ORIGINAL ARTICLE / ÖZGÜN MAKALE

https://doi.org/10.5455/JCBPR.59882
JCBPR 2020

The Relationship Between Cognitive Factors, Body Image and Eating Behaviors in Obese Patients

Muhammed Hakan AKSU[1], Fatih YIĞMAN[2], Kadir ÖZDEL[2]

[1]Yıldırım Beyazıt University, Yenimahalle Training and Research Hospital, Ankara, Türkey

[2]Dışkapı Yıldırım Beyazıt Training and Research Hospital, Faculty of Health Science, Psychiatry Department, Ankara, Türkey

Abstract

Obesity is a public health problem that increases mortality and morbidity. Dysfunctional cognitions and negative body images may be associated with unhealthy eating behaviors in obese individuals. We aimed to compare the cognitive structures, body images and unhealthy eating behaviors of obese individuals and normal weighted individuals as well as to examine the effects of negative cognitions on dysfunctional attitudes and negative body images on emotional eating, external eating and restrained eating behaviors in obese individuals. 70 obese, 117 normal weight participants were evaluated with Body-Cathexis Scale, Dutch Eating Behavior Questionnaire, Automatic Thoughts Questionnaire, Dysfunctional Attitudes Scale Short Form and Social comparison scale. It was found that obese participants had significantly more negative automatic thoughts, dysfunctional cognitions and schemas, perceived their body more dissatisfied and higher emotional and restrained eating behaviors compared to normal weight. In addition, multiple linear regression analysis revealed that negative automatic thoughts in obese participants had a predictive effect on emotional and restrictive eating. The findings highlight the importance of body weight thoughts, negative cognitions, dysfunctional attitudes, cognitive restructuring and behavioral interventions in cognitive behavioral therapy, which is an important option in the treatment of obesity. Further research is needed with larger participants in order to better understand eating behaviors and cognitive structures and develop better intervention strategies in the development of obesity.

Keywords: Obesity, body image, cognition, eating behaviors

Öz

Obez Hastalarda Bilişsel Faktörler, Beden Algısı ve Yeme Davranışları Arasındaki Ilişki

Obezite, mortalite ve morbidite arttıran bir halk sağlığı sorunudur. İşlevsel olmayan bilişler ve olumsuz beden algısı, obez bireylerde görülen sağlıksız yeme davranışlarıyla ilişkilendirilebilir. Obez bireyler ile normal kilolu bireylerin göre bilişsel yapılarını, beden algılarını ve sağlıksız yeme davranışlarını karşılaştırmayı ayrıca obez bireylerdeki olumsuz bilişlerin işlevsel olmayan tutumların ve olumsuz beden algılarının emosyonel yeme, dışsal yeme ve kısıtlayıcı yeme davranışları üzerindeki etkilerini incelemeyi amaçladık. 70 obez, 117 normal kilolu katılımcı Sosyodemografik veri formu, Beden algısı ölçeği (BAÖ), Fonksiyonel Olmayan Tutumlar Ölçeği Kısa Form (FOTÖ-R), Sosyal Karşılaştırma Ölçeği (SKÖ), Otomatik Düşünceler Ölçeği (ODÖ), Hollanda Yeme Davranışı Anketi (DEBQ) ölçekleri ile değerlendirilmiştir. Obez katılımcıların normal kilolulara göre anlamlı olarak daha fazla olumsuz otomatik düşüncelere, fonksiyonel olmayan bilişlere ve şemalara sahip olduğu, bedenlerini daha memnuniyetsiz algıladıkları ve emosyonel ve kısıtlayıcı yeme davranışlarının daha yüksek düzeyde görüldüğü bulunmuştur. Ayrıca çoklu doğrusal regresyon analizi ile obez katılımcılardaki olumsuz otomatik düşüncelerin emosyonel ve kısıtlayıcı yeme üzerine yordayıcı bir etkisi olduğu saptanmıştır. Bulgular, obezite tedavisinde önemli bir seçenek olan bilişsel davranışçı terapi uygulamalarında öne çıkan beden ağırlığı ile ilgili düşünceler, olumsuz bilişler, işlevsiz tutumlar, bilişsel yeniden yapılandırma ve davranış müdahalelerinin önemine dikkat çekmektedir. Obezite gelişiminde yeme davranışları ve bilişsel yapıların daha iyi anlaşılabilmesi ve daha iyi müdahale stratejileri geliştirebilmek için daha geniş katılımcılarla yapılacak ileri araştırmalara ihtiyaç vardır.

Anahtar Kelimeler: Obezite, beden algısı, biliş, yeme davranışları

Correspondence / *Yazışma:*
Muhammed Hakan AKSU
Yıldırım Beyazıt University, Yenimahalle Training and Research Hospital, Ankara, Türkey
Tel: +90 505 331 13 67
E-mail: mhknks@gmail.com

Received / *Geliş:* August 05, 2019
Accepted / *Kabul:* December 08, 2019

©2019 JCBPR

INTRODUCTION

Obesity is a chronic disease that occurs when the energy taken from nutrients by the body is higher than the energy consumed and when body fat mass is increased compared to lean body mass (Altunkaynak & Özbek, 2006). Obesity is a public health problem that concerns all parts of the society today, has serious negative effects on mortality and morbidity rates and is one of the most important health problems of developed and developing countries (Oğuz, Karabekiroğlu, Kocamanoğlu, & Sungur, 2016). Judith Beck (2007) suggested that the success of weight loss was closely related to dysfunctional attitudes and beliefs (Huang & Liao, 2017). Low self-perception, low self-efficacy, high perfectionism are reported in obese individuals compared to normal weighted individuals (Abiles et al., 2010; Deveci, Demet, Özmen, Özmen, & Hekimsoy, 2005). Individuals who reported higher perceived loneliness and isolation had a higher body mass index and less self-confidence in physical activity for weight loss (Lauder, Mummery, Jones, & Caperchione, 2006). Individuals with eating disorders have a negative perception about food and weight. Eating disorders are defined as the way a person expresses emotional problems by using food (Akman, 2016).

