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Research Article

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Psychological Symptoms in Obesity and Related Factors

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ABSTRACT

Introduction: This study aimed to investigate the relationship between levels of depression and anxiety symptoms and quality of life, self-esteem in obesity.

Methods: Fifty-two subjects whose Body Mass Index (BMI) is 30 kg/m^2 and over and 43 control whose BMI is normal were recruited for this study. The socio demographic data form, Hamilton Depression Rating Scale (HAM-D17), Hamilton Anxiety Rating Scale (HAM-A), Quality of Life Scale Short Form (WHOQOL-Brief-TR), Coopersmith Self Esteem Scale (CSES), The Eating Attitudes (EAT), were applied to the participants.

Results: In this study most of the patients are women, married, postgraduated and live in urban areas. It was determined to scores of HAM-D17, HAM-A and EAT are higher in obese group than control group; WHOQOL-Brief-TR physical field scores was lower in obese group than control group. CSES scores wasn't difference between obese and control group. In obese group, there was HAM-D17 and HAM-A scores a negative correlation between quality of life physical field score, negative correlation between CSES score, positive correlation between EAT scale score. There is no correlation between scores of HAM-D17 and HAM-A and BMI.

Conclusion: Our results suggest that depressive and anxiety levels are high in induvidual with obesity. They have problems in eating attitudes and their quality of life especially physical field is poor. The psychological symptoms have negative effects on the quality of life, self-esteem, and eating attitudes. Our results suggest that psychiatric support to improving positive effects quality of life and self-esteem in individual with obesity.

Keywords: Obesity, depression, anxiety, quality of life, self-esteem, eating attitude

INTRODUCTION

Throughout history, obesity received both praise, as a symbol of health and fertility, and ridicule as being associated with clumsiness, senility, unattractiveness, gluttony and gracelessness. Obesity is assessed by means of the body mass index (BMI) that is defined as the division of weight in kilograms to the square meter of height in meters (kg/m^2). The indicator of obesity is accepted as BMI of and over 30 kg/m^2 (2).

The bidirectional relationship between obesity and psychopathology has always attracted the interest of researchers. Crisp and Guiness (3) reported and that anxiety in middle aged obese women and both anxiety and depression in middle aged obese men are found less with the "Jolly fat" hypothesis. However, in later studies findings indicating that depression and anxiety are generally observed more commonly in individuals with obesity in comparison to normal-weight persons (4,5,6,7,8). Both the answers yes and no are given to the question of whether obesity increases the risk of depression or not. In cross sectional analyses conducted with the inclusion of the supplementary variables such as age, gender, education, marital status, social support, chronic medical conditions and functionality, it was determined that the major depression rates are high in obese individuals. However, no significant findings could be obtained in the forward-looking multi-variable analyses (9).

It is emphasized that the quality of life in obese individuals is deteriorated and that this deterioration increases in line with the level of obesity (10,11). Both the high frequency of metabolic diseases and the more commonly experienced physical illnesses such as low back, hip and knee aches and osteoarthritis cause obese individuals' quality of life to be lower than the normal-weight individuals (12,13). It is reported that life quality is deteriorates if presences of psychiatric symptoms and, psychopathology (14).

Another area that is considered to be connected with the psychiatric symptoms in individuals with obesity is self-esteem. Self-esteem is closely linked to accepted as realistic awareness of the emotionally, mentally,social and physical properties. An individual can use existing features and capabilities appropriately develop a positive attitude about their values (15). Some studies have reported that obesity neg-

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atively affects self-esteem (15,16), while others have suggested that there is no relationship between obesity and self-esteem (17).

Eating attitudes are formed by both psychomotor development and interaction of environmental factors. While conceding that individuals with obesity is solely responsible for the obesity problem excesses in eating behavior and attitudes, behaviors changes in eating attitudes in which they live, are known to be effective, weight loss (18,19). Psychological symptoms can affect eating attitudes and behaviors (20,21). In this study it was aimed to determine the symptoms of depression and anxiety in individuals seeking treatment for obesity and to examine the relationship between these symptoms and quality of life, self esteem and eating attitudes.

METHODS

Fifty-two individuals who consecutively applied to the Endocrinology Polyclinic of the Department of Internal Medicine Pamukkale University Medical Faculty for obesity treatment from February to April 2004 participated to the study. The patients that applied to the polyclinic within the mentioned dates were informed regarding the study. The patients that accepted to participate to the study were subjected to psychiatric examination, and those who were diagnosed to have chronic psychiatric disorder such as schizophrenia and bipolar mood disorder were excluded from the scope of the study. The criteria for inclusion in the study were determined as 1) having a 30 kg/m² or higher BMI, 2) being at least 18 years old, 3) having a normal level of intelligence, and 4) being voluntary to participate. None of the 52 individuals that met these criteria used any medication and the average of their ages was 47.25±7.88 years. Also the hospital employees and their relatives that volunteered for being included in the control group were informed. A total of 43 healthy individuals who gave their consent and had lower than 25 BMI constituted the control group that had similar age and gender distribution with the study group. Age average of the control group was 47.16±9.40 years.

