Original Article

Assessment of Body perception, Psychological Distress, and Subjective Quality of Life Among Obese and Nonobese Subjects in Turkey

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Abstract

Background: Obesity can lead to psychological, social, and medical problems that may negatively affect the quality of life **Aim:** In our study, we aimed to evaluate the body perception, psychological distress, and subjective quality of life of obese subjects in comparison with normal weighted ones. **Methods**: A total of 494 subjects, aged between 18 and 64 years, were included to the study. Patients with the body mass index (BMI) of ≥18.5–24.9 kg/m² were assigned to the control group; BMI ≥ 30 kg/m² were assigned to the obese patient group. An ethical committee approval with protocol No. of 2011/242 was obtained from the Ethical Committee of Eskişehir Osmangazi University Faculty of Medicine. Interviews were performed two times with obese subjects in the 1st and the 6th month of weight loss program, once with the control group. Data identification form, the form which included the biochemical parameters, Trait Anxiety inventory, State anxiety scale, Quality of Life scale-Short Form [(SF-36)(QOL)], Multidimensional Body-Self Relations Questionnaire (MBSRQ), Zung Depression Rating Scale, and Zung Anxiety Rating Scale were applied to participants. **Results:** Obesity is more common in women. Obesity reduces the quality of life, negatively affects body perception, and triggers anxiety. Because of their body structure, obese individuals are exposed to social pressure and unethical attitudes. **Conclusions:** Both health risks and social implications of obesity are important. Further studies are needed to ethically evaluate the psycho-social problems caused by obesity.

Keywords: *Obesity, body perception, quality of life, obesity and depression, obesity, and ethics*

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Introduction

Obesity, one of the most important health problems of both developed and developing countries is a chronic disease which may lead to psychological, social, and medical problems that may negatively affect the quality of life.[1] In recent years, the prevalence of obesity in all age and socioeconomic groups is increasing rapidly.[2]

The most practical way used to diagnose obesity is to calculate BMI. Obesity, which is defined as BMI ≥ 30kg/m² [weight (kg)/height^2 (m^2)], causes the emergence of many diseases by affecting all systems of the human body. It also affects the quality of life by leading to psychosocial disorders and exposure to unethical negative discrimination in some people.[3,4]

Studies showed that obesity can lead to social isolation, inferiority, unemployment, decreased self-esteem, anxiety, depression, and marital incompatibility.[5,6] In addition, obese people face new challenges, because of social pressure and humiliation against obese people, preparation of some unethical offensive rules for obese people and troubles caused by being overweight. This situation has brought the debate of rules, which are tried to be implemented in a scientific world, to be

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ethical. Our aim in this study was to compare the body perceptions, psychological distress, and subjective quality of life of obese and normal-weight adults. We hypothesized that obesity negatively affects both body perception and subjective quality of life which can cause psychological distress.

There are many studies focused on the body perception, quality of life, anxiety and depression levels separately, and most of them were cross-sectional.[3,4,7,8] In this study, we aimed to assess such levels in 1 study and assess the changes of such parameters in obese subjects in a prospective design.

Materials and Methods

This is a prospective study conducted among patients who were admitted to the Endocrine and Metabolic Diseases clinic of Osmangazi University Medical Faculty Hospital, Eskisehir, and a private hospital in the province of Eskişehir, Turkey, between August 2011 and November 2012. Subjects were assigned to two groups as a patient group (n=355) and a control group (n=193). A control group with similar characteristics with the study group were selected from the cases who admitted to our hospital for periodical examinations without any comorbidities. Interviews were performed two times with obese subjects in the 1st month and 6th month of weight loss program, once with the control group upon this time period. All questionnaires were applied by the author with face-to-face interview. At 6th month controls, we reached 301 patients who completed the first interview. 84.7% participation rates have been achieved in the obese group. Voluntary obese patients in the age group of 18–64 years, BMI of ≥30 kg/m^2, not receiving any medication, no special training on weight control were assigned to the obese group. Voluntary subjects in the age group of 18-64 years and BMI between 18.5 and 24.5 kg/m^2 were assigned to the control group. An ethical committee approval with protocol No. of 2011/242 was obtained from the Ethical Committee of Eskişehir Osmangazi University Faculty of Medicine, Turkey.

Data were collected using a questionnaire which contained sociodemographic details of respondents such as age, height, and weight. Height (cm) was measured using a stable wall-mount device.Weight was measured using a constant electronic scale (max: 250 kg). BMI was calculated as body mass (kg) divided by height (m) squared. A tape measure was used for waist and hip circumference (cm). The respondents anxiety level was assessed with State-Trait Anxiety inventory (STAI)[8] and Zung Anxiety Rating Scale,[9] and depressive symptoms were assessed with Zung Depression Rating Scale.[10] Furthermore, respondents quality of life was assessed with Quality of Life scale-Short Form [(SF-36)(QOL)][11-13] and the Multidimensional Body-Self Relations Questionnaire (MBSRQ) (14) was used. All scales and questionnaires were Turkish validated.[8-14] Data were named as Obese (A) for the first data of obese group, Obese (B) for 6th-month data, and Control for the control group data.

