weight Categories

	Restrained eating		Emotional eating		External eating	
	M	SD	M	SD	M	SD
Obese (n = 68)	3.066	.799	2.525	1.054	2.798	.842
Overweight (n = 51)	3.082	.809	2.412	1.085	2.971	.864
Normal (n = 81)	3.055	.821	1.976	.821	2.811	.684
Total (n = 200)	3.066	.806	2.274	1.002	2.847	.787

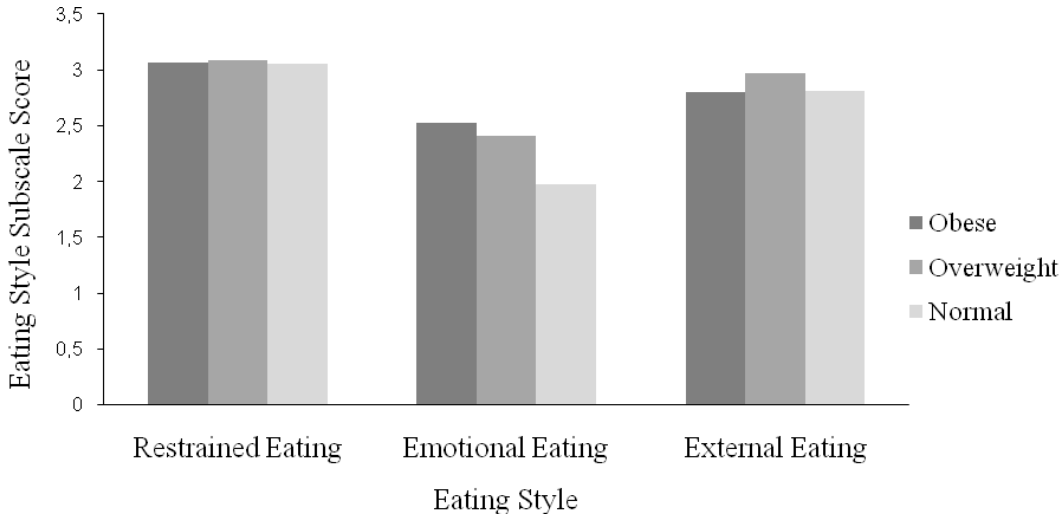

Figure 6. Eating style subscale score means of the three weight samples

Pearson product-moment correlation analysis investigating the association between body mass index and eating styles indicated a significant correlation between BMI and emotional eating, [r (200) = .27, p < .001]. No significant correlations were observed

between BMI and restrained, [r (200) = -.007, p = .92] or external eating styles, [r(200) = .021, p = .77].

Table 5: Pearson Product-Moment Correlations between BMI and Eating Style Subscale Scores

	Body Mass Index	Restrained Eating	Emotional Eating	External Eating
Body Mass Index	1	-.007	.274***	.021

*** $p < .001$

However curve estimates indicated a significant quadratic relationship between BMI and restrained eating, [Restraint = .160(BMI) -.300$(BMI)^2$ + .792; F(2, 197) = 3.632, $p < .05$]. Further analysis using hierarchical multiple regression analysis confirmed the effect of BMI^2 to account for 3.6% variance in restrained eating after controlling for the main effect of BMI, [F(1, 197) = 7.253, $p < .01$]. No linear or quadratic association was observed between external eating and BMI; and no statistically significant support for a quadratic relationship was obtained between emotional eating and BMI indicating that this relationship did not deviate from a linear association, [Emotional Eating = .041(BMI) + 1.137], with BMI accounting for 3.6% of the variance in emotional eating style subscale scores, [F (1, 198) = 16.107, $p < .001$].

In line with the observed quadratic association between BMI and restrained eating, a positive and significant correlation was found between BMI and restrained eating subscale scores for normal weighted participants, [r (81) = .32, $p < .005$]; while negative and insignificant correlations were observed between BMI and restrained eating for the overweight, [r (51) = -.11, p = .45], and obese subsamples, [r (68) = .20, p = .1].

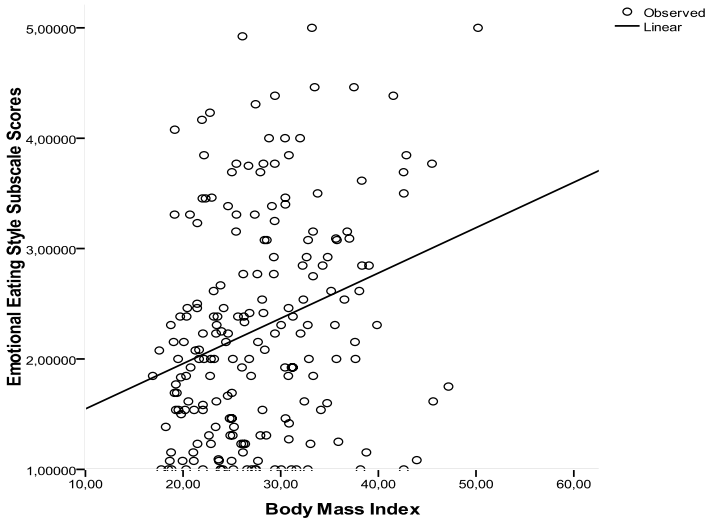

Figure 7. Scatter plot with regression line indicating association between emotional eating and BMI.

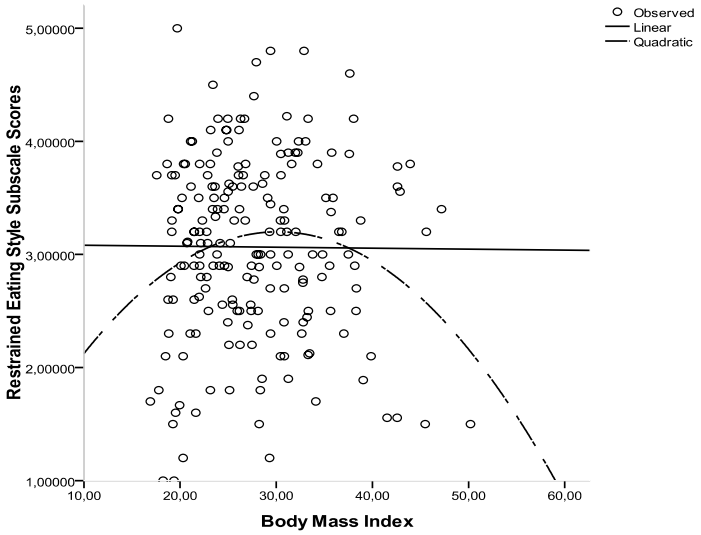

Figure 8. Scatter plot with regression curve indicating association between restrained eating and BMI.

Emotional Eating and Affect Regulation

The second hypothesis predicted an association between emotional eating and psychological variables related to affect regulation. Pearson product-moment correlation analysis used to investigate this association yielded statistically significant

correlations between emotional eating subscale scores and negative mood regulation expectancies, and alexithymia variables as presented in Table 6. No significant correlations were found between emotional eating and trait anger and anger expression variables. Furthermore the presence of a quadratic relationship between affect regulation variables and emotional eating was also implied for negative mood regulation expectancies, [F (2,185) = 4.485, $p < .05$] and variables related to alexithymia, [F (2,181) = 4.910, $p < .01$]. One way between groups ANOVA with post hoc comparisons using Tukey HSD, investigating the difference between high, low and moderate emotional eaters in respect to negative mood regulation expectancies confirmed that those with moderate emotional eating had significantly higher scores, (M = 107.997, SD = 16.07) than the group with high emotional eating, (M = 97.141, SD = 14.51), [F(2,185) = 6.252, $p < .005$]. Negative mood regulation expectancy scores of the low emotional eating group, (M = 103.537, SD = 22.3) did not differ from those with high or moderate emotional eating, (p = .2).

Table 6: Pearson Product-Moment Correlations between Emotional Eating Style Subscale Scores and Variables Related to Affect Regulation

	Negative Mood Regulation	Trait Anger	Anger In	Anger Out	Anger Control	Alexi-thymia	Difficulty Identifying Emotions	Difficulty Expressing Emotions
Emotional Eating	-.184*	.071	.127	.064	-.069	.184*	.196**	.189**

* $p < .05$ ** $p < .01$

Further analysis using hierarchical multiple regression to investigate the effect of interaction between emotional eating and BMI on variables related to affect regulation, after controlling for the main effect of BMI and emotional eating, indicated statistically significant effects for interaction between BMI and emotional eating on all of the affect regulation variables, except for anger control for which the effect was marginal,

[*F change* (1, 187) = 3.588, *p* = .06]. The interaction effect accounted for an additional 1.9% of variance in anger control and an additional 2.1% of variance in negative mood regulation expectancy scores, [*F change* (1, 184) = 4.115, *p* < .05]; 7.5% of variance in Trait anger, [*F change* (1, 187) = 16.086, *p* < .001]; 2.6% of variance in anger in, [*F change* (1, 187) = 5.535, *p* < .05]; 9.7% of variance in anger out, [*F change* (1, 187) = 20.584, *p* < .001]; 5.5% of variance in total alexithymia scale scores, [*F change* (1, 180) = 11.431, *p* = .001] and 6.6 to 6.7% of variance in difficulty in identifying, [*F change* (1, 180) = 14.069, *p* < .001] and expressing emotions, [*F change* (1,180) = 13.675, *p* < .001] subscale scores respectively.

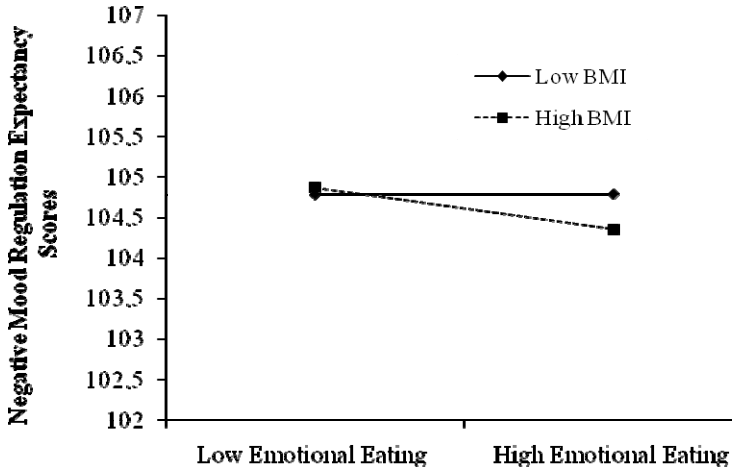

Figure 9. The interaction effect between bmi and emotional eating on negative mood regulation expectancy scale scores.

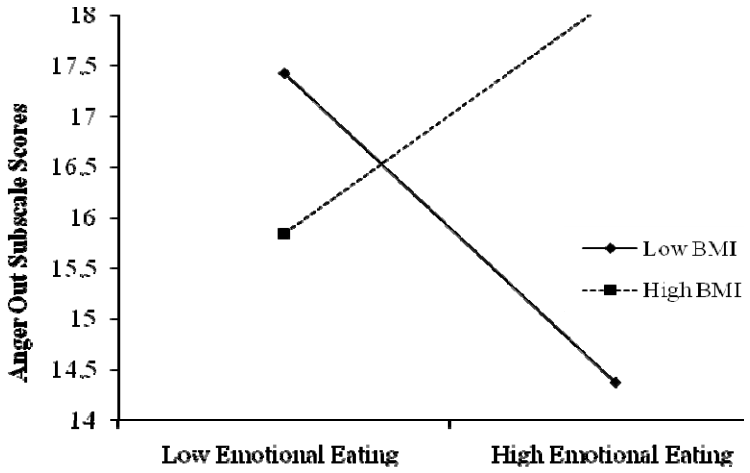

Figure 10. The interaction effect between bmi and emotional eating on anger out.

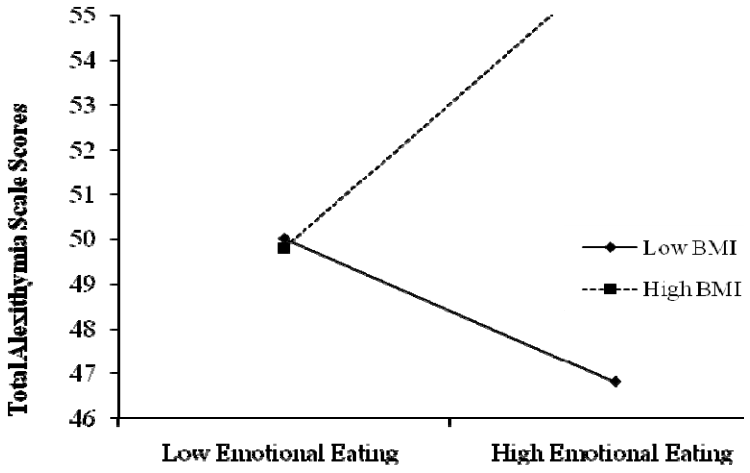

Figure 11. The interaction effect between bmi and emotional eating on alexithymia.

When the association between emotional eating and affect regulation variables were investigated separately in the obese, overweight and normal samples, Pearson product moment correlations between emotional eating and affect regulation variables were all significant for the obese group, except for anger control, for which there was a small and insignificant negative correlation, [$r(65) = -.22$, $p = .078$]. However correlations between emotional eating and affect regulation were found to be weak and

insignificant in the normal group; and anger out was the only variable found to be significantly correlated to emotional eating in the overweight group, [$r(49)= -.35$, $p < .02$].