The perception of the body is how we shape our bodies in mind and is closely related to our self-esteem (Sarwer, Wadden, & Foster, 1998). The majority of studies have shown more body discontent in obese groups (Mond, Van den Berg, Boutelle, Hannan, & Neumark-Sztainer, 2011; Pınar, 2002; Sarwer et al., 1998). This dissatisfaction is the reason why the majority of obese people want to lose weight (Kakeshita & Almeida, 2006). Negative body image is effective on weight control behavior (such as restricted eating, diarrhea, unhealthy diets or excessive exercise). It has been shown that weight concerns and eating disorders, low self-esteem, depressive mood and suicidal thoughts are related (Ojala, Tynjälä, Välimaa, Villberg, & Kannas, 2012).

The negative perception of body and low self-esteem of obese individuals is seen as an important condition that should be addressed in treatment. Differences in eating behaviors result from different understanding about food selection and consumption. In order to explain these differences, researchers have put forward some psychological theories and suggested concepts of emotional eating, uncontrolled eating and restraint behavior (Seven, 2013).

Emotional eating is conceptualized as eating behavior that is presumed to arise only in response to affection, not because of hunger, lunch time or social necessity (Bekker, van de Meerendonk, & Mollerus, 2004). In addition, emotional eating is triggered by negative emotions and has often been associated with low self-esteem, feelings of inadequacy and eating disorders (Taylor, 2000; Waller & Matoba, 1999). It has also been shown that emotional eating is more common in patients with low weight control and high body mass index (BMI) (Blair, Lewis, & Booth, 1990).

External eating defines whether an individual consumes more nutrients than she/he normally eats when affected by external stimuli such as smell, taste and image. Eating habits are highly influenced by environmental factors. Individuals create their own eating attitudes after being affected by the nutritional habits of the society they live in and the foods provided to them (Burton, Smit, & Lightowler, 2007). These individuals are more sensitive to external stimuli of food and eat in response to these external stimuli rather than the feeling of hunger-satiety (Schachter, 1968).

With an opposite effect, dieting behavior can cause excessive weight by binge eating. According to the restrained eating theory, the desire for food and the effort to resist it determine our eating behavior (C. Herman & Polivy, 1980; C. P. Herman & Mack, 1975). In addition, restriction is a cognitive effort against this desire. Those with restrained eating behavior complain that they eat too much and limit their eating behavior to avoid being overweighted. According to the "disinhibition hypothesis" in the same theory, the control of eating behavior of restrained eating individuals may be temporarily disrupted as a result of some events. These events are strong emotional states such as anxiety and depression. But also cognitions such as the perception of excessive eating and alcohol consumption (Waller & Osman, 1998).

The aim of this study is to investigate the automatic thoughts, intermediate and fundamental beliefs of obese individuals within the framework of cognitive theories, to analyze the relationship between body images and eating behaviors and to compare these outcomes with normal weighted controls.

Our first hypothesis is that obese individuals have more negative body image, more pathological eating behavior and more dysfunctional and irrational cognitions than normal weighted controls. Our second hypothesis is that dysfunctional and irrational cognitions and negative images in obese individuals are associated with emotional, restrained and external eating.

METHOD

Sampling and Data Collection

The study group consisted of over 30 individuals who were admitted to the Mental Health and Diseases Outpatient Clinic of Y.B.Ü. Yenimahalle Training and Research Hospital for the first time between February 2019 and June 2019, with a body mass index (BMI, the weight in kilograms divided by the square of the height in meters) over 30 and whose endocrine examinations were completed. Patients older than 18 years of age, BMI ≥30 and who agreed to participate in the study were included. Patients with any endocrine disease other than obesity, chronic physical illness, mental retardation, epilepsy, head trauma history, dementia, psychiatric comorbidity and menopausal women were excluded.

The control group was selected from the general population, with a Body Mass Index between 18.5-24.9, older than 18 years of age and with similar demographic characteristics. Patients with any endocrine disease, chronic physical illness, mental retardation, epilepsy, history of head trauma, dementia and psychiatric comorbidity and menopausal women were excluded from the study. Participants included in the study or control group were given self-report scales.

This cross-sectional study was conducted in two groups, obese and normal weighted. 11 individuals in the study group and 9 individuals in the control group were excluded from the study due to sloppy filling of the scales and discontinuation of the study. The study group consisted of 70 obese participants (38 females and 32 males). The control group consisted of a total of 117 normal weighted participants, 80 females and 37 males.

This study was conducted by Y.B.Ü. Approved by the Ethics Committee of Yenimahalle Training and Research Hospital. It was carried out in accordance with the ethical standards set out in the 2013 Helsinki Declaration. Informed consent was obtained from the participants.

Data Collection Tools

Sociodemographic Data Form

It was prepared as a data form in which the sociodemographic data such as age, gender, educational status, etc. was discussed, as well as the psychiatric and medical illness stories of the volunteers participated in the study.