Statistical analysis

All data analyses were performed by using PASW Statistics 18. Continuous variables summarized with *n* (sample size), mean and standard deviation, categorical variables summarized with *n* (sample size), median and 25th-75th percentiles. Non-normally distributed variables were compared with the Mann–Whitney *U* test for independent groups and the Wilcoxon test for dependent two groups. *P* value less than 0.05 ($P < 0.05$) was accepted significant.

Results

A total of 494 subjects were included in this study which consists of 301 obese and 193 control subjects. In the obese group, 220 (73.1%) were female and 81 (26.9%) were male. In the control group, 132 (68.4%) were female and 61 (31.6%) were male [Table 1]. The mean ages were 37.79 years (SD = 10.60) for the obese group and 33.62 years (SD = 8.59) for the control group.

At the end of the 6th month, the average body weight of obese group was 92.43±16.73 (-7.57±00.02 kg less than baseline), and BMI was 34.25±5.94 (–2.79±0.1 less than baseline). These values were statistically significant ($P < 0.001$) [Table 2].

In the SF-36 scale, statistical differences between Obese (A) and Obese (B) were found in favor of Obese (B), for general health perception ($P < 0.001$), mental health ($P < 0.001$), and social functioning ($P < 0.05$) subgroups [Table 3].

The State Anxiety Inventory between obese (A) and obese (B) groups revealed a statistically significant

Table 1: Socio-demographic characteristics of the participants

		Obese (n =301)		Control (n=193)	
		n	%	n	%
Gender	Female	220	73,1	132	68,4
	Male	81	26,9	61	31,6
Married		222	73,8	117	60,6
Have child		229	76,1	107	55,4
Educational Status	Secondary school	131	43,5	44	22,8
	High school	86	28,6	68	35,2
	University	84	27,9	81	42,0

Table 2: Measurement characteristics regarding body structure of participants

Characteristics related to the body structure	Obese (A)	Obese (B)	Control
	Average (25%- 75%)	Average (25%- 75%)	Average (25%- 75%)
Height	164.43±8.49 163.00 (159.00-170.00)	164.43±8.49 163.00 (159.00-170.00)	168.60±8.30 168.00 (163.00-174.25)
Weight	100.0 ±16.75 96.00 (89.00-108.00) ††***	92.43±16.73 90.00 (80.00-100.00)	63.26±9.31 61.00 (72.00-90.00)
Waist	114.45±13.47 112.00 (106.00-122.00) ††***	107.42±12.63 98.00 (106.00-115.00)	80.38±11.41 77.00 (87.50-101.50)
Hip	125.66±11.61 125.00 (117.00-132.00) ††***	117.96±10.88 110.00 (117.00-125.00)	98.58±8.20 97.00 (93.00-104.00)
Waist / Hip ratio	0.91±0.07 0.91 (0.86-0.95)	0.91±0.07 0.91 (0.85-0.95)	0.81±0.06 0.80 (0.76-0.86)
BMI	37.04±6.04 35.45 (32.60-39.47) ††***	34.25±5.94 32.76 (30.11-36.48)	22.13±1.51 22.30 (20.95-23.26)

†† Differences between A and B are given in A. $P < 0.05$*, $P < 0.01$**, $P<0.001$***. A-B Mann Whitney *U*, A-C/B-C Wilcoxon Signed Rank Tests

Table 3: Results of the Quality of Life Questionnaire (SF-36)

Subscales	Obese (A)			Obese (B)			Control		
	Min	Max	Average (25%-75%)	Min	Max	Average (25%-75%)	Min	Max	Average (25%-75%)
Physical functioning	0	100	57.05±27.25 60.00 (40.00-80.00) ††ns, †***	0	100	55,08±32,43 55,00 (15,00-85,00) †***	0	100	82,27±20,70 90,00 (70-100)
Physical role limitations	0	100	53.82±38.80 50.00 (25.00-100.00) ††ns, †***	0	100	58,05±36,50 50,00 (25,00-100,00) †***	0	100	83,41±26,94 100 (75,00-100,00)
Pain	0	100	54.13±30.53 54.00 (32.00-74.00) ††ns, †***	0	100	51.01±33.22 52.00 (11.50-74.00) †***	0	100	77.19±22.22 80.00 (62.00-100.00)
General health perceptions	0	100	50.44±22.85 52.00 (35.00-67.00) ††***, †***	5	97	56,97±18,58 57,00 (42,00-72,00) †***	0	100	67,66±17,23 67,00 (57,00-78,25)
Vitality	0	100	51.49±22.96 50.00 (35.00-70.00) ††ns, †***	0	100	51,81±23,71 50,00 (35,00-70,00) †***	0	100	67,61±19,63 70,00 (55,00-85,00)
Emotional role limitations	0	100	48.83±36.05 33.33 (33.30-66.67) ††ns, †***	0	100	51,60±36,34 33,33 (33,30-100,00) †***	0	100	73,92±31,81 100,00 (66,67-100,00)

Contd...