Table 7: Pearson Product-Moment Correlations between Emotional Eating and Variables Related to Affect Regulation for Three Weight Groups

Emotional Eating	Negative Mood Regulation	Trait Anger	Anger In	Anger Out	Anger Control	Alexi-thymia	Difficulty Identifying Emotions	Difficulty Expressing Emotions
Obese	-.315*	.256*	.306*	.290*	-.220	.336**	.345**	.343**
Over-weight	.036	-.225	-.116	-.345*	.141	.053	.031	.182
Normal	-.150	-.099	-.006	.027	-.125	.048	.061	-.049

Note: * $p < .05$ ** $p < .01$

Binge Eating and Body Mass

According to scores obtained on the symptoms subscale of the Bulimia Investigatory Test Edinburgh, 90, (44.3 %) of the participants reported no binge eating; 82, (40.4 %) reported unusual eating patterns, and 31, (15.3 %) reported binge eating. In line with the third hypothesis which predicted that obese and overweight participants would report more binge eating than normal weighted participants, the chi-square test for independence revealed a significant association between weight and binge eating style, [$\chi^2(4, n = 203) = 37.821$, $p < .001$]. Thirty percent of the obese sample and 15.4 % of the overweight sample reported binge eating, while only 2.5 % of the normal weighted participants reported binge eating.

Table 8: Number and Percentage of Participants in Each Weight Sample Reporting Binge Eating, Unusual Eating or No Binge Eating

	No Binge Eating	Unusual Eating	Binge Eating
Obese (n = 70)	23 (33%)	26 (37%)	21 (30%)
Overweight (n = 52)	14 (27%)	30 (57%)	8 (15.4%)
Normal (n = 81)	53 (65.4%)	26 (32.1%)	2 (2.5%)
Total (n = 203)	90 (44.3%)	82 (40.4%)	31 (15.3%)

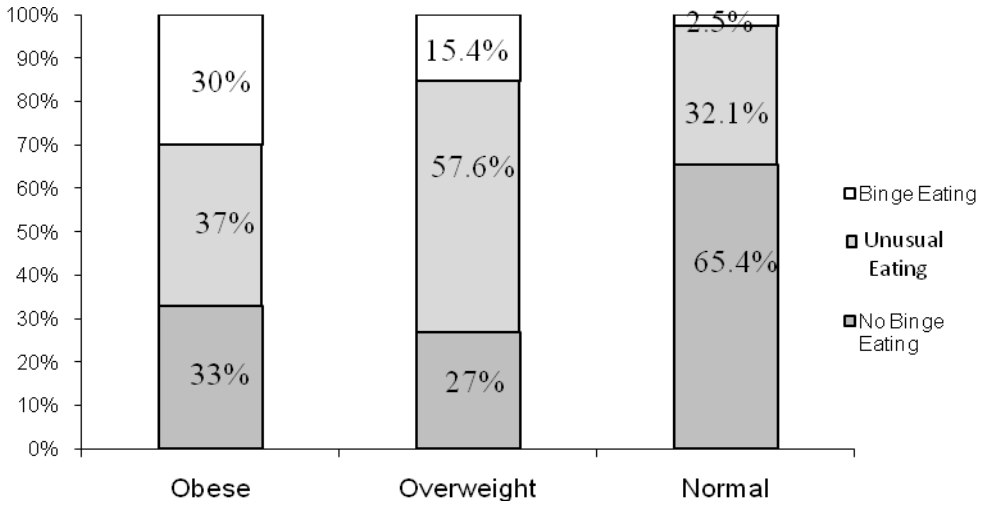

Figure 12. Percentage of binge eating patterns reported in weight samples.

Binge Eating and Eating Styles

Hypothesis four predicted that participants who report binge eating would report more emotional eating than those with no binge eating. One way between groups MANOVA revealed significant differences on the combined eating style subscale scores between groups reporting binge eating, unusual eating and no binge eating, [$F(6,388) = 15.099$, $p < .001$; *Wilks'* $\lambda = .66$; *partial* $\eta^2 = .19$]. When results for eating styles were analyzed separately, the groups were found to differ significantly at Bonferroni adjusted alpha level of .017 on emotional eating, [$F(2,196) = 39.291$, $p < .001$; *partial* $\eta^2 = .29$] and external eating scores, [$F(2,196) = 22.075$, $p < .001$; *partial* $\eta^2 = .18$]. No statistically

significant difference was found between groups in respect to restrained eating, [F (2,196) = 2.108, p = .12; *partial* η^2 = .02].

Post Hoc comparisons using Games-Howell indicated the emotional eating style subscale score mean for the binge eating group, (M = 3.360, SD = .893) to be significantly higher than the means of the groups reporting unusual eating, (M = 2.404, SD = .928) and no binge eating, (M = 1.797, SD = .754) at alpha level .001. Post Hoc comparisons using Tukey HSD indicated the mean external eating style subscale scores of the binge eating group, (M = 3.507, SD =.766) to be significantly higher than the groups reporting unusual eating, (M = 2.944, SD = .742) and no binge eating, (M = 2.530, SD = .674) at alpha level .001.

Table 9: Eating Style Subscale Scores for Reported Binge Eating Style

	Restrained eating		Emotional eating		External Eating	
	M	SD	M	SD	M	SD
Binge Eating (n=31)	2.792	.760	3.360	.893	3.507	.766
Unusual Eating (n = 82)	3.139	.788	2.404	.928	2.944	.742
No Binge Eating (n =90)	3.086	.830	1.797	.754	2.530	.674

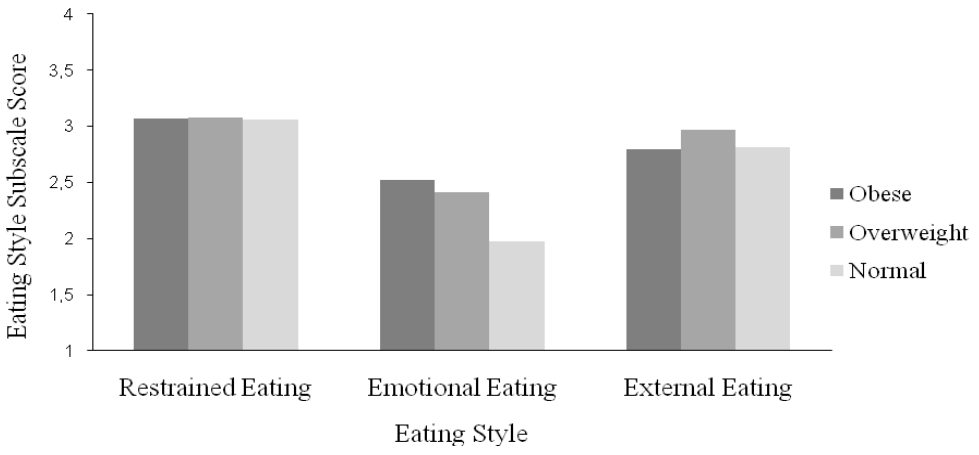

Figure 13. Eating styles subscale score means for reported binge eating styles

Hierarchical multiple regression analysis indicated no significant interaction between binge eating and BMI on emotional eating. [*F change* (1, 195) = .418 *p* = .519], after controlling for the main effects of BMI and binge eating. The total variance in emotional eating style subscale scores explained by binge eating, BMI and interaction of BMI and binge eating style was 22.1% , [$F(3, 196) = 18.398$, $p < .001$]; with only binge eating recording a significant Beta value of .381, ($p < .001$), confirming the main effect of binge eating on emotional eating in all weight groups.

Binge Eating and Psychological Variables Related to Affect Regulation

In line with the fifth hypothesis predicting an association between binge eating and affect regulation, one way between groups MANOVA revealed statistically significant differences between groups reporting no binge eating, unusual eating, and binge eating on combined affect regulation variables, [$F(16,340) = 2.518$, $p < .001$; *Wilks' λ* = .8; *partial* η^2 = .11].

When results for affect regulation variables were considered separately the only differences which failed to reach statistical significance at Bonferroni adjusted alpha level .006 were Anger Out, [$F(2,178) = 4.739$; $p = .01$] and Anger Control, [$F(2,178) = 2.985$; $p = .053$]. Differences between groups on the rest of the affect regulation variables, Negative mood regulation expectancy, [$F(2,178) = 6.061$, $p < .005$; partial $\eta^2 = .06$], Trait anger, [$F(2,178) = 6.197$, $p < .005$; *partial* $\eta^2 = .07$], Anger in, [$F(2,178) = 8.520$, $p < .001$; *partial* $\eta^2 = .09$], Alexithymia, [$F(2,178) = 8.224$, $p < .001$; *partial* $\eta^2 = .09$], Difficulty in identifying emotions, [$F(2,178) = 11.564$, $p < .001$; *partial* $\eta^2 = .12$] and Difficulty in expressing emotions, [$F(2,178) = 8.554$, $p < .001$; *partial* $\eta^2 = .09$], were significant at alpha level .006.

Post Hoc comparisons using Games-Howell indicated that mean scores on the negative mood regulation expectancy scale of the group reporting no binge eating, was higher than those reorting binge eating at alpha level .005. Post Hoc comparisons using Tukey HSD indicated that trait anger and anger in subscale scores of the binge eating group were significantly higher than those with no binge eating at alpha level .005. Alexithymia scale scores and difficulty in expressing emotions subscale scores of the binge eating group were found to be significantly higher than the no binge eating group at alpha levels .001. Furthermore difficulty in identifying emotions subscale scores of the binge eating group, (M = 3.192, SD = .882) were found to be significantly higher than the groups reporting no binge eating, (M = 2.261, SD =.811) and unusual eating, (M = 2.535, SD = .929) at alpha level .001.

Table 10: Affect Regulation Scale Score Means and Standard Deviation for Binge Eating Style

	No Binge Eating		Unusual Eating Patterns		Binge Eating	
	M	SD	M	SD	M	SD
Negative Mood Regulation	108.401	19.929	103.093	15.297	95.926	15.681
Trait Anger	22.146	6.188	24.203	6.899	27.123	6.461
Anger In	16.693	4.188	18.162	3.560	20.275	4.559
Anger Out	15.739	4.612	17.281	4.578	18.778	5.494
Anger Control	21.808	4.681	20.629	5.078	19.317	4.458
Alexithymia	48.398	10.147	52.402	11.341	58.040	12.336
Difficulty in Identifying Emotions	2.261	.811	2.535	.929	3.192	.882
Difficulty in Expressing Emotions	2.466	.784	2.721	.689	3.172	.960

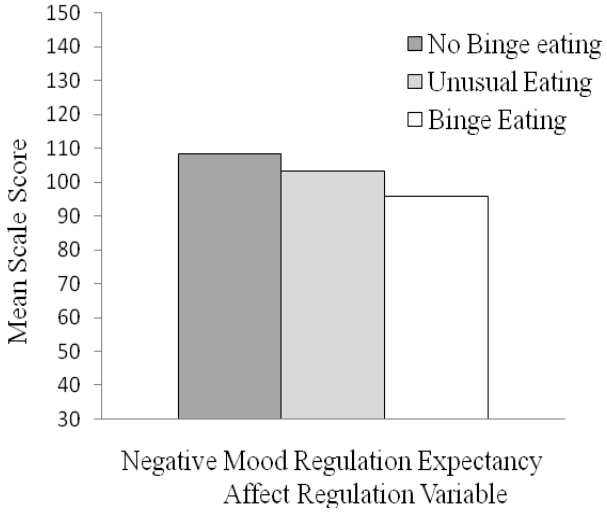

Figure 14. Negative mood regulation expectancies scale score means for reported binge eating styles

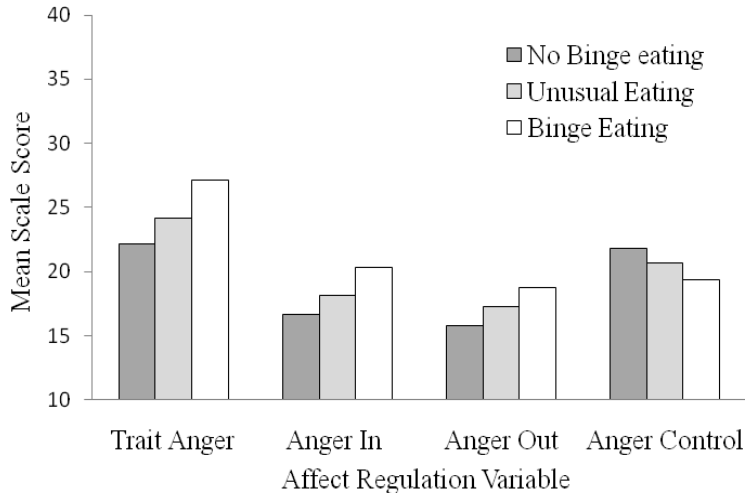

Figure 15. Trait anger and anger expression scale score means for reported binge eating styles

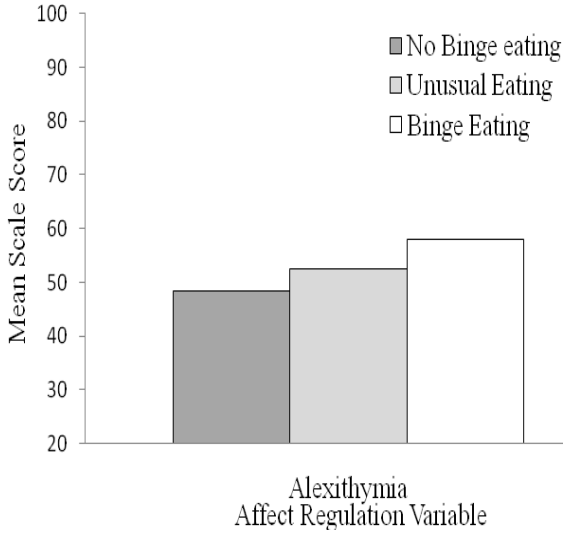

Figure 16. Alexithymia scale score means for reported binge eating styles

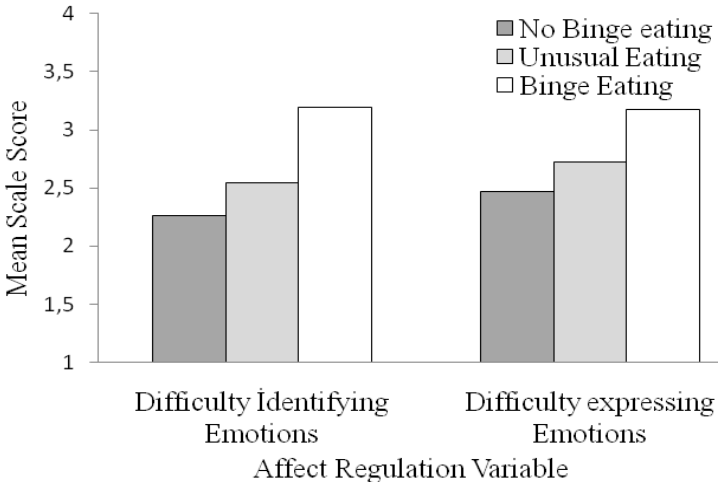

Figure 17. Alexithymia subscale score means for reported binge eating styles

Other Findings

Body Mass and affect regulation

Pearson product-moment correlations between BMI and variables related to affect regulation revealed BMI to be positively and weakly correlated to trait anger, [$r(195) = .18$, $p < .05$], repressed anger, [$r(195) = .17$, $p < .05$], alexithymia, [$r(188) = .24$, $p =$

.001], difficulty in identifying emotions, [r(188) = .27, p < .001] and difficulty in expressing emotions, [$r(188) = .21$, $p < .01$]. A small, negative correlation was observed between BMI and negative mood regulation expectancies, but this was marginally significant, [$r\ (190) = -.14$, $p = .054$].