Body-Cathexis Scale (BCS)

The Body-Cathexis Scale (BCS), developed by Secard and Jurard in 1953. It is a scale that determines the satisfaction of an individual from 40 different body parts or functions (Secord & Jourard, 1953). The most positive expression gets 1 point and the most negative expression gets 5 points. The lowest total score is 40 and the highest is 200. The increase in the total score obtained from the scale indicates a decrease in the satisfaction of the person from body parts or function. On the contrary, a decrease in the score indicates an increase in satisfaction (Secord & Jourard, 1953). In our country, Turkish validity and reliability studies of the scale were conducted (Hovardaoğlu, 1992).

Dutch Eating Behavior Questionnaire (DEBQ)

The Dutch Eating Behavior test was developed in 1986 by Van Strien et al. This is a 33-item questionnaire. The validity and reliability of the test was made by Bozan in 2009 (Bozan, 2009; Van Strien, Frijters, Bergers, & Defares, 1986). The questionnaire consists of 3 subscales: emotional eating, external eating and restrained eating. While there were no cut-off points in the scoring of the test, the high scores of 3 sub-scores in the Likert evaluation showed a negative effect on eating behavior. The items in the questionnaire are evaluated with a 5-point Likert scale. The total score of the test is not evaluated and 3 sub-scales are evaluated within themselves (Van Strien et al., 1986).

Automatic Thoughts Questionnaire (ATQ)

It is a 5-point Likert-type self-report scale that assesses the frequency of negative automatic thoughts associated with depression. It was developed in 1980 by Hollon and Kendall The factor analysis of ATQ revealed five factors as item groups of automatic thoughts which are related with negative self concept, confusion and escape fantasies, personal maladjustment-desire for change, loneliness/isolation and giving up/helplessness. The Turkish version of the scale was made Şahin and Şahin (Şahin & Şahin, 1992b).

Dysfunctional Attitudes Scale Short Form (DAS-R)

The dysfunctional attitudes scale was formed by Weissman and Beck in 1978 and was composed of 40 items to assess disfunctional hypothesis and beliefs. It is a Likert-type scale filled in by the individuals themselves. After that,

the scale was revised by Batmaz and Özdel with a short form of 13 items. The internal consistency of the scale and its subscales were calculated using Cronbach's values. According to the final scale structure obtained after DFA, Cronbach was evaluated as .84 for P / A subscale, .75 for NFA / D subscale and .84 for total scale (Batmaz & Ozdel, 2016).

Social comparison scale (SCS)

It is a bipolar 18-item scale that evaluates how people perceive themselves when compared to others. The scale is scored on a Likert-type scale of 1-6, and high scores indicate a positive self-concept. The original scale was turned into a scale of 18 items as a result of the study of Şahin and Şahin (Şahin & Şahin, 1992a). It has also been used in various studies in order to identify fundamental beliefs.

Statistical Analyzes

The data were analyzed with SPSS 15.0 for Windows Evaulation Version (statistical package for the social sciences) statistical package program. Sociodemographic data and psychiatric disorders of patients with nominal characteristics were shown as a percentage. Numerical variables are represented with mean and standard deviation; categorical variables thereafter by numbers and percentages. The homogeneity of the variances of the compared groups was evaluated with the Levene test. In the normality analyzes, the skewness and kurtosis indices calculated by dividing the skewness and kurtosis coefficients of Tabachnick and Fidell by their standard errors are close to 0 within ± 2 limits; The standard deviation and the ratio of the mean as a percentage of the relative coefficient of variation in the range of 20 to 25 can be considered as evidence of the existence of normal distribution (Tabachnick, Fidell, & Ullman, 2007). In parametric comparisons, two independent sample tests were used. Since parametric assumptions were met for the relationship between numerical variables, Pearson correlation was used. Using a multivariate linear regression model, the independent effects of different predictors on emotional eating and restrained eating behavior were investigated in two different models. A p value of <0.05 was considered statistically significant.

RESULTS

Table 1 presents the sociodemographic data of the study and control groups. Accordingly, no significant difference was found between the two groups in terms of age,

Table 1: Comparison of sociodemographic data of the study and control groups.

		Samples						
		Obese (BMI>30)			*Normal weighted (BMI 18.5-24.99)*			*p*
		Count	*Column N %*	*Mean*	*Count*	*Column N %*	*Mean*	
Sex	Female	38	54.3%		80	68.4%		0.059
	Male	32	45.7%		37	31.6%		
Age				32.66			30.88	0.191
BMI				35.78			22.40	0.000
Years of education				13.06			16.12	0.000
Marital status	Single	19	27.1%		32	27.4%		0.755
	Married	48	68.6%		75	64.1%		
	Widow	1	1.4%		8	6.8%		
	Divorced	2	2.9%		2	1.7%		
Working status	Working	32	45.7%		42	35.9%		
	Unemployed	28	40.0%		54	46.2%		0.607
	Housewife	11	15.7%		11	9.4%		
	Student	10	14.3%		10	8.5%		

gender and working conditions. A significant difference was found in terms of years of education. This difference is due to the higher education level of the control group.

Table 2 shows the comparison of the study (obese) and control (normal weighted) groups with BCS, DEBQ, ATQ, DAS-R, SCS and subscales.

In the comparison of results, it was found that the obese group had significantly higher BCS scores (SD: 21.97, p =, 000) than the control group. When ATQ was examined, ATQ total score and subscales were significant among the groups. This difference was due to higher scores of the obese group.