Table 3: Contd...

Subscales	Obese (A)			Obese (B)			Control		
	Min	Max	Average (25%-75%)	Min	Max	Average (25%-75%)	Min	Max	Average (25%-75%)
Mental health	0	100	56.57±22.10 56.00 (44.00-72.00) ††***, †***	0	100	61,70±16,92 56,00 (48,00-72,00) †***	0	100	69,80±18,05 72,00 (56,00-80,00)

† Differences between A and Control are given in A (Mann Whitney *U*), † Differences between B and Control are given in B (Mann Whitney *U*), †† Differences between A and B are given in A (Wilcoxon Signed Rank Test), $P > 0.05$ ns, $P < 0.05$*, $P < 0.01$**, $P < 0.001$***.

Table 4: Results of the State-Trait Anxiety Inventory

		Min.	Max.	Average (25%-75%)
STATE ANXİETY	Obese (A)	28	62	42.58±5.61 43.00 (39.00-46.00) ††***, †ns
	Obese (B)	27	66	45.26±6.60 45.00 (41.00-49.00) †**
	Control	32	55	43.45±5.42 43.00 (40.00-48.00)
TRAIT ANXIETY	Obese (A)	32	66	48.90±6.08 48.00 (45.00-53.00) ††***, †**
	Obese (B)	28	64	46,81±6,10 47,00 (43,00-50,00) †ns
	Control	36	74	47,39±5,34 47,00 (44,00-50,25)

† Differences between A and Control are given in A (Mann Whitney *U*), †Differences between B and Control are given in B (Mann Whitney *U*), ††Differences between A and B are given in A (Wilcoxon Signed Rank Test), $P > 0.05$ ns, $P < 0.05$*, $P < 0.01$**, $P < 0.001$*** .

Table 5: Results of Zung Anxiety and Depression Scale

		Min.	Max.	Average (25%-75%)
ZUNG ANXIETY	Obese (A)	24	70	43.27±10.73 42.00 (35.00-50.00) ††*, †***
	Obese (B)	23	67	41.59±9.98 43.00 (32.00-49.00) †***
	Control	22	70	35.34±8.13 34.00 (30.00-40.00)
ZUNG DEPRESSION	Obese (A)	20	70	42.52±10.18 42.00 (35.00-49.00) †††**, †***
	Obese (B)	24	68	44.51±8.60 45.00 (38.00-51.00) †***
	Control	20	57	36.22±8.23 36.00 (30.00-42.00)

† Differences between A and Control are given in A (Mann Whitney *U*), † Differences between B and Control are given in B (Mann Whitney *U*), †† Differences between A and B are given in A (Wilcoxon Signed Rank Test), $P > 0.05$ ns, $P < 0.05$*, $P < 0.01$**, $P < 0.001$***.

Table 6: Results of Multidimensional Body-Self Relations Questionnaire (MBSRQ)

Subscales	Obese (A)			Obese (B)			Control		
	Min	Max	Average (25%-75%)	Min	Max	Average (25%-75%)	Min	Max	Average (25%-75%)
Appearance Evaluation	1	5	2.78±0.84 2.83 (2.16-3.50) ††***, †***	1,5	5	3.18±0.75 3.16 (2.66-3.66) †***	1.33	5	3.90±0.77 3.83 (3.33-4.50)
Appearance Orientation	1.6	5	3.44±0.73 3.50 (2.90-4.00) ††ns, †***	1,8	5	3.37±0.66 3.30 (2.90-3.80) †***	1.60	5	3.86±0.74 3.90 (3.37-4.32)
Physical capability evaluation	1	5	2.93±0.81 3.00 (2.33-3.50) ††***, †***	1,33	5	3.16±0.67 3.16 (2.79-3.66) †***	1.33	5	3.77±0.77 3.83 (3.16-4.37)
Physical capability orientation	1.22	4.89	2.82±0.63 2.77 (2.44-3.11) ††***, †***	1,44	4,44	3.05±0.61 3.11 (2.66-3.44) †*	1.67	5	3.28±0.69 3.22 (2.88-3.69)
Health evaluation	1	5	3.00±0.83 3.00 (2.50-3.66) ††***, †***	1	5	3.21±0.72 3.16 (2.66-3.66) †***	1	5	3.67±0.77 3.66 (3.16-4.16)
Health orientation	1	5	3.12±0.69 3.12 (0.69-0.04) ††*, †***	1,36	4,91	3.23±0.64 3.23 (0.64-0.03) †***	1.18	5	3.59±0.69 3.59 (0.69-0.05)
Body areas satisfaction	1	4.56	2.38±0.83 2.44 (1.77-3.00) ††***, †***	1	5	2.90±0.89 3.00 (2.41-3.55) †***	1	5	3.81±0.72 3.88 (3.33-4.33)
Scale total score (STS)	93	263	168.01±32.44 171.50 (155.25-190.00) ††***, †***	113	265	180.35±30.14 181.50 (175.00-194.50) †***	126	285	210.15±32.44 206.00 (186.00-227.00)