Table 11: Pearson Product-Moment Correlations between BMI and Affect Regulation Variables

	Negative Mood Regulation	Trait Anger	Anger In	Anger Out	Anger Control	Alexi-thymia	Difficulty Identifying Emotions	Difficulty Expressing Emotions
BMI	-.140	.182*	.170*	.125	.036	.241***	.273***	.205**

Note: * $p < .05$ **$p < .01$ *** $p < .001$

Further analysis of the association between BMI and affect regulation variables using curve estimates revealed significant quadratic relationships alongside linear relationships between BMI and affect regulation variables, trait anger, [TA = $.003(BMI)^2 + .008(BMI) + 21.029$; $F(2,192) = 3.361$, $p < .05$], anger in, [Anger In = $.004(BMI)^2 - .125(BMI) + 18.146$; $F(2,192) = 3.182$, $p < .05$], total alexithymia scale scores, [TAS = $.008(BMI)^2 - .112(BMI) + 47.707$; $F(2,185) = 5.924$, $p < .005$], difficulty in identifying emotions, [TAS-1 = $.001(BMI)^2 - .028(BMI) + 2.428$; $F(2,185) = 8.020$, $p < .001$], and difficulty in expressing emotions subscale scores, [TAS-2 = $.001(BMI)^2 - .054(BMI) + 3.130$; $F(2,185) = 5.093$, $p < .001$], each implying a higher increase in trait anger, repressed anger, alexithymia and difficulty in identifying and expressing emotions, with increasing BMI.

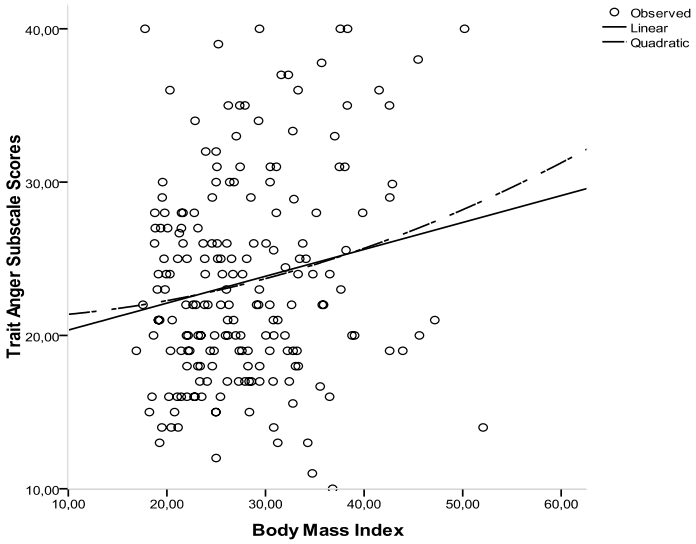

Figure 18. Scatter plot with regression curve indicating association between trait anger and BMI

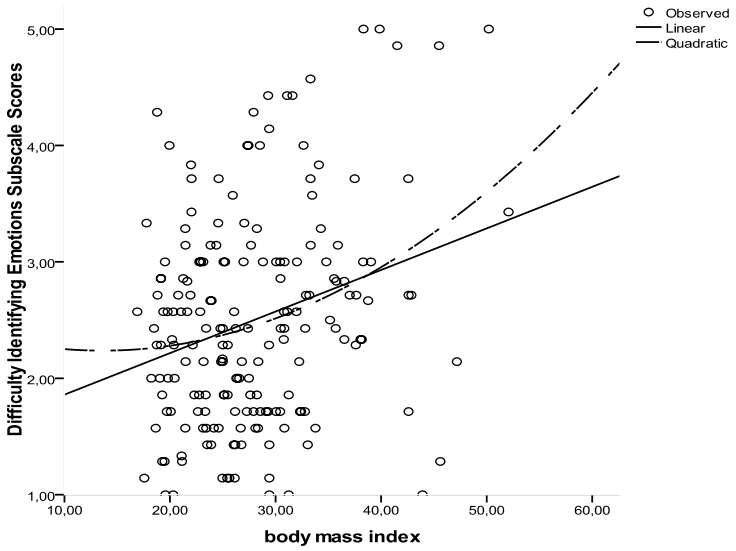

Figure 19. Scatter plot with regression curve indicating association between bmi and difficulty in identifying emotions.

Eating Styles, Binge Eating and Weight Dissatisfaction

Independent samples t- tests investigating the association between dissatisfaction with weight and eating styles confirmed that those who were dissatisfied with their weight reported more restrained eating, (M = 3.163, SD = .780) than those who were satisfied with their weight, (M = 2.811, SD = .811), [$t(196) = 2.681$, $\eta^2 = .04$, $p < .01$]; and those who reported dissatisfaction with their weight reported more emotional eating, (M = 2.415, SD = 1.019) than those who did not, (M = 1.825, SD = .822), [$t(196) = 3.619$, $\eta^2 = .07$, $p < .001$]. The difference between external eating subscale scores of those who were satisfied with their weight (M = 2.654, SD = .640) and those who were not (M = 2.910, SD = .823) was marginally significant, [t (196) = 1.955, $\eta^2 = .02$, p = .052].

A chi square test of independence revealed an association between binge eating and weight satisfaction, [$\chi^2(2, n = 198) = 23.144$, $p < .001$], indicating that binge eaters were less satisfied with their weight, and that while 19.1% of those who reported weight dissatisfaction reported binge eating, only 2.2% of those who reported being satisfied with their weight reported binge eating.

Other Findings on Associations between Binge Eating, Eating Styles and Affect Regulation

Pearson product-moment correlation analysis investigating the association between eating style subscale scores revealed that external eating scores were negatively correlated to restrained eating, [$r(200) = -.30$, $p < .001$], and positively correlated to emotional eating style subscale scores, [$r(200) = .43$, $p < .001$]. No significant

correlations were observed between restrained and external eating styles, [$r(200) = -.055$, $p = .5$].

Table 12: Pearson Product-Moment Correlations between Eating Style Subscale Scores

	Restrained Eating	Emotional Eating	External Eating
Restrained Eating	1	-.053	-.300***
Emotional Eating		1	.430***
External Eating			1

*** p < .001

Pearson product-moment correlation analysis used to investigate associations between eating style subscale scores and variables related to affect regulation revealed a statistically significant positive correlation between restrained eating style and negative mood regulation expectancies, [$r(188) = .240$, $p < .001$], and anger control, [$r(191) = .150$, $p < .05$]. Restrained eating was observed to be negatively correlated to expression of anger out, [$r\ (191) = -.202$, $p < .05$], and alexithymia, [$r(184) = -.292$, $p < .001$].

Table 13: Pearson Product-Moment Correlations between Eating Style Subscale Scores and Variables Related to Affect Regulation

Eating Style	Negative Mood Regulation	Trait Anger	Anger In	Anger Out	Anger Control	Alexi-thymia	Difficulty Identfying Emotions	Difficulty Expressing Emotions
Res-trained	.240***	- .092	-.125	-.202**	.150*	-.292***	-.256***	-.272***
Emo-tional	-.184*	.071	.127	.064	-.069	.184*	.196**	.189**
Ex-ternal	-.053	.148*	.108	.194	-.113	.136	.192**	.177*

Note: * $p < .05$ ** $p < .01$ *** $p < .001$

A series of hierarchical multiple regression analysis conducted to investigate the effect of interaction between eating styles and binge eating on variables related to affect regulation, after controlling for the main effects of eating styles and binge eating, revealed no significant interaction effect between restrained eating and binge eating on affect regulation variables. However significant interaction effects were observed between emotional eating and binge eating on affect regulation variables; implying a significant association between emotional eating and affect regulation for binge eaters. The Interaction effect between emotional eating and binge eating was found to account for an additional 2.2% of variance in negative mood regulation expectancy scale scores, [*F change* (1,184) = 4.406, $p <$ .05], an additional 3.5% of variance in trait anger, [*F change* (1,187) = 3.039, $p < .01$], 2.8% variance in anger out subscale scores, [*F change* (1,187) = 5.504, $p < .05$], The interaction effect between Binge eating and emotional eating on anger control was found to be marginally significant accounting for an additional 1.6% variance in anger control, [*F change* (1,184) = 3.146, $p = .078$].

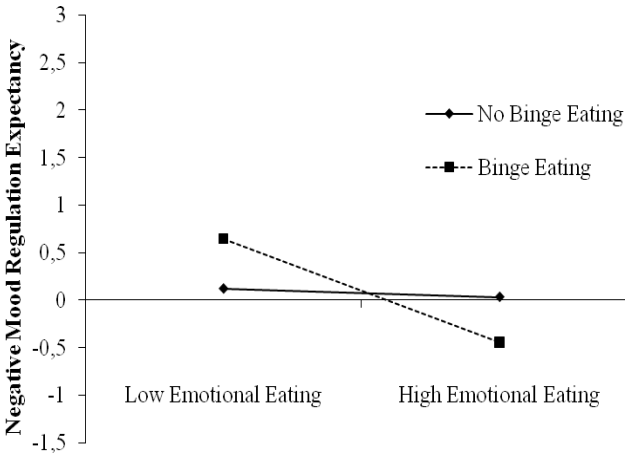

Figure 20. The interaction effect between emotional eating and binge eating on negative mood regulation expectancies.

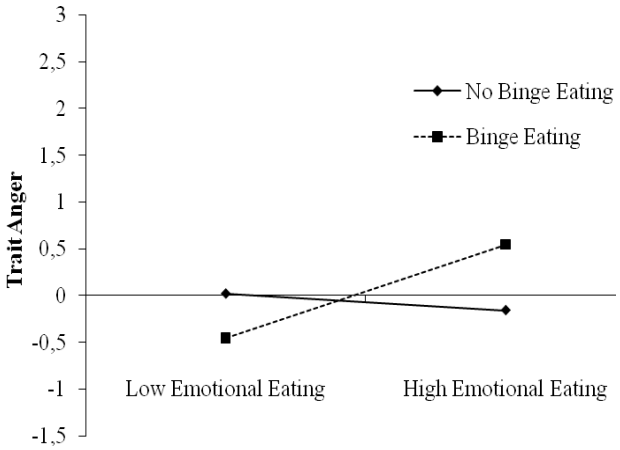

Figure 21. The interaction effect between emotional eating and binge eating on trait anger.

The Effects of Interventions Aimed for Weight Loss on Associations between Body Mass, Eating Styles, Binge Eating and Affect Regulation

Independent samples t-tests show that mean BMI of those receiving professional intervention for weight loss, (M = 31.25, SD = 7.2) is significantly higher than those receiving no intervention, (M = 24.95, SD = 5.11) [t (202) = 7.077, $p < .001$, $\eta^2 = .20$].

Furthermore there are statistically significant differences between groups on restrained, [t (198) = 3.402, $p < .005$, $\eta^2 = .06$] and emotional eating style subscale scores, [t (198) = 3.304, $p < .005$, $\eta^2 = .05$]; but not on external eating, [t (198) = -.242, $p = .8$, $\eta^2 = .0$]. It is observed in table 14, that those receiving intervention for weight loss have higher restrained and emotional eating subscale scores than those receiving no intervention.

Table 14: Means and Standard Deviations of Restrained, Emotional and External Eating Subscale Scores of Subsamples with and Without Intervention for Weight Loss

	Restrained eating		Emotional eating		External eating	
	M	SD	M	SD	M	SD
Intervention (n = 91)	3.273	.780	2.524	1.053	2.831	.824
No Intervention (n = 109)	2.893	.790	2.065	.910	2.861	.759

Chi square test of independence indicated no significant association between intervention and reported binge eating style, [χ^2 (2, n = 203) = 5.476, p = .065].

One way between groups MANOVA conducted to investigate the difference between groups receiving and not receiving professional intervention for weight loss on combined affect regulation variables yielded insignificant results, [F(8,172) = .969, p = .46, *Wilks'* λ = .96; *partial* η^2 =.04].