When DAS-R was examined, there was a significant difference between the DAS-R total score (P <0.001), DAS-R perfectionism (p = 0.001) and approval (p <0.001) subscale scores. This difference was related to the high scores of the obese group. When the scores obtained from SCS were examined, it was found that the obese group had significantly higher scores than the normal weighted group. (P <0.001)

Table 2: Comparison of the study and control groups with BCS, DEBQ, ATQ, DAS-R, SCS and subscales (independent sample T test)

	OBESE/NORMAL	*N*	*X*	*SS*	*F*	*p*
BCS	OBESE	70	114.38	21.97	0.37	0.000
	NORMAL	117	93.70	21.84		
ATQNSC	OBESE	70	26.67	9.81	69.012	0.000
	NORMAL	117	13.90	4.90		
ATQCEF	OBESE	70	17.58	6.33	35.312	0.000
	NORMAL	117	9.94	3.59		
ATQPMDFC	OBESE	70	9.61	2.87	3.068	0.000
	NORMAL	117	5.98	2.48		
ATQLİ	OBESE	70	10.90	3.74	22.632	0.000
	NORMAL	117	6.49	2.64		
ATQGH	OBESE	70	11.17	4.38	37.376	0.000
	NORMAL	117	6.01	2.60		
ATQ	OBESE NORMAL	70 117	75.94 42.35	25.16 14.40	52.532	0.000
DAS-R P/A	OBESE	70	22.94	11.56	23.764	0.001
	NORMAL	117	17.60	7.22		
DAS-R NFA/D	OBESE	70	15.45	7.95	25.757	0.000
	NORMAL	117	10.71	5.07		
DAS-R	OBESE	70	38.40	18.53	25.593	0.000
	NORMAL	117	28.32	11.30		
SCS	OBESE	70	69.38	17.50	17.371	0.000
	NORMAL	117	84.77	10.36		
DEBQ EM	OBESE	70	40.42	15.32	5.826	0.000
	NORMAL	117	26.88	12.79		
DEBQ RE	OBESE	70	26.47	7.76	3.827	0.621
	NORMAL	117	26.97	6.02		
DEBQ EX	OBESE	70	33.45	8.88	2.879	0.021
	NORMAL	117	30.61	7.53		

BCS, body-cathexis scale; **ATQ,** automatic thought scale; **ATQNSC,** ATQ subscale related with negative self consept thoughts; **ATQCEF,** ATQ subscale related with confusion and escape fantasies; **ATQPMDFC,** ATQ subscale related with personal maladjustment-desire for change; **ATQLI,** ATQ subscale related with loneliness and isolation thoughts; **ATQGI,** ATQ subscale related with giving up helplessness thoughts; DAS-R dysfunctional attitudes scale short form; **DAS-R P/A,** DAS-R subscale related with perfectionism and achievement; **DAS-R NFA/D,** DAS-R subscale related with need for approval and dependency; **SCS,** social comprasion scale; **DEBQ,** dutch eating behavior questionnaire; **DEBQ EM,** DEBQ subscale related with emotional eating; DEBQ RE, DEBQ subscale related with restrained eating; **DEBQ EX,** DEBQ subscale related with external eating.

When the DEBQ was examined, a significant difference was found between external eating (p <0.021) and emotional eating (p <0.001) subscale scores.

In Table 3, the correlation of BCS, ATQ, DAS-R, SCS and DEBQ scales of the obese group was examined. It was found that the scores obtained from the BCS were positively correlated with DEBQ (Du), ATQ, and DAS-R (P <0.001) and negatively correlated with SCS (P = 0.015). The scores obtained from the DEBQ emotional eating subscale were found to be positively correlated with ATQ and DAS-R (p <0.001). There was a positive correlation (p = 0.001) between DEBQ restrained eating and ATQ and a negative correlation (p = 0.006) between DEBQ restrained eating and SCS scores.

In Table 4, multiple linear regression analysis of cognitive factors, predicting emotional eating, was performed. DEBQ emotional eating subscale was used as the dependent variable and multiple linear regression analysis was performed by using ATQ, DAS-R and BCS as independent variables. ATQ significantly predicted emotional eating scores (P = 0.001). "Adjusted r square 0.319."

Table 5 shows multiple linear regression analysis of cognitive factors predicting restrained eating. Multiple linear regression analysis was performed by taking DEBQ restrained eating subscale as dependent variable and ATQ, SCS as independent variables. ATQ predicted restrained eating scores significantly (p = 0.045). "Adjusted r square 0,134"

DISCUSSION

In the current study, it was aimed to compare obese individuals with normal weighted in terms of body images,

Table 3: Correlation of scores of the obese group from the scales

		BCS	*DEBQ EM*	*DEBQ EX*	*DEBQ RE*	*ATQ*	*DAS-R*	*SCS*
BCS	R	1	0.417**	-0.017	0.180	0.616**	0.459**	-0.283*
	P		0.000	0.891	0.136	0.000	0.000	0.018
DEBQ EM	R	0.417**	1	0.337**	0.149	0.580**	0.417**	-0.230
	P	0.000		0.004	0.219	0.000	0.000	0.055
DEBQ EX	R	-0.017	0.337**	1	-0.459**	0.102	0.160	0.084
	P	0.891	0.004		0.000	0.403	0.186	0.488
DEBQ RE	R	0.180	0.149	-0.459**	1	0.378**	0.101	-0.326**
	P	0.136	0.219	0.000		0.001	0.407	0.006
ATQ	R	0.616**	0.580**	0.102	0.378**	1	0.597**	-0.591**
	P	0.000	0.000	0.403	0.001		0.000	0.000
DAS-R	R	0.459**	0.417**	0.160	0.101	0.597**	1	-0.303*
	P	0.000	0.000	0.186	0.407	0.000		0.011
SCS	R	-0.283*	-0.230	0.084	-0.326**	-0.591**	-0.303*	1
	P	0.018	0.055	0.488	0.006	0.000	0.011	