In addition to the sociodemographic form intended to collect data concerning the participants' sociodemographic information, psychiatric disease / treatment history and physical illnesses, participating individuals were subjected to the Hamilton Depression Rating Scale, Hamilton Anxiety Scale, Quality of life Scale - brief form, Coopersmith Self Esteem Scale and Eating Attitude Test.

Implemented Scales

Hamilton depression rating scale (HAM-D_{17}): This is a 17 item scale used to measure the severity of depression (22). The highest attainable score is 53. While points from 0 to 7 indicate that depression is not in question, points from 8 to 15 indicate mild depression, from 16 to 28 indicate moderate depression, and from 29 to 53 indicate severe depression. The Turkish validity and reliability studies of the scale were performed (23).

Hamilton anxiety scale (HAM-A): This scale was developed in order to determine anxiety level and symptom distribution and to measure the changes in severity (24). Validity and reliability studies of the Turkish form of the scale were performed (25). In the 14-item scale, a scoring from 0 to 4 is made for each symptom. The total score range is between 0 and 56. While the 1st, 2nd, 3rd, 5th and 6th items are calculated as psychic sub-scores, the remaining items are calculated as somatic sub-scores.

Quality of life scale - brief form (WHOQOL-Brief-TR): The reliability and validity studies of the Quality of Life Scale - brief form (WHOQOL-Brief-TR) was carried out (26). WHOQOL-Brief covers physical, psychological, social relations and environment domains. The physical section includes questions concerning the activities of daily living, mobility, pain, sleep and rest, and working capacity. The psychological domain consists of the questions concerning positive and negative feelings, self esteem, bodily image and appearance, personal beliefs and attention, social relations with others, social support and sexual life. In the environment domain of the scale, the questions concerning home environment, physical safety, financial resources, accessibility of health services, utilization of recreational time, physical environment and transportation.

Coopersmith self esteem scale (CSES): The scale consists of 25 items covering self-esteem related factors such as self-undervaluing, popularity, family, venturesomeness and anxiety (27). Validity and reliability studies of the Turkish form of the scale were performed (28). While the highest score that can be attained from the scale is 100, the lowest is 0. Higher scores attained from the scale indicate higher self-esteem in individuals (29).

Eating attitude test (EAT): Eating Attitude Test is a six-point Likert type scale of 40 items (30). It is used in identifying disorders in eating behavior. Its validity and reliability studies of the Turkish form were performed (31). The cutoff score of the scale is 30; however it was not calculated for the Turkish form. Higher scores attained from the test indicate deterioration in eating attitude and behaviors.

Statistical Analysis

Statistical analyses were conducted on Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA) for Windows 10.0 database. In addition to the descriptive statistical methods, Independent t test was used in the comparison of the scales applied to the patient and control groups, while Mann-Whitney U tests were used for comparing quality of life. Correlation between the depression and anxiety levels and the other scales was examined through Pearson correlation analysis.

RESULTS

The study was participated by 52 obese individuals (46 female, 5 male) and 43 normal-weight individuals (37 female, 6 male). The majority of the individuals with obesity were women (s:46), married (s:47), university graduate (s:26) and urban residents (s:48). Also the majority of the control group were women (s:37), married (s:38), university graduate (s:17) and urban residents (s:35). The obese group and the control group were similar in terms of sociodemographic attributes (chi square test, $p>0.05$). 90.4% of the obese individuals had a physical illness (such as hypertension, hypothyroidis, diabetes mellitus, migraine) and the number of the physical illnesses was higher than the number of those found in the control group (respectively, 1.90±1.15, 0.44±1.00, $t=6.489$ $p<0.001$, Independent t test). Average of the number of the medicines the group with obesity used constantly was found out to be higher than that of the control group (respectively, 2.23±2.00, 0.30±0.70, $t=5.998$ $p<0.001$, Independent t test). Psychiatric disease histories of the group with obesity (s:17, %32.7) was also found out to be higher than that of the control group (s:4, %9.3) (χ^2:7.47, $p=0.006$).