A series of hierarchical multiple regression analysis were conducted to investigate the effect of interaction between BMI and current intervention for weight loss on affect regulation variables after controlling for the main effect of BMI and current intervention. The interaction effect was found to be statistically significant on anger in, (β = .307, p < .05), and difficulty in expressing emotions subscale scores (β = .273, p < .05) of the Toronto alexithymia scale. The interaction term was marginally significant on anger control subscale scores (β = .238, p < .056) and was found to account for 1.9% variance in anger control, [F *change* (1,191) = 3.712, p = .56], 3.2% of variance in anger in, [F *change* (1,191) = 6.502, p < .05]; and 2.5 % of variance in difficulty in expressing emotions, [F *change* (1,184) = 4.944, p < .05].

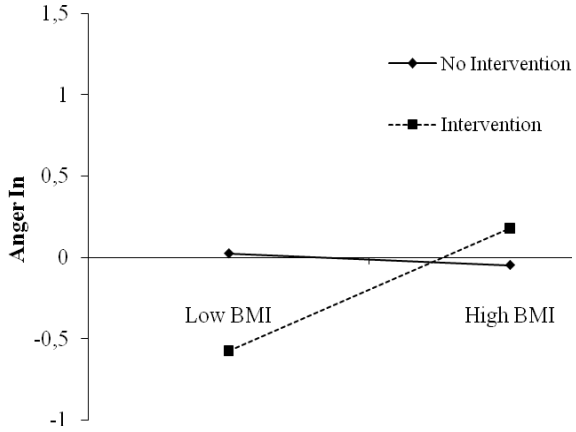

Figure 22. The interaction effect between bmi and weight loss intervention on anger in.

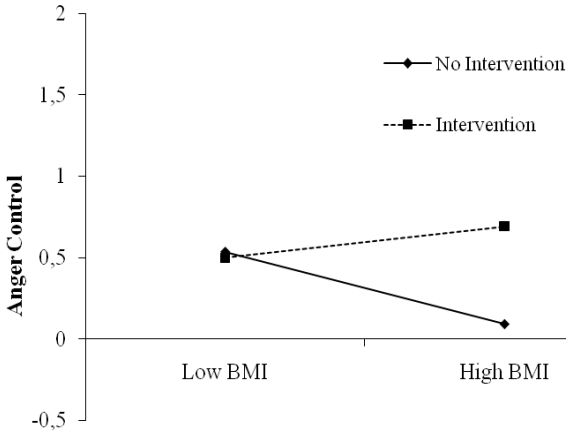

Figure 23. The interaction effect between BMI and intervention on anger control

The interactions plotted in figures 22 – 23, and post hoc investigations on the nature of the interactions show that the effect of receiving intervention for weight loss is only significant for higher body mass index (1 standard deviation above the mean) and insignificant for low body mass index (1 standard deviation bellow the mean) on affect regulation variables, anger in, [(High BMI), β = -.299, p < .01; (Low BMI), β = .109, p = .3] and difficulty in expressing emotions, [(High BMI), β = -.317, p < .005; (Low

BMI), $\beta = .044$, $p = .7$]. The effect of intervention on anger control is only significant for lower body mass index, ($\beta = .296$, $p < .05$), and insignificant in higher body mass index ($\beta = -.018$, $p = .87$). In line with these interaction effects, statistically significant positive correlations were found between BMI and the affect regulation variables in the intervention group; while weak and statistically insignificant correlations were observed in the group with no intervention.

Table 15: Pearson Product-Moment Correlations between BMI and Variables Related to Affect Regulation in Groups Receiving Intervention and No Intervention for Weight Loss

BMI	Negative Mood Regulation	Trait Anger	Anger In	Anger Out	Anger Con-trol	Alexi-thymia	Difficulty Defining Emotions	Difficulty Expressing Emotions
Inter-vention (n=85)	-.241*	.248*	.355***	.238*	.100	.394***	.335***	.385***
No Inter-vention (n=105)	-.064	.105	-.029	.117	-.166	.110	.193*	.038

* p < .05 ** p < .01 *** p < .001

Effect of intervention for weight loss on body mass and eating styles

A series of hierarchical multiple regression analysis were conducted to investigate the effect of interaction between BMI and current intervention for weight loss on eating styles after controlling for the main effect of BMI and current intervention. The interaction effect was statistically significant for restrained eating, [*F change* (1,196) = 4.116, $\beta = -232$, $p < .05$] and emotional eating style, [*F change* (1,196) = 6.395, $\beta = -284$, $p < .05$]; and was found to account for 1.9% of the variance in restrained eating, and 2.9% of the variance in emotional eating style subscale scores.

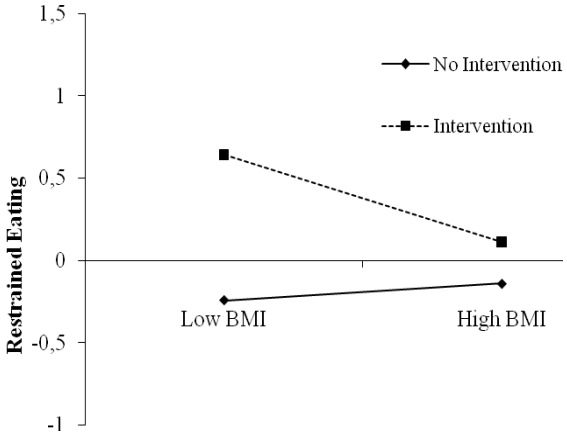

Figure 24. The interaction effect between BMI and intervention on restrained eating

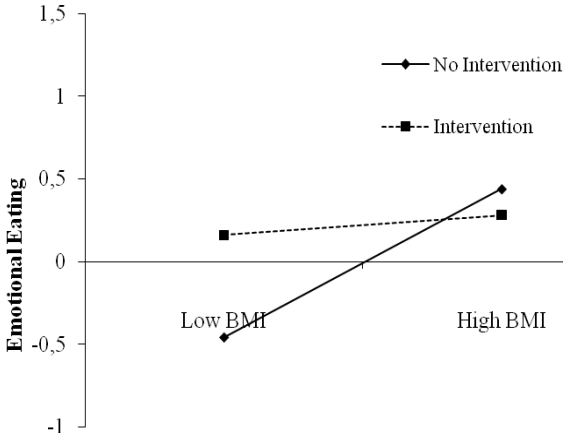

Figure 25. The interaction effect between BMI and intervention on emotional eating

The interactions plotted in figures 24, 25, and post hoc investigations on the nature of the interactions show that the effect of receiving intervention for weight loss is only significant for lower body mass index (1 standard deviation above the mean) and insignificant for higher body mass index (1 standard deviation above the mean) on restrained eating, [(Low BMI), $\beta = .449$, $p < .001$; (High BMI), $\beta = .124$, $p = .3$], and

emotional eating styles, [(Low BMI), β = .318, p □ .005; (High BMI), β = -.080, p = .5]. In line with these interaction effects, independent samples t-tests conducted separately in each weight category to investigate the difference between groups receiving and not receiving professional assistance for weight loss on eating styles revealed significant differences between groups on restrained eating for the overweight, [$t(49) = 2.427$, $p < .05$, $\eta^2 = .11$], and normal groups, [$t(79) = 2.704$, $p < .01$, $\eta^2 = .08$]; and a significant difference between groups on the emotional eating for normal weighted participants only, [$t(79) = 3.468$, $p < .005$, $\eta^2 = .13$]. No significant difference on emotional eating scores between groups receiving and not receiving assistance for weight loss were detected in the obese, [$t(49) = .256$, $p = .8$,] and overweight samples, [$t(49) = -.881$, $p = .38$].

Table 16: Means and Standard Deviations of Restrained, Emotional and External Eating Subscale Scores for Three Weight Categories with and without Intervention for Weight Loss

		Restrained Eating		Emotional Eating		External Eating	
		M	SD	M	SD	M	SD
Obese	Intervention (n = 52)	3.143	.813	2.507	1.076	2.741	.862
	No Intervention (n = 16)	2.816	.719	2.584	1.009	2.980	.771
Overweight	Intervention (n = 20)	3.108	.788	2.580	1.142	2.943	.924
	No Intervention (n = 31)	2.871	.761	2.304	1.052	2.989	.838
Normal	Intervention (n = 19)	3.484	.632	2.511	.940	2.958	.577
	No Intervention (n = 62)	2.924	.831	1.811	.712	2.766	.712

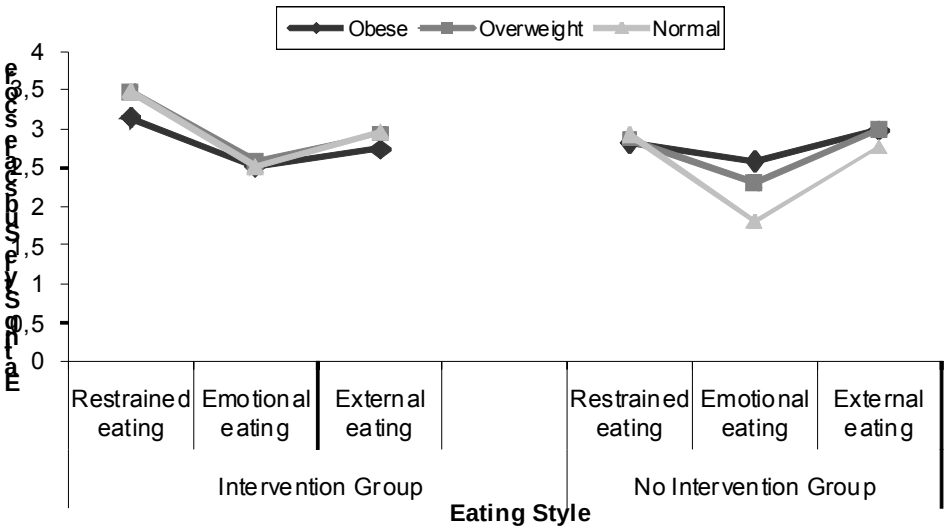

Figure 26. Eating style subscale scores for three weight samples with and without intervention for weight loss.

Effect of receiving intervention for weight loss emotional eating and affect regulation

A series of hierarchical multiple regression analysis were conducted to investigate the effect of interaction between Emotional eating and current intervention for weight loss on affect regulation variables after controlling for the main effect of emotional eating and current intervention. The interaction effect was found to be statistically significant on all variables related to affect regulation with the exception of anger control for which the interaction term was found to be insignificant, [*F change* (1,191) = 3.712, *p* = .56]. The interaction effect was statistically significant on Negative mood regulation expectancy, [accounting for 3.3% of the variance in scale scores, *F change* (1,184) = 6.592, β = -.270, $p < .05$]; Trait anger, [accounting for 2.6 % of the variance, *F change* (1,187) = 5.061, β = .236, $p < .05$]; Anger In, [accounting for 2.4 % of the variance, *F change* (1,187) = 4.693, β = .227, $p < .05$]; Anger out, [accounting for 3 % of the variance, *F change* (1,187) = 5.909, β = .255, $p < .05$]; Alexithymia, [accounting for

4.2 % of the variance, *F change* (1,180) = 8.250, β = .302, $p < .005$]; Difficulty identifying emotions, [accounting for 5.3 % of the variance, *F change* (1,180) = 10.491, β = .337, p □ .001]; and Difficulty expressing emotions, [accounting for 2.9 % of the variance, *F change* (1,180) = 5.667, β = .251, $p < .05$].

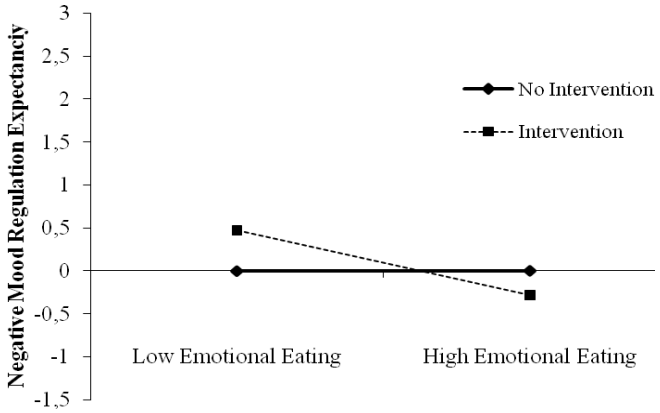

Figure 27. The interaction effect between emotional eating and weight loss intervention on negative mood regulation expectancy

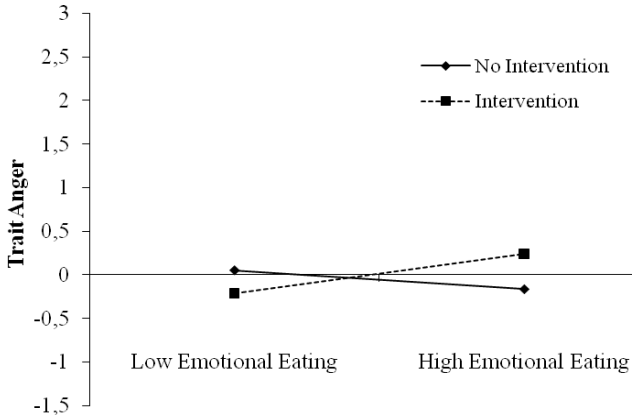

Figure 28. The interaction effect between emotional eating and intervention on trait anger

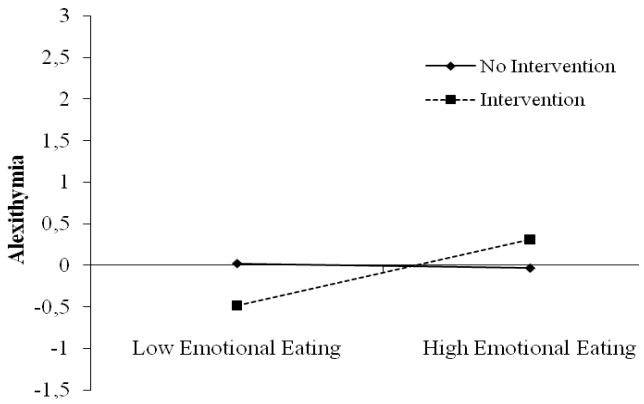

Figure 29. The interaction effect between emotional eating and weight loss intervention on alexithymia

The interactions plotted in figures 26 - 29, show a negative association between BMI and negative mood regulation expectancy and a negative correlation between BMI and affect regulation variables, except for anger control, in the intervention group only. In line with these interaction effects Pearson product-moment correlations between emotional eating and variables related to affect regulation were found to be significantly correlated in the intervention group, no statistically significant correlations were observed in the group receiving no intervention for weight loss.