BCS, body-cathexis scale; **ATQ,** automatic thought scale; **DAS-R,** dysfunctional attitudes scale short form; **SCS,** social comparison scale; **DEBQ,** dutch eating behavior questionnaire; **DEBQ EM,** DEBQ subscale related with emotional eating; **DEBQ RE,** DEBQ subscale related with restrained eating; **DEBQ EX,** DEBQ subscale related with external eating

Table 4: Multiple linear regression model wherein the dependent variable is the DEBQ EM subscale

		Unstandardized Coefficients		*Standardized Coefficients*			*95,0% Confidence Interval for B*	
Variables		*B*	*Std. Error*	*Beta*	*t*	*Sig.*	*Lower Bound*	*Upper Bound*
1	(Constant)	8.745	8.087		1.081	0.283	-7.401	24.892
	BCS	0.057	0.089	0.081	0.637	0.526	-0.121	0.234
	ATQ	0.264	0.079	0.472	3.341	0.001	0.106	0.422
	DAS-R	0.081	0.103	0.098	0.784	0.436	-0.126	0.288

BCS, body-cathexis scale; **ATQ,** automatic thought scale; **DAS-R,** dysfunctional attitudes scale short form; **DEBQ EM,** DEBQ subscale related with emotional eating

Table 5: Multiple linear regression model wherein the dependent variable is the DEBQ RE subscale

		Unstandardized Coefficients		*Standardized Coefficients*			*95,0% Confidence Interval for B*	
Model		*B*	*Std. Error*	*Beta*	*t*	*Sig.*	*Lower Bound*	*Upper Bound*
1	(Constant)	24.599	6.818		3.608	0.001	10.990	38.208
	ATQ	0.081	0.039	0.284	2.048	0.045	0.002	0.159
	SCS	-0.070	0.062	-0.158	-1.140	0.258	-0.193	0.053

ATQ, automatic thought scale; **SCS,** social comparison scale; **DEBQ,** dutch eating behavior questionnaire; **DEBQ RE,** DEBQ subscale related with restrained eating

cognitive structures and eating behaviors. In addition, it was tested whether three different cognitive layers and body images predicted emotional eating, external eating and restrained eating behaviors in obese individuals.

According to the findings, obese individuals were significantly less satisfied with body parts or functions than normal weighted controls. In a study conducted in our country, it was shown that self-esteem of obese participants was significantly lower than non-obese participants (Hamurcu, Öner, Telatar, & Yeşildağ, 2015).

In another study, surprisingly, the mean BCS scores of overweighted and obese participants were similar to those of thin and normal weighted participants (Şanlier, Türközü, & Toka, 2016). However, many studies have already found a positive relationship between body mass index and low body image / dissatisfaction of body shape, similar to this study (Cortese et al., 2010; Knauss, Paxton, & Alsaker, 2007). Although there is clear evidence that obesity is related to a lower body image, not all obese individuals are affected at the same level. Some factors such as the severity of excessive body weight, being a woman, age of onset of obesity, race and socioeconomic factors may affect the development of a weak body image (Schwartz & Brownell, 2004).

According to the ATQ test results, obese individuals were found to have more negative automatic thoughts towards themselves than normal weighted controls.

Especially in today's world, negative labeling creates a troubled climate for obese people and leads to an increase in automatic thoughts about the negative self concept and to a possibly vicious circle (Okumusoglu, 2017).

Evaluating early treatment response predicting ongoing weight loss in the treatment of obesity; changes in uncontrolled eating behavior were more closely associated with changes in depression, stress reactions and perfectionism than with changes in BMI (Stotland & Larocque, 2005). İt was shown that obese participants had significantly higher levels of loneliness than non-obese participants (Schumaker, Krejci, Small, & Sargent, 1985). In a study, the relationship between automatic thoughts, eating attitude, body mass index and sociodemographic characteristics of women aged 18-55 years were examined and it was shown that as the body mass index increased, automatic thoughts increased and also negative eating attitude behavior increased (Yalçuk & Latifoğlu, 2018). In the study of Okumuşoğlu, investigating the relationship between obstructive, dysfunctional attitudes and thoughts with successful weight loss in obese individuals; he stated that in terms of negative self-perception, confusion and escape ideas, loneliness, social isolation, abandonment and desperation, obese individuals who had successfully dieted had lower averages in these item groups than obese individuals who failed dieting successfully and didn't receive any help. It was emphasized that having less undermining, depressive and dysfunctional thoughts was associated with successful weight loss (Okumusoglu, 2017). Cooper and Fairburn (2001) report that those who diet and cannot reach their target weight leave useful habits that are important for successful weight management and give up (Cooper & Fairburn, 2001). It can be said that obese individuals' weight loss difficulties are related to negative cognitions such as loneliness, helplessness and abandonment in their automatic thoughts.

When DAS-R and SCS results were assessed, in which intermediate and fundamental beliefs were evaluated, it was seen that the obese group had more nonfunctional attitudes and negative schemes.

Anderson et al. (2006) reported obese patients reported significantly higher maladaptive scheme severity than normal weighted controls. In addition, a significant positive

correlation was found between the severity of maladaptive scheme scores and both emotional and problem eating scores in the obese group (Anderson, Rieger, & Caterson, 2006).

