Examination Of The Relationship Between Depression and Body Mass Index (BMI) Among University Students

Muge Arslan [1] [ID], Ishak Aydemir [2] [ID], Nurcan Yabanci Ayhan [3] [ID]

[1] Faculty of Health Sciences, Department of Nutrition and Dietetics, Aydin University, Istanbul, Turkey.
[2] Faculty of Literature, Department of Social Work, Sivas Cumhuriyet University, Sivas, Turkey.
[3] Faculty of Health Sciences, Department of Nutrition and Dietetics, Ankara University, Ankara, Turkey.

Correspondence Author: Muge Arslan
E-mail: dyt_muge@hotmail.com

ABSTRACT

Objective: The objective of this study is to examine the level of depression of university students and evaluating its relationship with Body Mass Index (BMI).

Methods: In this correlation study, a questionnaire with 18 questions (age, gender, department, meal consumption, cigarette-alcohol usage) questioning demographic information and eating habits. and "Beck Depression" inventory was conducted voluntarily to 800 undergraduate students studying at Istanbul Aydın University. Height, weight and waist circumstance were measured and calculated. SPSS 22.0 program was used for data analysis.

Results: The gender ratio of the students in this study was 42,9% male and 57,1% was female. Students who have the average age 21,22±1,801 years, %7,0 are underweight in terms of BMI, 66.6% are normal, 23.9% are overweight and 2.5% are obese. The BMI ratios of the students show a statistically significant difference (p <0.05); male students are more overweight and more obese than female students. 53.1% of students have normal level of depression, 22.8% mild mood changes level, 10.5% have moderate level, 4.8% have severe depression and 1.7% extreme depression.

Conclusion: University students' depression level is normal and there is no relationship between the BMI and depression levels. There was relationship between students' depression levels and age-height length, body weight and waist circumference measurements; depression levels increase as the students decrease in height; as the weight, BMI and waist circumference increases, depression levels slightly increase.

Keywords: BMI, Body Mass Index, Depression, University Students, Beck Depression inventory.

1. INTRODUCTION

The university period is a special period. With the start of university education, changes in their eating habits are also observed due to reasons such as young people leaving their familiar family environment, being more affected by their friends, paying attention to their external appearance and making their free choices become more evident. The most distinctive feature of this period is the efforts to adapt to the new establishment to be established with both psychological and nutritional style (1). University period is a duration in which nutritional habits are shaped due to environmental factors, especially friends, and they carry a particularly high risk in terms of gaining wrong eating habits (2-3). Nutritional habits formed during the university period also continue in adulthood. Inadequate and unbalanced eating habits gained during this period may adversely affect the school success of students, and may lead to the formation of obesity, diabetes, cardiovascular diseases, and some cancers (4-5-6-7).

Depression is an increasingly common disease. It is estimated that approximately 5.0% of the population in our country (6.4% in women, 3.2% in men) has major depression. It is known that 10.0% of men and 20.0% of women experience short or long clinical depression at some point in their lives in our country (8). Depression is a disease accompany with sleep, sexual desire and appetite disorders that the person don't enjoy life, the person feels deeply in sorrow, pessimistic thoughts about the future, intense regret and guilt feelings about the past, sometimes can be occur suicidal thoughts and death can be seen (9).

There are many scales in the literature for the diagnosis of depression. One of them is the Beck depression scale. The Beck Depresson Scale is used to determine the risk of depression in individuals and to determine the severity of depression. There are a total of 21 titles and four articles per title. It is filled by asking the individuals to give their answers according to themselves, and a depression classification is

made according to the score obtained (10-11). According to Beck's (2005) model, depression occurs with emotions, thoughts, motivation and symptoms in the physiological nature. Depression starts with disturbances in thought, emotional depression comes as a secondary condition (12).

The most obvious symptoms in depression; loss of interest, depressed mood (depression), inability to enjoy life, a general lack of energy and reluctance. The clinical picture in depression may vary according to the severity of the complaints, age, and other accompanying psychopathological or medical conditions. It is possible to group the symptoms and clinical appearance of depression as behavioral, emotional, cognitive, somatic and motivational symptoms (13).