Table 17: Pearson Product-Moment Correlations between Emotional Eating and Variables Related to Affect Regulation in Groups Receiving Intervention and No Intervention for Weight Loss

Emotional Eating	Negative Mood Regulation	Trait Anger	Anger In	Anger Out	Anger Con-trol	Alexi-thymia	Difficulty Defining Emotions	Difficulty Expressing Emotions
All Groups (n=184)	-.184*	.071	.127	.064	-.069	.184*	.196**	.189*
Inter-vention (n=81)	-.381***	.216*	.274*	.260*	-.193	.390***	.404***	.350**
No Inter-vention (n=103)	.002	-.107	-.031	-.094	.011	-.026	-.051	.020

* p < .05 ** p < .01 *** p < .001

Effect of interventions for weight loss on the association between BMI and binge eating

Chi square tests of independence conducted separately in groups receiving weight loss intervention and no intervention indicated a significant association between weight category and binge eating style for the group with no intervention, [$\chi^2(4,n = 203) = 37.583$, $p < .001$]; but no association was found for the group receiving intervention [$\chi^2(4,n = 203) = 4.702$, $p = .32$].

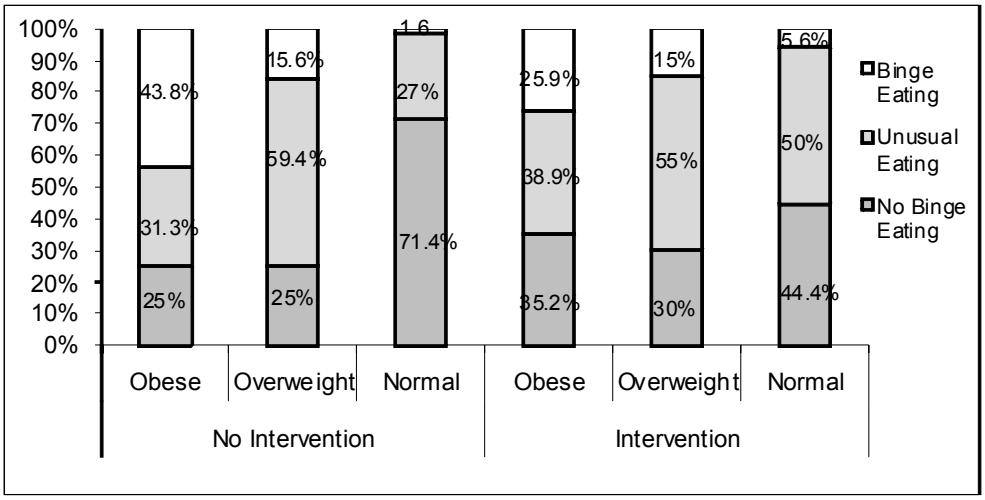

Figure. 30. Percentage of binge eating styles reported in weight groups with intervention and no intervention

CHAPTER IV

CONCLUSION

This section includes a brief summary of results concerning the hypotheses followed by a discussion of the implications of the results in light of previous research and related theories. The chapter concludes with an evaluation of the limitations of the study and a discussion of ideas for future research.

Summary of Results Related to the Hypotheses

In line with the first hypothesis women in this study who were obese or overweight reported more emotional eating than those within normal weight range. Obese overweight and normal weighted participants were not found to differ in respect to the reported frequency of restrained and external eating.

As predicted by the second hypothesis emotional eating was found to be associated to variables related to affect regulation. This association implied that those who reported more emotional eating also reported greater difficulty in regulating negative emotions. However this association was specifically more pronounced in the obese sample as expected.

In support of the third hypothesis obese and overweight women were found to report more binge eating than normal weighted women. Obese participants in this study were twice more likely to report binge eating than overweight participants and the prevalence of binge eating among normal weighted participants was much lower. Only 2.5 % of the normal weighted sample reported binge eating while 15.4 % of the overweight and 30% of the obese sample reported binge eating.

In line with the fourth hypothesis all obese, overweight or normal weighted women who reported binge eating also reported more emotional eating compared to those who reported no binge eating. Additionally those who reported binge eating also reported more external eating compar4ed to those reporting no binge eating. However binge eaters and those reporting no binge eating did not differ significantly in respect to the frequency of restrained eating reported. Only in the obese sample binge eaters reported less restrained eating than those who reported no binge eating or unusual eating patterns.

As predicted by the fifth hypothesis, results showed that binge eating was significantly associated to affect regulation in all weight groups, implying that those reporting binge eating also reported greater difficulty in affect regulation.

The Implications of Findings Related to the Hypotheses.

The results supporting the first two hypotheses are in line with the emotional eating theory of overeating. The emotional eating theory posits that overeating behavior, which may lead to eventual weight gain, has an affect regulatory function (Kaplan &Kaplan 1957; Bruch 1973). In this study emotional eating was found to be significantly associated to variables related to affect regulation. Although emotional eating was found to be present in all weight categories, overweight and obese participants in this study were found to report more emotional eating. In line with this theory a positive correlation was found between emotional eating and BMI (.27). This finding by itself may not provide a causal relationship between emotional eating and weight gain, but is consistent with research on the higher frequency of emotional eating reported by the obese than normal weighted individuals (Rand, 1982; Geliebter

& Aversa, 2003). However the findings do support that overeating may be an attempt at affect regulation and this seems to be specifically pronounced in higher BMI. This finding is compatible with all previous research on the role of emotional eating in affect regulation for the obese. It may be observed that food has a soothing function for those who engage in emotional eating (Goodsitt, 1983). It is accepted that emotional eating may be present in all weight categories, however how often people resort to emotional eating for affect regulation may vary (Van Strien et al.,1986). Frequent consumption of food for non nutritional purposes in the absence of hunger can be predicted to lead to eventual weight gain. Therefore as expressed in previous reviews in literature (Ganley,1989), it is possible to conclude that emotional eating has an effect regulatory function for the obese and may present an obstacle for successful weight management (Hoiberg, Berard & Watten,1980; Blair, Lewis, & Booth,1990; Ozier et al., 2008).

Furthermore the adoption of emotional eating as a coping strategy to deal with negative emotions has been tied back to early learning experiences and lack of introspective awareness (Bruch, 1973). Lack of introspective awareness has been associated with alexithymia (Larsen et al., 2006), which is accepted to be an important component of affect regulation (Taylor, et al., 1997). Previous research on emotional eating and alexithymia has yielded controversial results (De Zwann et al., 1995; Vardar, 2003). However findings in this study are in line with research evidencing an association between alexithymia and emotional eating (Larsen et al., 2006; Van Strien & Ouwens, 2007) and binge eating (Pinaquy, et al., 2003). A previous study carried out on Turkish samples has found alexithymia to be a vulnerability factor for eating disorders, based on association between eating disorders and some characteristics of alexithymia such as difficulty in differentiating emotions and bodily sensations (Arslan

& Alparslan, 1998). However to my knowledge no study in Turkey has yet found an association between alexithymia and emotional eating and binge eating. It would be recommended to investigate this finding in a more heterogeneous sample. The association between psychological aspects of eating and alexithymia may be a fruitful area of research in future studies investigating various eating disorders and obesity in Turkey.

Results which are in support of the last three hypotheses related to binge eating suggest that binge eating may be conceptualized as a form of emotional eating. Binge eating was found to be highly associated to emotional eating and external eating, and to the variables related to affect regulation. In fact the association between affect regulation and binge eating was stronger for binge eating than for emotional eating. While emotional eating was related to affect regulation for those with higher body mass index, binge eating was found to be associated to affect regulation in all weight groups. In this study binge eating was defined by a score above the cutoff point of 20 on the symptoms subscale of the BITE. Symptoms subscale scores were not taken as a continuous measure since those who were dieting but not binge eating were likely to obtain scores falling within the subclinical range, implying the presence of unusual eating patterns. Likewise Henderson and Freeman (1987) intended the use of the severity of symptoms subscale to assess the severity or the degree of binge eating behavior.

This study is in congruence with many previous studies emphasizing the relationship between binge eating and emotional eating (Arnow et al.,1995); and binge eating and affect regulation (Yanovski, 2002; Whiteside et al., 2007). On the basis of findings from these studies binge eating has been concluded to be a form of emotional eating (Ganley, 1989). Furthermore some previous studies which determine an overlap

between binge eating and emotional eating have also referred to aspects of binge eating which differentiate it from other forms of emotional eating (Kirkley, Burge, & Ammerman, 1988; Arnow B, Kenardy J, Agras, 1995; Macht, 2008). For example the criteria for diagnosing binge eating focuses on the amount of food that is eaten and a sense of loss of control over eating; whereas in emotional eating the general precipitating factors and causes of eating are of concern. Those who binge eat consume a large amount of food, in a discrete period of time (APA, 2000), whereas those who are emotional eaters, but do not binge eat, may eat small amounts as well as large amounts of food over an extended time period (Kirkley, et al., 1988). Eldredge and Agras (1996) note, those who binge eat without compensating for it tend to be overweight or obese, but people who emotionally eat may be of any weight. In related studies binge eating has been found to be comorbidly related to personality disorders, substance abuse, depression, anxiety (Grillo, 2002, Yanovski, 2002), and many other forms of psychopathology such as somatization, obsessive compulsive disorders, sleep disorders, (Vardar et. al, 2003; Vardar, Çalıyurt, Arıkan, Tuğlu, 2004), weight-shape concerns, self-esteem issues, psychological distress, and social phobia, (Ramacciotti et al., 2008), as well as medical problems and impairment in physical health (Bulik & Reichborn-Kjennerud, 2003). Moreover binge eating usually leads to more negative feelings about the self (Wilson et al., 1993), and eating behavior (APA, 2000). These suggest that while emotional eating has an affect regulatory function and may or may not lead to obesity, binge eating, as form of emotional eating which is also an attempt at affect regulation, is pathological and self destructive.

The Evaluation of Findings in Regard to Theories of Overeating

When the results are viewed in the light of theories of overeating previously discussed, we find that this study provides support for the emotional eating theory of overeating but not the restraint eating theory. The finding revealing restrained eating behavior to be more common among participants seeking professional assistance for weight loss in all of the weight groups, confirms that the restrained eating subscale validly measured dieting behavior. No linear association between BMI and restrained eating was found in this study to confirm the restrained eating theory, that dieting leads to further weight gain. However results imply a quadratic relationship between BMI and restrained eating whereby restrained eating increases with BMI up to a certain point. The negative correlation between higher BMI and restrained eating is insignificant in this study. A causal relationship between the two measures cannot be inferred. However these findings may provide support for the view that overweight and obese people restrain their eating in order not to gain any more weight, and that being overweight leads to restrained eating, (Snoek et al., 2008). The motives involved in restrained eating and the biological or emotional processes governing appetite, food craving and weight gain in the mildly overweight to severely and morbidly obese individuals may be further investigated.

The dual pathway model of overeating links dissatisfaction with body weight and overeating through two pathways (Stice, 1998, 2001). The first is in line with the restraint theory proposing that dissatisfaction with body weight leads to excessive dieting, which later leads to uncontrolled eating (Stice, 2001). The second path suggests that negative affect associated with body dissatisfaction, and excessive

dieting, leads to uninhibited overeating, or binge eating (Stice, 1998, 2001). (See appendix 10) Van Strien et al. (2005) propose emotional eating as a mediating factor in the link between negative affect and overeating. Although the investigation of pathways in this model are beyond the scope of this study, the model provides a framework for evaluating associations obtained in this study between restrained eating and emotional eating. For example an association between dissatisfaction with body weight and binge eating was found in this study; and dissatisfaction with weight was related to more restrained eating and emotional eating. Emotional eating was found to be highly associated to binge eating. However no association was found between restrained eating and binge eating as would be predicted by the dual pathway model. These results are in congruence with findings of previous research carried out by Van Strien, et al. (2005) in support of the negative affect pathway of the model revealing strong associations between dissatisfaction with body weight and restrained eating but no correlation between restrained eating and overeating. The present study has not investigated any association between body dissatisfaction and negative affect; but as for the association between restrained eating and emotional eating an interaction effect of body mass index was observed. Emotional eating and restrained eating were negatively correlated in the obese subsample. This may imply that factors inducing emotional arousal leading to emotional eating behavior also interfered with dietary restraint for participants with higher body mass index who also engaged in more emotional eating compared to participants with lower BMI. Studies in support of this suggestion have dwelled on the assumption that restrained eating requires a certain amount of cognitive capacity to consciously control eating; and restraint on food intake is abandoned when more important matters take up one's limited cognitive capacity (Boon et al., 1998). Herman and Polivy (1976) also suggest that certain emotional or

physical states which inhibit self control may interfere with dietary restraint, implying that restraint on eating requires self control. In line with this view restrained eating in this study was found to be associated to measures of affect regulation; and the direction of this relationship was opposite to that observed for emotional eating. This implies that restrained eating involves a certain amount of self regulation and control. Nonetheless the presence of high or low restraint did not seem to moderate the association between binge eating and affect regulation.