According to Chambers and Swanson (2012), the increase in self-control and self-efficacy perception increases the success in weight management (Chambers & Swanson, 2012). In a study by Abiles et al. (2012), the incidence of depression, anxiety, low self-perception and eating disorders were higher in obese individuals than in the normal weighted group (Abiles et al., 2010).

According to Kuijer and Boyce (2014), eating behavior and food have a relationship with contradictory emotions. On one side there is pleasure and joy, on the other side there is anxiety and guilt. Even at first guilt may seem to have the potential for motivation for change in behavior; it can actually lead to feelings of guilt, helplessness and lack of control (Kuijer & Boyce, 2014).

In a study with obese individuals, negative schemes such as rejection, worthlessness and lack of will were observed the most (Nauta, Hospers, Jansen, & Kok, 2000).

Since low self-perception, inadequacy, worthlessness and guilt are part of fundamental beliefs, it can be interpreted that these findings are in line with the findings of the current study. Furthermore, it can be said that deterioration in eating behavior of fundamental and intermediate beliefs are effective in the cause or result of obesity.

In this study, it was seen that emotional and restrained eating behaviors of obese individuals were significantly higher than normal weighted individuals.

McCrone et al. (2000) showed that eating in response to negative affect and eating more often because of emotional arousal rather than hunger were more often seen in women with early onset obesity (McCrone, Dennis, Tomoyasu, & Carroll, 2000). In addition, many studies have reported that obese individuals consume excessive food in the presence of negative feelings such as anger, anxiety, depression and loneliness. However, unlike obese individuals, it is accepted that negative emotions reduce food intake in normal weighted people, but there are also contradictory studies.

There is no clear information about how eating behavior of normal weighted people will be affected in response to emotions. However, it has been observed that especially negative affect increases eating behavior in obese individuals (Sevinçer & Konuk, 2013).

Restrained eating, based on the concept of cognitive restraint, has been associated with higher but also lower body weights and healthier food intake. Restraint tends to increase over time as weight decreases in successful weight loss treatments; this indicates that restraint is a useful and necessary nutritional strategy to control body weight. However, the concept of restraint has also been considered problematic because restraint can pose an ultimate desire and risk of overeating (Elfhag & Morey, 2008). Dietary restraint did not directly explain obesity, but the current study showed differences in obese individuals.

Correlation and regression analyzes between the scales in the obese group highlighted the predictive effect of automatic thoughts on emotional eating and restrictive eating behaviors. Studies combining DEBQ with other psychological tests have shown that restrictive eating is associated with greater self-confidence, while other studies have shown that it is associated with depression and even perfectionism (Elfhag & Morey, 2008). One study showed that restrained eating was associated with conscientiousness (Elfhag & Morey, 2008).

It is not clear whether restrained eating is a risk factor in obese people. However, it is important to understand whether obese patients have the capacity to remain on the healthy side of restrained eating.

According to the theory of emotion regulation that controls eating behavior, people eat to reduce their negative emotions. This tendency in obese individuals to food intake was interpreted as a coping method to reduce their negative affect (Sevinçer & Konuk, 2013). Emotional eating is often associated with impaired body image, low self-esteem, feelings of inadequacy and eating disorders (Van Strien, 2000). Perfectionism and repetitive thoughts are associated with maladaptive cognitive emotion tendencies such as disaster, self-blame, rumination and lack of positive re-evaluation. In this context, it can be said that the intensity of negative automatic thoughts has an effect on emotional eating behavior which is suggested to occur with negative emotions by causing a maladaptive cognitive emotional regulation.

In studies containing data showing that cognitive factors play an important role in the success of obesity treatment, it is suggested to develop more effective and new

treatment programs (ÜnaL, 2018). The current study emphasized the importance of cognitive behavioral therapy and the importance of negative body image, cognitions and behaviors in therapy programs.

In conclusion, it was found that automatic thoughts had a strong effect on both restrained and emotional eating behaviors in obese individuals. However, it is known that eating behavior does not show homogeneity in obesity. Body image, eating behavior and cognitive structures are important before starting treatment. Further research is needed with larger group of participants in order to better understand eating behaviors and cognitive structures and develop better intervention strategies in the progress of obesity.

REFERENCES

Abiles, V., Rodriguez-Ruiz, S., Abiles, J., Mellado, C., Garcia, A., Perez de la Cruz, A., & Fernandez-Santaella, M. C. (2010). Psychological characteristics of morbidly obese candidates for bariatric surgery. Obes Surg, 20(2), 161-167. https://doi.org/10.1007/s11695-008-9726-1

Akman, M. (2016). Obezite ve Yeme Bozuklukları İçerisindeki Yeri. Turkiye Klinikleri Journal of Nutrition and Dietetics-Special Topics, 2(1), 23-27.

Altunkaynak, B. Z., & Özbek, E. (2006). Obezite: nedenleri ve tedavi seçenekleri. Van Tıp Dergisi, 13(4), 138-142. https://www.journalagent.com/vtd/pdfs/VTD_13_4_138_142.pdf

Anderson, K., Rieger, E., & Caterson, I. (2006). A comparison of maladaptive schemata in treatment-seeking obese adults and normal-weight control subjects. Journal of Psychosomatic Research, 60(3), 245-252. https://doi.org/10.1016/j.jpsychores.2005.08.002

Batmaz, S., & Ozdel, K. (2016). Psychometric Properties of the Revised and Abbreviated form of the Turkish Version of the Dysfunctional Attitude Scale. Psychological Reports, 118(1), 180-198. https://doi.org/10.1177/0033294116628349