The BMI, HAM-D_{17}, HAM-A and EAT scale scores of the group with obesity were significantly higher than those of the control group. No significant difference was found between the two groups in terms of the average scores they attained from the CSES (Table 1). On the other hand, a statistically significant difference between the groups in terms of the physical domain sub-scores attained from the WHOQOL-Brief-TR was determined (Table 2).

In patients with obesity, scores of HAM-D17 and HAM-A between WHOQOL-Brief-TR, CSEI, EAT has investigated the correlation. Scores

Table 1. Comparison of the scale scores of the study group and the control group

Variables	Study group (n:52) mean±SD	Control group (n:43) mean±SD	t*	p**
Age	47.25±7.88	47.16±9.40	0.049	0.961
BMI	34.57±4.06	22.66±1.60	18.098	0.001
HAM-D_{17}	9.44±4.76	2.46±3.34	8.087	0.000
HAM-A	15.05±8.27	4.13±4.64	7.703	0.000
EAT	27.32±9.94	22.48±10.38	2.313	0.023
CSES	70.61±12.67	74.09±11.43	1.391	0.167

BMI: body mass index; HAM-D_{17}: Hamilton depression rating scale; HAM-A: Hamilton anxiety scale; EAT: eating attitude test; CSES: Coopersmith self-esteem scale; *Independent t test, **p<0.05 significant

Table 2. Comparison of the quality of life scale of the study group and the control group

WHOQOL-Brief-TR*	Study group mean±SD	Control group mean±SD	z*	p**
Physical domain	15.15±2.06	16.11±2.44	2.350	0.018
Psychological domain	14.70±1.99	15.17±2.03	1.450	0.147
Social relations domain	14.69±2.82	14.75±1.96	0.526	0.599
Environment domain	14.63±1.81	13.98±2.10	1.500	0.132

WHOQOL-Brief-TR: Quality of Life Scale - brief form *Mann-Whitney U test, *p<0.05 significant

of HAM-D17 between quality of life physical health subscale score a negative correlation (r=0.371, p=0.007), CSEI score negative correlation (r=0.629, p<0.001), EAT score in the positive correlation (r=0.334 p=0.015) was determined. HAM-D17 score, there was no correlation between BMI (r=0.096, p=0.499). HAM-A scores between scores of quality of life physical domain were a negative correlation (r=0.428 p=0.002), between scores of CSEI negative correlation (r=0.357, p=0.009), between score of EAT positive correlation (r=0.304 p=0.029) were determined. There was no correlation scores of HAM-Abetween BMI (r=0.226 p=0.107). There was negative correlation BMI between scores of CSEI (r=0.307, p=0.027).

DISCUSSION

Our study group was formed of middle age individuals, the majority of which were women that applied to the endocrinology polyclinic for obesity treatment. It was determined that the mild depression and moderate anxiety symptoms detected in the study group were higher than those found in the control group. Previous studies were support our results, the studies reporting that psychopathology and particularly the symptoms of depression and anxiety are higher in obese individuals (32,33,34,35,36). In the study where Greenberg et al. (37) examined the patients subjected to surgical methods for obesity treatment, it was determined that the psychological results of obesity vary in a wide range from low self-esteem to clinical depression. It was also determined in the same study that increasing severity levels of obesity also cause deteriorations in negative body perception, eating disorders and quality of life.

It is reported that in individuals with obesity, tendency to depression may be related with the severity of obesity, race, marital status, chronic physical illnesses and the presence of depression history in the family (38). According to this study, European Americans, single, with higher levels of education and those with chronic physical illness is postulated to be at risk for depression. It is stated that the depression and obesity couple has a familial transmission characteristic, that this can be affected by ambient factors such as stress and physical illness as well as genetic tendency, and that the occurred serotoninergic imbalance can result in depression and/or obesity (39). Due to the decrease of physical activity and increase of physical illnesses as a consequence of obesity, noninvolvement in pleasant and satisfactory physical activities can make development of depression easier (5). Decreased physical activity affects endorphin levels and causes changes in the norepinephrine metabolism, which in turn can contribute to the increase of depression and anxiety symptoms (9). Because the response of obesity stigma in society and anxiety in these individuals, depression, guilt, and somatic symptoms can develop. In addition, employment difficulties, social problems can arise such as schools and business circles rejection, psychological symptoms can be experienced in connection therewith (40,41,42). On the other hand, have increased appetite, depression and weight gain accordingly, physical activity decreased, being in appetite enhancer of the medicines used, particularly with women in the attack eating during the depression (binge eating) there to facilitate the formation of obesity (39). Our study has not been studied in detail the possible causes of the high depression and anxiety symptoms. Elaboration of psychiatric illness and treatment history, examination of psychosocial stressors and depression may prove a person's coping skills and knowledge on the relationship between the transmitter and the treatment of obesity.