External eating was a variable found to be highly associated to emotional eating and binge eating; and mildly associated to some of the variables related to affect regulation. The role of environmental factors in weight gain such as the promotion of a high fat, calorie rich diet, through commercials and the abundance of rapidly consumable, high calorie foods, have been strongly emphasized (Hill, 2006, Prentice, 2001). However the contributions of these factors to weight gain in association with emotional eating need to be investigated further. Environmental influences such as the presence of such foods, social and cultural uses of food and pressures on eating, or personal factors such as sensitivity to external cues leading to external eating behavior may, serve a mediating role between negative affective states and emotional eating or impulsive binge eating.

The number of normal weighted participants who were not dieting or receiving professional intervention for weight loss comprised a small sample, as nearly half of the normal weighted participants were not satisfied with their weight. This may very well reflect the internalized social pressure on women to be thin (Ross & Mirowsky, 1983; Hayes & Ross, 1987). However, taking into consideration the findings that external eating was reported to the same degree in all weight groups not just in the obese, it may be plausible to suggest that as proposed in previous studies, (Hill, 2006)

if it were not for conscious weight loss efforts such as dieting and exercise, the rate of obesity in the population may be even higher (Hill, 2006; World Health Organization, 2006).

Limitations of the Study

When associations between emotional eating and variables related to affect regulation are considered separately it is possible to observe that correlations between emotional eating and variables related to anger and expression of anger are insignificant. Furthermore when the association between emotional eating and affect regulation variables are examined in separate weight groups it can be observed that all the correlations are significant for the obese sample and insignificant and close to zero in the normal sample. This is what would be expected given the interaction effect observed between body mass index and emotional eating on affect regulation variables, and that emotional eating is associated to affect regulation in higher body mass. However negative correlations are observed for affect regulation variables related to anger and anger expression in the overweight sample. If this is not due to a sampling error or an undetermined effect of body mass index on the association between emotional eating and affect regulation, which would need further investigation in order to be eliminated, this observation may be resulting from the nature of the variables in question. It may be implied that compared to negative mood regulation expectancies and alexithymia the regulation of anger is not as prominent in affect regulation when the affect regulatory role of emotional eating is assessed. This may be due to the fact that trait anger and the expression of anger is the only specific emotion assessed among variables related to affect regulation in this study. The

presence and regulation of other negative affects such as sadness or anxiety are not included in this study. Anger is an emotion which is accepted to be disturbing for the individual and its expression is constricted by social norms (Hooker and Convisser, 1983; Weber, 2004). However people may have different strategies to regulate different emotions, and while one type of emotion may induce emotional eating in one individual another emotion may have the same effect in another (Ganley, 1989; Wiser & Telch, 1999; Arnow et al., 1995). Therefore correlations related to this emotion may be weaker when compared to those obtained for other measures of affect regulation which are more general. However in line with previous research (Hooker and Convisser ,1983; Eldridge et al., 1993; Telch et al., 2001) anger was still found to be associated to emotional eating in the obese subsample, although the correlations obtained were slightly, though not significantly, lower for anger than for negative mood regulations and alexithymia. However future studies may involve the assessment of the influence and regulation of other emotions on emotional eating within different weight groups.

The observed quadratic relationship between emotional eating and affect regulation, which was not found to be statistically significant for all affect regulation variables in this study, implied greater increase in difficulty in affect regulation with increase in emotional eating. This may suggest that those reporting low emotional eating also have difficulty in affect regulation and may suppress eating in reaction to negative affect. Furthermore some studies report factors such as the intensity of certain emotions to be related to an increase or decrease in food intake (Macht, 2008). It is concluded that intense emotions may suppress eating, while mild or moderate degrees of emotional arousal may lead to more eating. This study has not been able to tap the affect of the intensity of emotions on emotional eating behavior, nor has this

study looked at the types of food consumed in reaction to negative affect. Some studies report that emotional eaters tend to consume more sweet, high fat foods in response to stress (Willenbring, Levine & Morley,1986; Oliver & Wardle, 1999); implying that emotional eaters have an unhealthy diet which leads to weight gain.

Fifty percent of the participants who were seeking professional assistance for weight loss in this study were assessed prior to any intervention, the rest were assessed during intervention. Some studies showed no difference in reference to emotional eating whether the time of assessment was before, during or after treatment (Ganley, 1989). However some studies found greater psychological distress and more binge eating among obese individuals seeking treatment for weight loss, than those who were not in treatment (Fitzgibbon et al., 1993). In one study a group of obese subjects who were unable to lose weight indicated that they ate more when they felt "lonely and bored" but there was no such significant difference between these participants and normal weight controls and the obese subjects who successfully lost weight when assessed before treatment (Leon, 1975). In this study receiving intervention for weight loss was observed to have an interaction effect on the dependant variables in almost all of the observed associations. For example the association between emotional eating and variables related to affect regulation was specifically more pronounced for the group receiving intervention for weight loss. This may imply that those who have an emotional eating problem may be more likely to seek professional assistance for weight loss because emotional eating interferes with successful dieting. Moreover while an increase in restrained eating was observed in all weight groups, receiving intervention, probably due to the effect of dieting, the increase in emotional eating was limited to the normal weighted sample. While no significant differences were found between groups with intervention and no intervention for obese and overweight

samples, normal weighted participants with intervention had significantly higher scores on the emotional eating scale than those with no intervention. Similarly while a decrease in the reported frequency of binge eating was observed for obese individuals receiving weight loss intervention compared to those with no intervention, an increase in reported binge eating was observed for normal weighted participants receiving intervention for weight loss compared to those with no intervention. This may signify that some normal weighted people who are preoccupied with their weight may have eating patterns similar to the obese, but may be currently be maintaining normal body weight through conscious efforts to lose weight such as dieting (Herman & Mack, 1975) and exercise. This may be due to the fact that these normal weighted participants who were receiving intervention for weight loss were overweight or at risk for weight gain in the past and lost weight or maintained normal weight as a result of intervention, or they may have an eating disorder such as anorexia or bulimia. Although the effect of intervention has been statistically assessed, the evaluation of this interaction effect remains beyond the scope of this study. Furthermore dividing the present sample into comparison groups according to the number of participants receiving intervention in all three weight categories renders sample sizes which are too small to obtain significant correlations and enable powerful comparisons and predictions to be made. The effects of various interventions and treatments aimed for weight loss on emotional eating, affect regulation and body mass in various weight groups remains subject for further investigation in future studies.

Most of the obese participants receiving treatment for weight loss in this study were attending an obesity polyclinic at a local state hospital, and were treated by a dietician. The patients receiving treatment at the hospital are estimated to have lower education and income when compared to people who attend private clinics. Moreover,

the majority of participants attending private clinics were not obese, but were either overweight or within the normal weight range. Therefore most of the obese participants seeking assistance for weight loss seem to constitute a homogeneous group in this study. Although previous studies have confirmed that obesity is associated to lower education level and lower income, (Delibaş et al., 2007), the distribution of participants in respect to income and education in this study is not reflective of the general population since allocation of these participants was not random, but convenience sampling was used. The observed level of education and unrecorded distribution of lower income in the obese sample resulting from this sampling error may have a confounding effect on results. For example this effect may be inferred when considering the finding relating to reports of alcohol consumption being low in the obese group compared to the normal group, which is opposite to what is expected when taking into account other studies demonstrating a positive association between BMI and alcohol consumption (Seidell & Flegal, 1997; Erem et al., 2004 ; Delibaş et al., 2007). Furthermore measures of alexithymia are reported to be correlated to fewer years of education and lower socioeconomic status(Lane, Sechrest & Riedel, 1998). Therefore it is recommended that this study is carried out with a more heterogeneous obese sample to eliminate these confounding effects.

Additionally self-report measures, such as the questionnaires used in this study to assess affect regulation and eating styles may be subject to response biases. Ganley (1989) comments on the necessity to be cautious when relying on using self report measures of assessing emotional eating as it is dependant on person's conscious recall and selective response. Further more the culturally accepted idea that emotions affect eating in one way or another may bias response. For example Allison and Heshka (1993) found emotional eating scores on self report questionnaires to be correlated

with social desirability scores and concluded that obese individuals may respond to items on emotional eating scales according to the expectation that they overeat in response to emotions.

The scope of this study is limited to factors associated with affect regulation and its relation to unusual eating patterns and emotional eating, which are factors hypothesized to be contributing to overeating and weight gain. This study did not tap retrospective perceptions of childhood experiences, childhood feeding patterns and mother child dyadic relationships which have been highly associated to the meaning attributed to food and its consumption in later life. Furthermore the culturally specific meanings attributed to food and attitutudes towards eating and dieting in social contexts may also need further evaluation. The study also failed to tap certain behavioral characteristics related to sedentary life styles contributing to weight gain, since sedentary life styles coupled with overeating behavior have been shown to be important predictors of weight gain which is determined to have multiple causes.

Directions for Future Research

Results of this study are in line with the view that obesity needs to be addressed as a health problem with biological psychological and social components. It has been proposed that failure in achieving and maintaining weight loss may result from a misfit of intervention plan with the type of overeating behavior causing the individual to gain weight. Wise and Wise (1979) have recommended the use of different treatment plans with overeaters with different eating styles. The assessment of factors contributing to overeating may be beneficial in establishing a fit of treatment plan suitable for the individual (Wise & Wise, 1979; Hoiberg et al., 1980). A high emotional eating pattern may call for a treatment plan focusing on introspective awareness, and strategies for

coping with emotions, since food restriction and behavioral methods for weight loss may not be successful (Ozier et al; 2008). A treatment plan focusing on the acquisition of new skills aimed at enhancing adaptive affect regulation may work in reducing destructive eating patterns (Telch, Agras & Linehan; 2001). Moreover the issue of emotional overeating is not only a weight maintenance problem specific to the obese or overweight individuals, but may also constitute a problem in respect to treatment adherence in chronic diseases such diabetes, renal and cardiovascular diseases which require adherence to strict dietary restrictions. Therefore the use of questionnaires such as ones used in this study and clinical interviews investigating the psychological aspects of eating and symbolic use of food would be useful for clinicians and dieticians working with obesity and with medical patients who need to adhere to a strict diet. Furthermore it may be vital to uncover certain culturally specific values and aspects of social interactions which play an important role in the establishment of associations related to eating and the meaning attributed to food in one's life. Therefore there is a potential need for studies which may shed light on the identification and solution of practical problems related to eating and diet adherence in Turkey. In this respect the association between many various aspects of eating and psychological variables such as alexithymia, and affective awareness and expression may be fruitful areas of research for future studies on eating disorders and obesity. The promotion and development of psychotherapies focusing on the root and function of overeating behavior and the assessment of outcomes of these therapies on affect regulation capacities and eating styles with pre post studies are recommended. Furthermore a qualitative study supplementing this one may be useful in taping areas beyond the scope of this study and digging further into the causal aspects and psychodynamic interpretation of associations put forth in this study.

APPENDICES

APPENDIX A: DEMOGRAPHIC INFORMATION FORM

DEMOGRAFIK BILGI FORMU

Tarih.....

1. Yaşınız: ..... Cinsiyetiniz: Kadın □ Erkek □
2. En son bitirdiğiniz okul: İlkokul □ Orta/Lise□ Üniversite□ Yüksek lisans□

3. Mesleğiniz nedir? .....
4. Medeni durumunuz: Bekar□ Evli□ Boşanmış□ Dul □
5. Çocuklarınız var mı? Evet□ Hayır. □ Varsa kaç tane?.....

6. Boyunuzu ve kilonuzu lütfen belirtiniz. Boyunuz ..... cm
   Kilonuz .....kg

7. Kendinizi nasıl kabul ediyorsunuz?
   Çok kilolu□ Kilolu□ Normal□ Zayıf□ Çok zayıf □

8. Kilonuzdan memnun musunuz? Evet □ Hayır □

9. Şu anda kilo vermek veya kilonuzu korumak için herhangi bir girişimde bulunuyor musunuz?
   Kilo vermeye çalışıyorum □
   Mevcut kilomu korumaya çalışıyorum □
   Hayır şu anda kilomla ilgili herhangibir şey yapmıyorum □ (11. soruya geçin)

10. Şu anda kilo vermek veya kilonuzu korumak için ne yaptığınız lütfen belirtiniz:
    (Birden fazla seçenek işaretleyebilirsiniz)
    Kendi kendime diyet uyguluyorum □
    Yediklerime dikkat ediyorum □
    Spor veya egzersiz yapıyorum □
    Ne kadar süredir diyet uyguluyor veya yediklerinize dikkat ediyorsunuz?.....
    Doktor veya diyetisyen gözetiminde diyet uyguluyorum□ / spor yapıyorum □
    Ne kadar süredir doktor veya diyetisyenden yardım alıyorsunuz?.....
    Bir zayıflama veya estetik merkezinden yardım alıyorum □
    Ne kadar süredir zayiflama veya estetik merkezinden yardım alıyorsunuz?.....

    Zayıflama hapı kullanıyor musunuz? Evet □ Hayır □

    Diğer □ Lütfen belirtiniz.....

11. Daha önce kilo vermek için herhangi bir girişiminiz oldu mu? Evet □ Hayır □
Evet ise lütfen kaç kere ve ne yaptığınızı belirtiniz: (Birden fazla seçenek işaretleyebilirsiniz)

Kendi kendime diyet uyguladım □ / yediklerime dikkat ettim □ / spor veya egzersiz yaptım □
Kaç kez kilo vermek amacıyla diyet yaptınız?
1kez□ 2-3 kez□ 4-5 kez□ 5den fazla□

Doktor veya diyetisyen gözetiminde diyet uyguladım□ /spor yaptım □
Kaç kez kilo vermek amacıyla bir doktor veya diyetisyenden yardım aldınız?
1kez□ 2-3 kez□ 4-5 kez□ 5den fazla□

Bir zayıflama veya estetik merkezinden yardım aldım □
Kaç kez kilo vermek amacıyla bir zayıflama veya estetik merkezinden yardım aldınız?
1kez□ 2-3 kez□ 4-5 kez□ 5den fazla□

Bir kerede en fazla kaç kilo verdiniz? ..... kg.