The World Health Organization (WHO) is widely used to determine obesity. BMI is an indicator that evaluates body weight according to height. In adults, BMI were used: underweight (<18.5 kg/m^2), normal-weight (18.5 – 24.9 kg/m^2), overweight (25 – 29.9 kg/m^2), obese (>30 kg/m^2) (14). The World Health Organization has determined that over the age of 18, 1.9 million adults overweight (39.0%) and 650 million adults were pre-obese (13.0%) in 2016 (15).

The increase in obesity causes the formation of diseases that cause not only physical but also mental problems (16). Studies indicate that depressive symptoms in university youth are increasing day by day, and the most important psychological disorder that threatens this group is depression (17-18). The American Psychiatric Association (APA: American Psychological Association) defines depression as a common and serious medical disease that negatively affects how we feel, our way of thinking, and our behavior (19). Studies show that there is a two-way relationship between depression and BMI; has a high BMI; reported that obesity increases the risk of depression and depression is an important determinant in the formation of obesity (20-21). In another similar study, it is thought that depression is seen as a complication after obesity in adults and depression causes obesity in children (22). In another study, it was reported that psychosocial stress is associated with high energy intake and thus obesity, that is, high BMI (23-24).

This study was planned and conducted to determine the level of depression in university students and to evaluate its relationship with BMI.

2. METHODS

The universe of this study consists of 25.000 students studying at Istanbul Aydın University. In line with the purpose of the study, stratified random sampling method was used. 13 faculties were included in the research. These faculties; Faculties in the field of health (Faculty of Medicine, Dentistry, Health Sciences), Faculties in the field of Science and Social Sciences (Faculty of Arts and Sciences, School of Foreign Languages, Faculty of Fine Arts, Faculty of Law, Faculty of Economics and Administrative Sciences, Faculty of Communication and Public Relations, Architecture and Faculty of Design, Faculty of Engineering) and Faculty of

Sport Sciences. The students are included in the sampling group considering the number of students studying in these faculties. It was concluded that the participation of 384 students would be sufficient in the calculation of the sample volume within the range of 0.05 sample error and 95% confidence. However, the study was completed with 800 students between February and March 2020 due to students who showed great interest to participate voluntarily. It was started to be implemented after the Ethics Committee Approval numbered 61351342 – / 2020-61 and dated 29.01.2020 was obtained from Üsküdar University Non-Interventional Research Ethics Committee. Criteria for inclusion in the study; having undergraduate education at Istanbul Aydın University, not having mental-brain retardation, not having a diagnosed psychological disorder, and not using psychological drugs and nutritional supplements. The research is voluntary and a questionnaire including the BECK depression inventory was applied to the students who agreed to participate in the study with 18 questions (age, gender, department, meal consumption, cigarette-alcohol usage) questioning demographic information and eating habits. weight, height, and waist circumference were measured.

Body weights of students; With the Tefal 1063 Premiss brand (sensitive to 100 g, 150 kg capacity) scale; the height was measured with a non-flexible tape measure without shoes and feet united and fixed on the wall in the Frankfurt plane (the eye and auricle are flush and the angle between the head and neck is 90 degrees).

The BMI values of the students were calculated by dividing their body weight (kg) by the square of their height (kg / m^2)] and classified according to the WHO's BMI classification. Measurement of waist circumference was measured while the student was standing and his abdomen was relaxed and the arms were on both sides, feet together, without applying pressure from the midpoint between the lower rib and the crystalline with a 0.1 cm sensitive non-flexible tape measure (25).

2.1. Beck Depression Inventory

The Beck Depression Inventory was developed by Beck in 1961. BDI is used to determine the risk of depression and to measure the level and severity of depressive symptoms (26). The validity and reliability study in our country was carried out by Hisli in 1989 (11). Cronbach's alpha value was found as 0.80. Each item of BDI determines a depression-specific behavioral pattern in the past week and includes 21 self-assessing sentences with four options, going from low to high (0-3). The total score that can be obtained from the scale varies between 0-63. Evaluation; 1-10: Normal, 11-16: Mild mood changes, 17-20: Clinical depression at the border, 21-30: Moderate depression, 31-40: Severe depression,> 40: Extreme depression. It takes about 15 minutes to complete the test.