Bekker, M. H., van de Meerendonk, C., & Mollerus, J. (2004). Effects of negative mood induction and impulsivity on self-perceived emotional eating. International Journal of Eating Disorders, 36(4), 461-469. https://doi.org/10.1002/eat.20041

Blair, A., Lewis, V., & Booth, D. A. (1990). Does emotional eating interfere with success in attempts at weight control? Appetite, 15(2), 151-157. https://doi.org/10.1016/0195-6663(90)90047-c

Bozan, N. (2009). Hollanda yeme davranış anketinin (DEBQ) Türk üniversite öğrencilerinde geçerlilik ve güvenilirliğinin sınanması. [Yayımlanmış Yüksek Lisans Tezi]

Burton, P., Smit, H. J., & Lightowler, H. J. (2007). The influence of restrained and external eating patterns on overeating. Appetite, 49(1), 191-197. https://doi.org/10.1016/j.appet.2007.01.007

Chambers, J. A., & Swanson, V. (2012). Stories of weight management: factors associated with successful and unsuccessful weight maintenance. British Journal of Health Psychology, 17(2), 223-243. https://doi.org/10.1111/j.2044-8287.2011.02030.x

Cooper, Z., & Fairburn, C. G. (2001). A new cognitive behavioural approach to the treatment of obesity. Behaviour Research and Therapy, 39(5), 499-511. https://doi.org/10.1016/s0005-7967(00)00065-6

Cortese, S., Falissard, B., Pigaiani, Y., Banzato, C., Bogoni, G., Pellegrino, M., . . . Maffeis, C. (2010). The relationship between body mass index and body size dissatisfaction in young adolescents: spline function analysis. J Am Diet Assoc, 110(7), 1098-1102. https://doi.org/10.1016/j.jada.2010.04.001

Deveci, A., Demet, M. M., Özmen, B., Özmen, E., & Hekimsoy, Z. (2005). Obez hastalarda psikopatoloji, aleksitimi ve benlik saygısı. Anadolu Psikiyatri Dergisi, 6(2), 84-91.

Elfhag, K., & Morey, L. C. (2008). Personality traits and eating behavior in the obese: poor self-control in emotional and external eating but personality assets in restrained eating. Eating Behaviors, 9(3), 285-293. https://doi.org/10.1016/j.eatbeh.2007.10.003

Hamurcu, P., Öner, C., Telatar, B., & Yeşildağ, Ş. (2015). Obezitenin benlik saygısı ve beden algısı üzerine etkisi. Türkiye Aile Hekimliği Dergisi, 19(3), 122-129. https://doi.org/10.15511/tahd.15.02122

Herman, C., & Polivy, J. (1980). Restrained eating. In: Stunkard, A. J. (Ed.), Obesity Philadelphia: WB Saunders, pp.208-225.

Herman, C. P., & Mack, D. (1975). Restrained and unrestrained eating 1. Journal of Personality, 43(4), 647-660. https://doi.org/10.1111/j.1467-6494.1975.tb00727.x

Hovardaoğlu, S. (1992). Vücut Algısı Ölçeği. Psikiyatri, Psikoloji, Psikofarmakoloji Dergisi (3P). Testler Özel Eki., 1(1), 26-27.

Huang, W.-L., & Liao, S.-C. (2017). Psychometric properties of the Chinese version of the Diagnostic Criteria for Psychosomatic Research. Psychotherapy and Psychosomatics, 86(2), 119-120. https://doi.org/10.1159/000450714

Kakeshita, I. S., & Almeida, S. d. S. (2006). Relationship between body mass index and self-perception among university students. Revista de Saúde Pública, 40(3), 497-504. https://doi.org/10.1590/s0034-89102006000300019

Knauss, C., Paxton, S. J., & Alsaker, F. D. (2007). Relationships amongst body dissatisfaction, internalisation of the media body ideal and perceived pressure from media in adolescent girls and boys. Body Image, 4(4), 353-360. https://doi.org/10.1016/j.bodyim.2007.06.007

Kuijer, R. G., & Boyce, J. A. (2014). Chocolate cake. Guilt or celebration? Associations with healthy eating attitudes, perceived behavioural control, intentions and weight-loss. Appetite, 74, 48-54. https://doi.org/10.1016/j.appet.2013.11.013

Lauder, W., Mummery, K., Jones, M., & Caperchione, C. (2006). A comparison of health behaviours in lonely and non-lonely populations. Psychol Health Med, 11(2), 233-245. doi:10.1080/13548500500266607

McCrone, S., Dennis, K., Tomoyasu, N., & Carroll, J. (2000). A profile of early versus late onset of obesity in postmenopausal women. Journal of Women's Health & Gender-Based Medicine, 9(9), 1007-1013. https://doi.org/10.1089/15246090050200042

Mond, J., Van den Berg, P., Boutelle, K., Hannan, P., & Neumark-Sztainer, D. (2011). Obesity, body dissatisfaction, and emotional well-being in early and late adolescence: findings from the project EAT study. Journal of Adolescent Health, 48(4), 373-378. https://doi.org/10.1016/j.jadohealth.2010.07.022

Nauta, H., Hospers, H. J., Jansen, A., & Kok, G. (2000). Cognitions in obese binge eaters and obese non-binge eaters. Cognitive Therapy and Research, 24(5), 521-531. https://doi.org/10.1023/a:1005510027890

Oğuz, G., Karabekiroğlu, A., Kocamanoğlu, B., & Sungur, M. Z. (2016). Obezite ve bilişsel davranışçı terapi. Psikiyatride Güncel Yaklaşımlar, 8(Suppl 2), 133-144. https://doi.org/10.18863/pgy.02951