12. Eğer fazla kilo sorununuz varsa bu ilk defa kaç yaşınızda ortaya çıktı?

13. 18 yaşınıza geldiğinizden beri en yüksek kilonuz ne kadar oldu?.....kg;

en düşük kilonuz ne kadar oldu?.....kg.

14. Herhangi bir sağlık sorununuz var mı? Evet □ Hayır □ Lütfen belirtiniz.....

15. Kilo almanıza sebep olabileceğini düşündüğünüz bir sağlık sorununuz var mı?

Evet □ Hayır □ Lütfen belirtiniz.....

16. Sıgara içiyor musunuz? Evet □ Hayır □ Bıraktım □
Eğer sıgarayı bıraktıysanız ne zaman bıraktığınızı lütfen belirtiniz .....

17. İçki kullanıyor musunuz? Evet □ Hayır □ Arada bir □

18. Ailenizde fazla kilo sorunu olan kimse var mı? Evet □ Hayır □
Varsa belirtiniz. Anne □ Baba □ Kardeş □ Eş □

19. Daha önce fazla kilo sorununuz için bir psikolog veya psikiyatristen yardım aldınız mı?
Evet □ Hayır □ Evet ise kaç kere?.....

Bir iki cümle ile kısaca açıklayınız: (isteğe bağlı)

En fazla kilonuzu ne zaman aldınız? Sizce sebebi nedir? (Yaşantınızda o zaman buna sebep olabilecek bir şey var mıydı?)

Yemek yemek sizin için nasıl bir anlam taşıyor?

APPENDIX B: THE DUTCH EATING BEHAVIOR QUESTIONNAIRE

YEME DAVRANIŞI ANKETI

Yönerge: Lütfen seçeneklerden size uygun olanı işaretleyerek tüm soruları cavaplandırınız.

	Hiçbir zaman	Nadiren	Bazen	Genellik	Sık sık
1.Kilo aldığınız zaman her zamankinden az mı yersiniz?					
2. Öğünlerde yemek istediğiniz miktardan daha az mı yemeğe çalışırsınız?					
3. Size ikram edilen yiyeceği ve içeceği, kilonuzu dikkate aldığınız için ne kadar sıklıkla reddedersiniz?					
4. Yiyeceğinize dikkat eder misiniz?					
5. Şişmanlatmayan yiyecekler mi yersiniz?					
6. Çok yediğiniz bir günün ertesinde her zamankinden az mı yersiniz?					
7. Kilo almamak için az mı yersiniz?					
8. Kilonuza dikkat ettiğiniz için ne kadar sıklıkla geceleri yememeye çalışırsınız?					
9. Kilonuza dikkat ettiğiniz için ne kadar sıklıkla yemek aralarında yememeye çalışırsınız?					
10. Yemek yerken kilonuzu gözönüne alarak mı yersiniz?					
11. Sinirlendiğiniz zaman yeme ihtiyacı duyar mısınız?					
12. Yapacak bir şeyiniz olmadığında yeme ihtiyacı duyar mısınız?					
13. Canınız bir şeye sıkıldığında veya üzüldüğünüzde yeme ihtiyacı duyar mısınız?					
14. Kendiniz yalnız hissettiğinizde yemek yemek ister misiniz?					
15. Birisi sizi kırdığı zaman yemek yemek ister misiniz?					
16. Birisi size karşı çıktığı zaman yemek yemek ister misiniz?					
17. Hoşunuza gitmeyecek bir olayla karşılaştığınızda yeme ihtiyacı duyar mısınız?					
18. Kaygılı, telaşlı veya gergin olduğunuz durumlarda yeme ihtiyacı duyar mısınız?					
19. Olaylar istemediğiniz yönde geliştiğinde yemek yemek ister misiniz?					
20. Korktuğunuz zaman yemek yemek ister misiniz?					
21. Hayal kırıklığına uğradığınız zaman yemek yemek ister misiniz?					
22. Duygusal olarak kendinizi kötü hissettiğinizde yemek yemek ister misiniz?					

	Hiçbir zaman	Nadiren	Bazen	Genellikle	Sık sık
23. Sıkıldığınızda ya da huzursuz olduğunuzda yeme ihtiyacı duyar mısınız?					
24. Yemeğin tadından hoşlandığınız zaman genelde yediğiniz miktardan daha çok yer misiniz?					
25. Yemek güzel görünüyor ve güzel kokuyorsa genelde yediğiniz miktardan daha çok yer misiniz?					
26. Güzel kokan ve lezzetli görünen bir yiyecek gördüğünüzde yeme isteği duyar mısınız?					
27. Önünüzde lezzetli bir yiyecek olduğu zaman duraksamadan yer misiniz?					
28. Bir pastanenin veya fırının önünden geçerken lezzetli bir şeyler almak ister misiniz?					
29. Yiyecek satan bir dükkanın önünden geçerken bir şey almak ister misiniz?					
30. Başkalarını yerken gördüğünüzde siz de yemek ister misiniz?					
31. Lezzetli yiyecekler karşısında direnç gösterebilir misiniz?					
32. Başkalarını yerken gördüğünüzde genelde yediğiniz miktardan daha çok mu yersiniz?					
33. Yemek hazırlarken atıştırmaya eğiliminiz var mı?					

APPENDIX C: THE BULIMIA INVESTIGATORY TEST EDINBURG

Yönerge: Aşağıda yeme davranışlarınızla ilgili sorular yer almaktadır. Lütfen soruları evet veya hayır şıklarından birini seçerek yanıtlayınız. Eğer soru sizinle ilgili bir davranışı içermiyorsa Hayır şıkkını işaretleyiniz. Lütfen tüm soruları cevaplayınız.

1. Günlük düzenli bir yemek programınız var mı?	Evet □	Hayır □
2. İstediğiniz zaman yemek yemeği durdurabilir misiniz?	Evet □	Hayır □
3. Yemeğin sonunda tabağınızda yiyecek bırakabilir misiniz?	Evet □	Hayır □
4. Yemek miktarını açlık dereceniz mi belirler?	Evet □	Hayır □
5. Yeme alışkanlıklarınızı normal buluyor musunuz?	Evet □	Hayır □
6. Katı bir diyet uygular mısınız?	Evet □	Hayır □
7. Diyet bozulunca umutsuzluğa kapılıyor musunuz?	Evet □	Hayır □
8. Diyette olmasanız bile yemeklerin kalorisini düşünüyor musunuz?	Evet □	Hayır □
9. Yeme biçiminiz yaşamınızı ciddi bir şekilde etkiliyor mu?	Evet □	Hayır □
10. Yemek yemek yaşamınıza hakim midir?	Evet □	Hayır □
11. Rahatsız olana kadar yemek yer misiniz?	Evet □	Hayır □
12. Hep yemek düşündüğünüz zamanlar olur mu?	Evet □	Hayır □
13. Başkalarının önünde daha mı az yemek yemeğe çalışırsınız?	Evet □	Hayır □
14. Sürekli yemek için içinizde kuvvetli bir dürtü hissediyor musunuz?	Evet □	Hayır □
15. Kaygılı olduğunuz anlarda aşırı yemek isteğiniz olur mu?	Evet □	Hayır □
16. Şişmanlamak sizi korkutuyor mu?	Evet □	Hayır □
17. Aşırı yeme atağı oluyor mu? Yani çok fazla miktarda yemeği kısa bir süre içinde hızlı bir şekilde yediğiniz olur mu?	Evet □	Hayır □
18. Yemek alışkanlığınız sizi utandırıyor mu?	Evet □	Hayır □
19. Yediğiniz yemek miktarını kontrol edebiliyor musunuz?	Evet □	Hayır □
20. Rahatlamak için yemek yer misiniz?	Evet □	Hayır □
21. Yemek miktarınız hakkında yalan söylediniz mi?	Evet □	Hayır □
22. Çok fazla miktarda yemek yeme atağınız oluyor mu?	Evet □	Hayır □
23. Eğer oluyorsa sizde rahatsızlık yaratıyor mu?	Evet □	Hayır □
24. Aşırı yemek atakları sadece yalnız iken mi görülüyor?	Evet □	Hayır □
25. Aşırı yeme atağı esnasında aşırı miktarda gıda alıyor musunuz?	Evet □	Hayır □
26. Aşırı yemek yediğiniz zaman kendinizi suçlu hissediyor musunuz?	Evet □	Hayır □
27. Herkesten gizli yemek yediğiniz olur mu?	Evet □	Hayır □
28. Kendinizi aşırı bir yemek yiyici kabul ediyor musunuz?	Evet □	Hayır □
29. Ağırlığınızda haftada 2.5kg dan fazla değişiklik oluyor mu?	Evet □	Hayır □
30. Hiç oruç dışında bütün gün aç kaldığınız oluyor mu?	Evet □	Hayır □

31. 30. Soruya cevabınız evet ise bu ne sıklıkla oluyor?

Günaşırı □ Haftada 2-3 gün □ Haftada bir □ Bazen □ Bir kez oldu □

32. Zayıflamak amacıyla aşağıdaki yöntemleri hiç kullanır mısınız?

	Asla	Bazen	Haftada 1gün	Haftada 2-3 gün	Hergün	Günde 2-3kez	Günde 5 kez
Zayıflama ilacı:	□	□	□	□	□	□	□
İdrar söktürücü:	□	□	□	□	□	□	□
Kabızlık ilacı:	□	□	□	□	□	□	□
Kusma:	□	□	□	□	□	□	□

33. Aşırı yeme atakları oluyorsa sıklığı nasıldır?

Seyrek □ Ayda bir □ Haftada bir □ Haftada 2-3 kez □ Hergün □ Günde 2-3 ke

APPENDIX D: THE TORONTO ALEXITHYMIA SCALE

TORONTO ALEKSİTİMİ ÖLÇEĞİ

Lütfen aşağıdaki maddelerin sizi ne ölçüde tanımladığını işaretleyiniz.
Hiçbir zaman (1),....., Her zaman (5) olacak şekilde bu maddelere puan veriniz.
Lütfen tüm soruları yanıtlayınız.

		Hiçbir zaman	Nadiren	Bazen	Sık sık	Her zaman
1	Ne hissettiğimi çoğu kez tam olarak bilemem.	1	2	3	4	5
2	Duygularım için uygun kelimeler bulmak benim için zordur.	1	2	3	4	5
3	Bedenimde doktorların dahi anlamadığı hisler oluyor.	1	2	3	4	5
4	Duygularımı kolaylıkla tarif edebilirim.	1	2	3	4	5
5	Sorunları yalnızca tariflemektense onları çözümlemeyi yeğlerim.	1	2	3	4	5
6	Keyfim kaçtığında, üzgün mü, korkmuş mu yoksa kızgın mı olduğumu bilemem.	1	2	3	4	5
7	Bedenimdeki hisler kafamı karıştırır.	1	2	3	4	5
8	Neden öyle sonuçlandığını anlamaya çalışmaksızın,işleri oluruna bırakmayı yeğlerim.	1	2	3	4	5
9	Tam olarak tanımlayamadığım duygularım var.	1	2	3	4	5
10	İnsanların duygularını tanıması gerekir.	1	2	3	4	5
11	İnsanlar hakkında ne hissettiğimi tarif etmek bana zor geliyor.	1	2	3	4	5
12	İnsanlar duygularımı kolayca tarif etmemi isterler.	1	2	3	4	5
13	İçimde ne olup bittiğini bilmiyorum.	1	2	3	4	5
14	Çoğu zaman neden kızgın olduğumu bilmem.	1	2	3	4	5
15	İnsanlarla duygularından çok günlük uğraşları hakkında konuşmayı yeğlerim.	1	2	3	4	5
16	Psikolojik dramlar yerine eğlendirici programlar izlemeyi yeğlerim.	1	2	3	4	5
17	İçimdeki duyguları yakın arkadaşlarıma bile açıklamak bana zor gelir.	1	2	3	4	5
18	Sessizlik anlarında dahi, kendimi birisine yakın hissedebilirim.	1	2	3	4	5
19	Kişisel sorunlarımı çözerken duygularımı incelemeyi yararlı bulurum.	1	2	3	4	5
20	Film veya oyunlarda gizli anlamlar aramak, onlardan alınacak hazzı azaltır.	1	2	3	4	5

APPENDIX E: NEGATIVE MOOD REGULATION EXPECTANCIES SCALE

Olumsuz Ruh Halini Düzeltme Beklentileri Ölçeği

Yönerge: Lütfen aşağıdaki ifadeleri kendi inanışlarınızı mümkün olduğunca iyi yansıtacak bir şekilde cevaplandırınız. Doğru ya da yanlış cevap yoktur. Anket ne yapacağınıza inandığınızla ilgilidir, gerçekte ya da genelde ne yaptığınızla değil. Lütfen tüm maddeleri dikkatlice okuduğunuza ve kendi inançlarınızı cevap kağıdı üzerinde uygun numayayı işaretlemek suretiyle belirttiğiniz emin olun.

Eğer bir maddeye tamamen karşıysanız, 1 rakamını işaretleyiniz. Eğer biraz karşıysanız 2 rakamını işaretleyin. Eğer bir maddenin aşağı yukarı eşit derecede doğru ve yanlış olduğunu düşünüyorsanız, 3 rakamını işaretleyin. Eğer bir maddeye biraz katılıyorsanız 4 rakamını işaretleyin. Eğer bir maddeye tamamen katılıyorsanız, 5 rakamını işaretleyin. Lütfen tüm soruları cevaplandırdığınızdan emin olun.