2.2. Data Analysis

SPSS 22.0 program was used for data analysis. Number, percentage, average, standard deviation, min, max. values

3. RESULTS

This study has 800 students who participated. The average age of the students is 21.22 ± 1.801, 76.8% of the students are between the ages of 19 and 22, 22.6% are between the ages of 23-25 and 0.6% are over or at the age of 26. 97.4% of students are single and 2.6% are married. 94% of students do not have chronic diseases, 6% of them have. 56.2% of the students do not smoke, 34.8% smoke and 9% state that they quit smoking. Alcohol usage among students; 41.2% drink alcohol, 54.6% do not drink alcohol, and 4.2% state that they have quit drinking alcohol (Table 1).

Table 1. Demographic information of students

Variables	Male (n: 343)		Female (n:457)		Total (n:800)	
Age (years)	n	%	n	%	n	%
19-22	263	76,7	351	76,8	614	76,8
23-25	79	23,0	102	22,3	181	22,6
26 ≤	1	0,3	4	0,9	5	0,6
Mean ± SD / Min. Max	21,22±1,801 / (19-39)					
Marital Status						
Married	14	4,1	7	1,5	21	2,6
Single	329	95,9	450	98,5	779	97,4
Total	343	100,0	457	100,0	800	100,0
Chronic Disease Status						
Yes	13	3,8	35	7,3	48	6,0
No	330	96,2	422	92,7	752	94,0
Smoking status						
Yes	149	43,4	129	28,2	278	34,8
No	146	42,6	304	66,5	450	56,2
Quit	48	14,0	24	5,3	72	9,0
Drinking Alcohol						
Yes	154	44,9	176	38,5	330	41,2
No	169	49,3	268	58,6	437	54,6
Quit	20	5,8	13	2,9	33	4,2

The mean body weight, height, BMI, waist circumference measurements of the students participating in the study showed a significant difference according to gender (p <0.05); body weight, height, BMI, waist circumference averages were higher in male students than female students. The mean BMI and waist circumference measurements were 24.16 ± 2.96kg / m², 85.64 ± 11.35 cm for male, respectively; in flushing 21,89 ± 3,17 kg / m², 71,20 ± 8,71 cm. The min and max values of BMI and waist circumference measurements for male, respectively; 16.90-34.20 kg /m² 52.0-134.0 cm. for female; it was determined as 16,0-35,80 kg / m², 50,00-110,00 cm. (Table 2).

When the distribution of BMI according to the gender of the students is examined; 34.7% of male are slightly overweight and 3.2% are obese; 15.8% of female are slightly overweight and 2.0% are obese students and BMI (underweight, normal, overweight, obese) rates of female and male statistically differ significantly (p <0.05) (Table 3).

Depression scores of students by gender; the average depression score of males is 10.88, the average depression score of female is 12.85 (Table 4).

When the depression levels of students according to their age distribution are examined; according to the age distribution, there was no statistically significant difference (p> 0.05) between them, the ones with the extreme depression levels were between 2.1% and 19-22 years old. When the distribution of depression levels according to the gender of the students is examined; BMI (underweight, normal, overweight, obese) rates of female and male students differ significantly. (p <0.05); Depression level of female students was found higher than male. Of the normal level, 57.7% are male and 49.7% are female; 23.0% of the mild mood changes ones are males and 22.5% are female; 5.5% of those at the border are male and 8.1% are female; 7.9% of the moderate level are male and 12.5% are female; of those who are severe, 5.0% are male, 4.8% are female and 0.9% of those who are extreme level are male and 2.4% are female. When the distribution of depression levels according to the BMI values of the students is examined; no statistically significant difference was found between BMI values and depression levels. (p> 0.05) Depression rates of students who are underweight, normal, overweight, and obese are close to each other. 6.8% of those at normal depression level are underweight , 65.6% are normal, 24.5% are overweight, and 3.1% are obese. 7.7% of the mild mood changes depression level ones are underweight, 67.0% are normal, 23.6% are overweight and 1.6% are obese. 3.6% of those at the border are underweight, 71.4% are normal, 23.2% are overweight and 1.8% are obese. 6.0% of moderate depression level people are underweight, 67.9% are normal, 23.8% are overweight and 2.4% are obese; 7.7% of those who are severe depression level are underweight, 61.5% are normal, 28.2% are overweight and 2.6% are obese; 21.4% of those who are extreme depression level have underweight and 78.6% have normal BMI values (Table 5).