Ojala, K., Tynjälä, J., Välimaa, R., Villberg, J., & Kannas, L. (2012). Overweight adolescents' self-perceived weight and weight control behaviour: HBSC study in Finland 1994–2010. Journal of Obesity. 180176. https://doi.org/10.1155/2012/180176

Okumusoglu, S. (2017). The role of negative, saboteur, dysfunctional thoughts and attitudes in weight loss success in obesity. International Journal of Humanities and Education, 3(5), 63-74. http://www.ijhe.org/Published/201704_005_3_004.pdf

Pınar, R. (2002). Obezlerde depresyon, benlik saygısı ve beden imajı: Karşılaştırmalı bir çalışma. CÜ Hemşirelik Yüksekokulu Dergisi, 6(1), 30-41. http://eskidergi.cumhuriyet.edu.tr/makale/601.pdf

Sarwer, D. B., Wadden, T. A., & Foster, G. D. (1998). Assessment of body image dissatisfaction in obese women: specificity, severity, and clinical significance. Journal of Consulting and Clinical Psychology, 66(4), 651-654. https://doi.org/10.1037/0022-006x.66.4.651

Schachter, S. (1968). Obesity and eating. Science, 161(3843), 751-756. https://doi.org/10.1126/science.161.3843.751

Schumaker, J. F., Krejci, R. C., Small, L., & Sargent, R. G. (1985). Experience of loneliness by obese individuals. Psychological Reports, 57(3_suppl), 1147-1154. https://doi.org/10.2466/pr0.1985.57.3f.1147

Schwartz, M. B., & Brownell, K. D. (2004). Obesity and body image. Body Image, 1(1), 43-56. https://doi.org/10.1016/s1740-1445(03)00007-x

Secord, P. F., & Jourard, S. M. (1953). The appraisal of body-cathexis: Body-cathexis and the self. Journal of Consulting Psychology, 17(5), 343-347. https://doi.org/10.1037/h0060689

Seven, H. (2013). Yetişkinlerde Duygusal Yeme Davranışının Beslenme Durumuna Etkisi. (Yayınlanmamış yüksek lisans tezi), Haliç Üniversitesi, Sağlık Bilimleri Enstitüsü, İstanbul.

Sevinçer, G. M., & Konuk, N. (2013). Emosyonel yeme. Journal of Mood Disorders, 3(4), 171-178. https://doi.org/10.5455/jmood.20130926052526

Stotland, S., & Larocque, M. (2005). Early treatment response as a predictor of ongoing weight loss in obesity treatment. British Journal of Health Psychology, 10(4), 601-614. https://doi.org/10.1348/135910705x43750

Şahin, N. H., & Şahin, N. (1992a). How dysfunctional are the dysfunctional attitudes in another culture? British Journal of Medical Psychology, 65(1), 17-26. https://doi.org/10.1111/j.2044-8341.1992.tb01680.x

Şahin, N. H., & Şahin, N. (1992b). Reliability and validity of the Turkish version of the Automatic Thoughts Questionnaire. Journal of Clinical Psychology, 48(3), 334-340. https://doi.org/10.1002/1097-4679(199205)48:3<334::aid-jclp2270480311>3.0.co;2-p

Şanlier, N., Türközü, D., & Toka, O. (2016). Body image, food addiction, depression, and body mass index in university students. Ecology of Food and Nutrition, 55(6), 491-507. https://doi.org/10.1080/03670244.2016.1219951

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). Using Multivariate Statistics (Vol. 5): Pearson Boston, MA.

Taylor, G. J. (2000). Recent developments in alexithymia theory and research. The Canadian Journal of Psychiatry, 45(2), 134-142. https://doi.org/10.1177/070674370004500203

Ünal, G. Ö. (2018). Obezitenin Psikiyatrik Yönü, Tedavisinde Davranışçı ve Bilişsel Davranışçı Terapi. Bilişsel Davranışçı Psikoterapi ve Araştırmalar Dergisi, 7(1), 31-41.https://doi.org/10.5455/JCBPR.268112

Van Strien, T. (2000). Ice-cream consumption, tendency toward overeating, and personality. International Journal of Eating Disorders, 28(4), 460-464. https://doi.org/10.1002/1098-108x(200012)28:4<460::aid-eat16>3.0.co;2-a

Van Strien, T., Frijters, J. E., Bergers, G. P., & Defares, P. B. (1986). The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. International Journal of Eating Disorders, 5(2), 295-315. https://doi.org/10.1002/1098-108x(198602)5:2<295::aid-eat2260050209>3.0.co;2-t

Waller, G., & Matoba, M. (1999). Emotional eating and eating psychopathology in nonclinical groups: A cross-cultural comparison of women in Japan and the United Kingdom. International Journal of Eating Disorders, 26(3), 333-340. https://doi.org/10.1002/(sici)1098-108x(199911)26:3<333::aid-eat11>3.0.co;2-d

Waller, G., & Osman, S. (1998). Emotional eating and eating psychopathology among non-eating-disordered women. International Journal of Eating Disorders, 23(4), 419-424. https://doi.org/10.1002/(sici)1098-108x(199805)23:4<419::aid-eat9>3.0.co;2-l

Yalçuk, Ö., & Latifoğlu, G. (2018). Kadınlarda beden kitle indeksi, otomatik düşünceler ile yeme tutumları ilişkisinin incelenmesi. (Yayımlanmamış Yüksek Lisans Tezi), Yakın Doğu Üniversitesi, Lefkoşa.