	Ne kadar katılıyorsunuz?				
Üzgün olduğumda….	Hiç katılmıyorum	Pek katılmıyorum	Ne katılıyorum ne katılmıyorum	Biraz Katılıyorum	Tamamen katılıyorum
1 Genellikle kendimi neşelendirecek bir yol bulabilirim.					
2 Daha iyi hissetmek içim bir şeyler yapabilirim.					
3 Tüm yapabildiğim aynı sıkıntı içinde yuvarlanmaktır.					
4 Daha güzel zamanları düşünürsem kendimi daha iyi hissedeceğim.					
5 Başka insanlarla beraber olmak can sıkıcı olacaktır.					
6 kendimi hoşlandığım bir şeylere yönlendirerek, daha iyi hissedeceğim.					
7 Neden kötü hissettiğimi anladığım zaman kendimi daha iyi hissedeceğim.					
8 Bu durumla ilgili bir şey yapmak için kendimi ikna edemeyeceğim.					
9 Durumun iyi yanını bulmaya çalışmakla kendimi daha iyi hissedeceğim.					
10 Uzun bir süre geçmeden kendimi sakinleştirebilirim.					
11 Beni gerçekten anlayan birini bulmak zor olacaktır.					
12 Kendi kendime, geçeceğini söylemek sakinleşmeme yardımcı olacaktır.					
13 Başka biri için güzel bir şey yapmak beni neşelendirecektir.					
14 Bu gidişle gerçekten depresyona gireceğim.					

	Ne kadar katılıyorsunuz?				
Üzgün olduğumda….	Hiç katılmıyorum	Pek katılmıyorum	Ne katılıyorum ne katılmıyorum	Biraz Katılıyorum	Tamamen katılıyorum
15 Olayları nasıl ele alacağımı planlamak yardım edecektir.					
16 Beni üzen şeyi kolayca unutabilirim.					
17 Geri kaldığım işlerimi yetiştirmeye çalışmak sakinleşmeme yardımcı olacaktır.					
18 Arkadaşların vereceği öğütler daha iyi hissetmeme yardımcı olamayacaktır.					
19 Genelde zevk aldığım şeylerden zevk alamayacağım.					
20 Rahatlamanın bir yolunu bulabilirim.					
21 Problemi kafamda çözmeye çalışmak yalnızca daha kötü görünmesine neden olacaktır					
22 Bir film izlemek daha iyi hissetmeme yardımcı olmayacaktır.					
23 Arkadaşlarla yemeğe çıkmak yardımcı olacaktır.					
24 Uzun süre kötü hissedeceğim.					
25 Bunu aklımdan çıkaramayacağım.					
26 Yaratıcı bir şeyler yaparak kendimi daha iyi hissedebilirim.					
27 Kendim hakkında gerçekten kötü hissetmeye başlayacağım.					
28 Sonunda her şeyin daha iyi olacağını düşünmek daha iyi hissetmeme yardımcı olmayacaktır					
29 Durumda mizahi bir yan bulabilir ve daha iyi hissedebilirim.					
30 Eğer bir grup insanla berabersem kendimi kalabalık içinde yalnız hissedeceğim.					

APPENDIX F: THE TRAIT ANGER AND ANGER EXPRESSION SCALE

Sürekli Öfke Öfke İfade Tarz Ölçeği

YÖNERGE**:** Aşağıda kişilerin kendilerine ait duygularını anlatırken kullandıkları bir takım ifadeler verilmiştir. Her ifadeyi okuyun, sonra da genel olarak nasıl hissettiğinizi düşünün ve ifadelerin sağ tarafındaki sayılar arasında sizi en iyi tanımlayanı seçerek üzerine (x) işareti koyun. Lütfen her madeyi işaretleyin. Doğru yada yanlış cevap yoktur. Herhangi bir ifadenin üzerinde fazla zaman sarf etmeksizin, genel alarak nasıl hissettiğinizi gösteren cevabı işaretleyin.

GENELDE…	Hiç	Biraz	Oldukça	Tümüyle
1 Çabuk parlarım.	↑	↑	↑	↑
2 Kızgın mizaçlıyımdır.	↑	↑	↑	↑
3 Öfkesi burnunda birisiyim.	↑	↑	↑	↑
4 Başkalarının hataları, yaptığım işi yavaşlatınca kızarım.	↑	↑	↑	↑
5 Yaptığım iyi bir işten sonra takdir edilmemek canımı sıkar.	↑	↑	↑	↑
6 Öfkelenince kontrolümü kaybederim.	↑	↑	↑	↑
7 Öfkelendiğimde ağzıma geleni söylerim.	↑	↑	↑	↑
8 Başkalarının önünde eleştirilmek beni çok hiddetlendirir.	↑	↑	↑	↑
9 Engellediğimde içimden birilerine vurmak gelir.	↑	↑	↑	↑
10 Yaptığım iyi bir iş kötü değerlendirildiğinde çılgına dönerim.	↑	↑	↑	↑
ÖFKELENDİĞİMDE VEYA KIZDIĞIMDA...	Hiç	Biraz	Oldukça	Tümüyle
11 Öfkemi kontrol ederim.	↑	↑	↑	↑
12 Kızgınlığımı gösteririm.	↑	↑	↑	↑
13 Öfkemi içime atarım.	↑	↑	↑	↑
14 Başkalarına karşı sabırlıyımdır.	↑	↑	↑	↑
15 Somurtur yada surat asarım.	↑	↑	↑	↑
16 İnsanlardan uzak dururum	↑	↑	↑	↑
17 Başkalarına iğneli sözler söylerim.	↑	↑	↑	↑
18 Soğukkanlılığımı korurum.	↑	↑	↑	↑
19 Kapıları çarpmak gibi şeyler yaparım.	↑	↑	↑	↑
20 İçin için köpürürüm ama göstermem.	↑	↑	↑	↑
21 Davranışlarımı kontrol ederim.	↑	↑	↑	↑
22 Başkalarıyla tartışırım.	↑	↑	↑	↑
23 İçimde kimseye söylemediğim kinler beslerim.	↑	↑	↑	↑
24 Beni çileden çıkaran her neyse saldırırım.	↑	↑	↑	↑
25 Öfkem kontrolden çıkmadan kendimi durdurabilirim.	↑	↑	↑	↑
26 Gizliden gizliye insanları epeyce eleştiririm.	↑	↑	↑	↑
27 Belli ettiğimden daha öfkeliyimdir.	↑	↑	↑	↑
28 Çoğu kimseye kıyasla daha çabuk sakinleşirim.	↑	↑	↑	↑
29 Kötü şeyler söylerim.	↑	↑	↑	↑
30 Hoş görülü ve anlayışlı olamaya çalışırım.	↑	↑	↑	↑
31 İçimden insanların fark ettiğinden daha fazla sinirlenirim	↑	↑	↑	↑
32 Sinirlerime hakim olamam.	↑	↑	↑	↑
33 Beni sinirlendirene ne hissettiğimi söylerim.	↑	↑	↑	↑
34 Kızgınlık duygularımı kontrol ederim.	↑	↑	↑	↑

APPENDIX G : INFORMED CONSENT FORM

BILGILENDIRILMIŞ OLUR FORMU

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi Psikoloji Bölümü	
Araştırmanın adı:	Obez, kilolu ve normal kilolu kadınlarda duygusal sebeplere bağlı yeme davranışı ve duygu düzenlemesi ile ilişkisi
Proje yöneticisi:	Prof. Dr. Falih Köksal
Araştırmacının adı:	Nur Evirgen. Boğaziçi Üniversitesi Yüksek Lisans Öğrencisi
Adres:	Boğaziçi Üniversitesi, Psikoloji Bölümü, 34342 Bebek-İstanbul
E-posta:	koksalfa@boun.edu.tr ; nurevirgen@gmail.com
Telefon:	(212) 359 7050 ; (0532) 4120794

Bu araştırmada yeme davranışları ve yemeğe karşı tutumlar ile farklı bazı psikolojik etmenler arasındaki ilişki araştırılacaktır. Sizden bir form doldurmanız ve toplamda beş testi tamamlamanız istenmektedir. Bu araştırma kâğıt üzerinde anket şeklinde uygulanacaktır. Anketleri doldurmak yaklaşık 20-30 dakika sürecektir. Elde edilecek veriler araştırma amaçlı kullanılacaktır, verilerden kişisel sonuçlar çıkartılmayacak, sonuçlar bütün katılımcılar için toplu halde değerlendirilecektir. Kişisel bilgilerinizin gizliliği esas alınmaktadır. Anket formu üzerine isminizi yazmanız istenmemektedir, onun yerine size verilecek numarayı belirtmeniz yeterli olacaktır. Anketi tamamladıktan sonra anket formlarını size verilecek olan zarfın içersinde zarfı kapatarak teslim etmeniz rica olunur. Açıklama yapmadan araştırmadan istediğiniz an geri çekilme hakkınız mevcuttur. Katkılarınız için teşekkür ederiz.

Yukarıdaki bilgileri okudum ve söz konusu deneyin koşullarını bilerek katılmaktayım.

□ Bu formun bir kopyasını aldım.

Katılımcının adı: _____ _____ _____

Adı Soyadı *İmza* *Tarih*

Yürütücünün adı: _____ _____ _____

Adı Soyadı *İmza* *Tarih*

Araştırma sonuçlandığında araştırma sonuçları ile ilgili bilgilendirilmek isterseniz lütfen e-mail adresinizi belirtiniz. Araştırmadan kişisel sonuçlar çıkarılmayacaktır.

e-mail.....

APPENDIX H: GENERAL INFIRMATION FORM

Genel Bilgi Formu

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi Psikoloji Bölümü	
Araştırmanın adı:	Obez, kilolu ve normal kilolu kadınlarda duygusal sebeplere bağlı yeme davranışı ve duygu düzenlemesi ile ilişkisi
Proje yöneticisi:	Prof. Dr Falih Köksal
Araştırmacnın adı:	Nur Evirgen. Boğaziçi Üniversitesi Yüksek Lisans Öğrencisi
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Sorularınız için irtibat bilgileri: : Nur Evirgen – 0532 4120794
nurevirgen@gmail.com

APPENDIX I: DESCRIPTIVE CHARACTERISTCIS OF VARIABLES USED IN THE STUDY

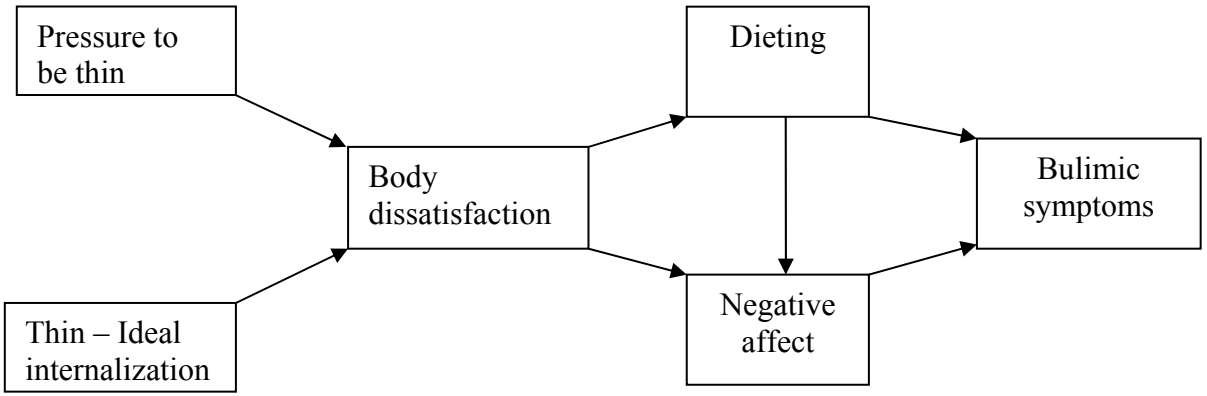
Variable	N	Range	Mean	SD	Skewness	Kurtosis
Age	204	16 - 66	34.65	11.08	.609	-.197
Years of Education	200	0 - 18	10.75	4.36	-.600	-.443
BMI	204	16.9 – 52.07	27.82	6.90	.884	.633
Restrained Eating	200	1.000 – 5.000	3.066	.806	-.289	-.268
Emotional Eating	200	1.000 – 5.000	2.274	1.002	.628	-.411
External Eating	200	1.300 – 5.000	2.847	.787	.301	-.338
Binge Eating	203	.00 – 27.00	11.603	6.247	.429	-.740
Negative Mood Regulation Expectancy	190	58.00 – 146.79	104.100	17.829	.073	-.185
Trait Anger	195	10.00 – 40.00	23.479	6.730	.601	-.212
Anger In	195	9.00 – 34.00	17.746	4.338	.834	1.351
Anger Out	195	9.00 – 32.00	16.642	4.767	1.003	.694
Anger Control	195	9.00 – 32.00	21.035	4.819	.027	-.326
Alexithymia	188	28.89 – 85.00	51.276	11.336	.533	.303
Difficulty Identifying Emotion	188	1.00 – 5.00	2.497	.917	.649	.081
Difficulty Expressing Emotion	188	1.00 – 5.00	2.664	.803	.328	.179

APPENDIX I: CORRELATİON OF VARİABLES RELATED TO AFFECT REGULATİON

	Negative Mood Regulation	Trait Anger	Anger In	Anger Out	Anger Control	Alexithymia	Difficulty Identifying Emotion	Diffiulty Expressing Emotion
Negative Mood Regulation	-	-.391***	-.480***	-.392***	-.325***	-.512***	-.461***	-.393***
Trait Anger		-	.449***	.712***	-.250***	.475***	.465***	.382***
Anger In			-	.317***	-.020	.411***	.390***	.407***
Anger Out				-	-.301***	.365***	.367***	.247***
Anger Control					-	-.215**	-.198**	.117
Alexithymia						-	.872***	.834***
Difficulty Identifying Emotion							-	.646***

APPENDIX J: DUAL PATHWAY MODEL OF OVEREATING

Dual Pathway Model of Overeating (Stice, 2001)



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