Examined the relationship between obesity and psychological symptoms in some studies focus on the gender differences. While no difference could be found between men with and without obesity in terms of psychological symptoms, it is reported that depression and anxiety symptoms are higher in women that have obesity when compared to the normal-weight women (43,44,45). Middle age and in a follow-up study in elderly women were found to be two-way relationship between depression and obesity. In this study, women with depression at follow-up after a period of four years of increased risk of obesity in women with obesity have been identified as similar to that of moderately increased risk of depression compared to normal weight (46). In another study, depression and anxiety symptoms, was higher in women with obesity, and moderate/severe depressive symptoms were identified as being positive association between BMI (47). In our sample study is more than the number of women than men may have contributed to a level of depression and anxiety.

In our study, the frequency of physical illness and drug use rates in patients with obesity was higher than the control group. With a physical illness, is that individuals with chronic use of continuous drug treatment and must cope with obesity, as well as serious physical illness. Comorbid psychiatric disorders, physical disorders may predispose to development with the increasing BMI (48,49). However, some studies in extreme obesity has been found to increase the risk of chronic comorbid psychiatric illness regardless of physical illness (38). In our study, physical illness and drug use compared to the control group in patients with obesity may have influenced our results is high. Due to the small number of our patients with physical illness and the majority have not been evaluated by the exclusion of the physical illness. Our results should be considered in assessing the situation.

Similar to the previously conducted studies, in our study it was determined that the individuals that have obesity experience problems in terms of the physical sub-domain of quality of life, when compared to healthy control group (50,51,52,53). In addition, it was determined that depression and anxiety symptoms can cause deterioration in the quality of life. In a study which is a large sample, quality of life was observed a positive correlation between anxiety symptoms in individuals with the deterioration

of the physical domain scores (54). In recent years, the different treatment of obesity has been increasing, studies investigating the effects on quality of life. Obesity is observed that the increase of the quality of life of people who benefit from treatment (55,56). It can say that treatment of psychological symptoms to increase the quality of life and may have contributed to the maintenance easier everyday life in individuals with obesity.

Although no difference between the obese group and the control group in terms of self-esteem was found in our study. But, it was determined that in obese individuals self-esteem affects depression and anxiety symptoms negatively and that self-esteem decreases with the increasing BMI. In addition, it was found that increasing BMI decreased self-esteem. Low self-esteem are not only uncomfortable feeling as may play a role in the emergence of various psychopathological conditions. Especially seen in adolescents with behavior problems, eating disorders, depression and psychosomatic complaints are reported to be associated with low self-esteem (57). It was suggest that social rejection can not psychopatology but it was cause problems in the sense of self-esteem. (58). Low self-worth individuals with more observed that the frequency of psychopathology, it is reported that the often accompanied by low self-esteem, depression and personality disorders (59,60,61). Individuals with obesity in our culture are "fat" can be teased saying and be excluded. Antiobesity social aspects of the investigation, there is a need to do informative studies on stigma and effect.

Deteriorations in the eating attitude of the participating obese individuals were determined in our study. As reported in previous studies, as the symptoms of depression and anxiety increased, the deterioration in eating attitude became clearer (62,63). It is known that the energy gained from eating has to be higher than the energy consumed by physical activities for the development of obesity. Eating only need to remain in the fulfillment of biological development and physiological functions, from infancy from the mother-infant relationship in the context of the model is the formation of all social relation (63,64). In our study was observed to be problematic eating attitudes of individuals with obesity. Understanding the psychological needs underlying the eating habits can contribute to changing attitudes and unsuitable to provide longer-lasting good for the treatment of obesity.

Our study was admitted to a university clinic is a cross-sectional study to evaluate individuals in seeking treatment. The patients applying to the hospital for treatment constitute a distinct subgroup among the individuals with obesity, that the psychopathology frequency and binge eating attitude are higher than those of those that do not apply for treatment, and that the group applying for treatment needs more psychosocial support (65,66). Our study should be considered in this context. The small number of our sample is another limitation. Our results should be supported by studies with larger sample of non-treatment seeking.

It was determined that the symptoms of depression and anxiety are higher in the individuals who applied to the hospital for obesity treatment, that their quality of life in the physical sub-domain is low, that the life quality of these individuals in the physical sub-domain is lower, that their self-esteem does not differ from that of the control group although their self-esteem decreases when the symptom of depression and anxiety increase, and that they experience problems in terms of their eating attitudes. These results suggest that the psychiatric evaluation is necessary for individuals seeking obesity treatment, and that providing support in this term can positively affect the treatment process.

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