† Differences between A and Control are given in A (Mann Whitney *U*), †Differences between B and Control are given in B (Mann Whitney *U*), ††Differences between A and B are given in A (Wilcoxon Signed Rank Test), $P > 0.05$ ns, $P < 0.05$*, $P < 0.01$**, $P < 0.001$***.

difference between the obese and the control groups (B) ($P < 0.001$). The Trait Anxiety Inventory between obese (A) and obese (B) groups, revealed a statistically significant difference in favor of Obese (B) ($P < 0.001$) [Table 4].

While the Zung anxiety scale scores decreased from baseline in the obese group ($P < 0.05$), the Zung Depression Scale scores showed a statistically significant increase from the baseline in the obese group ($P < 0.01$) [Table 5].

Discussion

Obesity is related with many metabolic diseases, by adversely affecting the life expectancy and quality of life, by causing psychological and social problems, and is described as a disease of the century.[15,16] In subjects who meet inclusion criteria of our study, higher population of female subjects shows that obesity is more common in women and such finding was similar with other studies.[17-20] Also, such a result can indicate that women are more concerned about their weight more than man.

Similar with our results, some studies reported being married, unemployed, and having low level of education as risk factors for obesity.[21,22] According to studies, obese patients have a poor quality of life; also, obesity causes many social and psychosomatic problems which can be improved with weight loss.[23-26]

In our study, consistent with the literature, the evaluation of subscales of quality of life questionnaire revealed statistically significant difference in favor of obese (B) patients in areas of general health ($P < 0.001$) and mental health ($P < 0.001$) with compatible weight loss.[26,27]

According to our results, in the obese group, scores of trait anxiety scales decreased with weight loss. The negative body image is one of the psychosocial problems caused by increased BMI. Some studies stated that obesity plays a role in emergence of psychopathological conditions ranging from anxiety to psychosis by causing low self-esteem.[17,25,28] Obese people are often stigmatized by their physical appearance and get messages that make them feel bad, incompetent, and ugly.[29,34-35]

In obese people, feeling upset about their body structure, and having poor body image can cause depression, communication disorders, and can negatively affect academic achievement and social relation.[31-36]

Comparison of Obese (A) and Obese (B) group in subscales of Multidimensional Body-Self Relations Questionnaire (MBSRQ) showed positive improvement between 1st and 6th month applications, in appearance evaluation, physical capability evaluation, physical capability orientation, health evaluation, health orientation, body areas satisfaction, and scale total score (STS) except appearance orientation. Determined significances are statistically significant for health orientation, and statistically significant at an advanced level in all other subscales [Table 6]. In addition to the health risks as reported in the literature, obesity also leads to various psychological problems such as depression, self-esteem, and negative body image.[34,35]

According to studies, the depression rate seemed to be increased in relation to BMI.[5-7,30,36] Alicia *et al*.,[37] in 2009, evaluated obese individuals and obese weight losers, and reported increased physical function, improved general health, feeling more energetic, having increased quality of life, and decreased depression, with weight loss. Similarly, a number of studies have reported that weight loss decreases depression.[38-43] The Zung anxiety scale results are in accordance with the articles defending the idea that obesity increases anxiety.

In conclusion, obesity disease impairs the quality of life of individuals. Quality of life decreases at the same rate that obesity increases. Weight loss increases body satisfaction of obese patients. Weight loss for obese patients increases the quality of life especially in male patients and with increasing education level. Women are more prone to depression than men, and depression increases with low education level. Obesity is a disease that should be treated in all respects. In treatment of obese patients, following Endocrinology examination, creation of individual specific medical nutrition and exercise plans, providing psychological support and most importantly making them feel self-worth are necessary. Members of the treatment team should consist of experts in their field and must demonstrate ethical approach to patients. During the treatment inner voice and expectations of patients should be taken into account.

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Conflicts of interest

There are no conflicts of interest

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