When the depression levels of the students, age, height, body weight and waist circumference measurements were examined; A negative, weak but significant relationship was found between students' depression levels and height (r= − ,085, p <0.05), A weak but significant correlation was found with the level of depression and body weight. (r= − ,099, p <0.05). A weak but significant relationship was found positively with the level of depression and BMI. (r= − ,072, p <0.05). A weak but significant relationship was determined with the level of depression and waist circumference. (r= − ,082, p <0.05). In other words, as the height of the students decreases, their depression levels increase, as their weight, BMI and waist circumference increase, their depression levels slightly increase (Table 6).

177

Table 2. Anthropometric Measurements of Students According to Gender and Average and Min-Max Values of Body Composition

Anthropometric Measures	Male (n:343)		Female (n:457)		Total (n:800)		P Value
	Mean + SD	Min.-Max.	Mean + SD	Min.-Max.	Mean + SD	Min. – Max.	
Body weight (kg)	78,61±11,48	49,0-130,0	59,74±9,20	41,60-100,0	67,83± 13,86	41,60-130,0	,000
Height (m)	179,65±7,28	155,0-195,0	165,38±6,23	148,0-185,0	171,50 ± 9,74	155-195	,000
BMI (kg/m²)	24,16±2,96	16,90-34,20	21,89±3,17	16,0-35,80	22,86±3,28	16,0-35,80	,000
Waist circumference (cm)	85,64±11,35	52,0-134,0	71,20±8,71	50,00-110,00	77,39±12,23	50,0 – 134,0	,000

Table 3. BMI Values of Students by Gender

BMI classification	Male (n:343)		Female (n:457)		Total (n:800)	
	n	%	n	%	n	%
Underweight (<18,50kg/m²)	8	2,3	48	10,4	56	7,0
Normal (18,50-24,99kg/m²)	205	59,8	328	71,8	533	66,6
Overweight (25,00-29,99kg/m²)	119	34,7	72	15,8	191	23,9
Obese (>30kg/m²)	11	3,2	9	2,0	20	2,5
Chi-Square Value			70,783, p:0.000			

Table 4. Descriptive values of students' Depression scores by Gender

Gender	Depression scores	
	Mean±SD.	Min. – Max.
Male (n:343)	10,88±10.01	1-62
Female (n:457)	12,85±10.81	1-63
Total (n:800)	12,01±10.51	1-63

Table 5. Investigation of students' depression levels according to different variables

Variables Ages (Years)		Depression Levels						Total
		Normal	Mild mood changes	At the border	Moderate	Severe	Extreme	
19-22	n	328	142	39	66	26	13	614
	%	53,4	23,1	6,4	10,7	4,2	2,1	100,0
23-25	n	93	39	17	18	13	1	181
	%	51,4	21,5	9,4	9,9	7,2	0,6	100,0
≥26	n	4	1	0	0	0	0	5
	%	80,0	20,0	-	-	-	-	100,0
Gender		Chi-Square Value: 8.557; p:0.575						
Male	n	198	79	19	27	17	3	343
	%	57,7	23,0	5,5	7,9	5,0	0,9	100,0
Female	n	227	103	37	57	22	11	457
	%	49,7	22,5	8,1	12,5	4,8	2,4	100,0
Total	n	425	182	56	84	39	14	800
	%	53,1	22,8	7,0	10,5	4,9	1,7	100,0
		Chi-Square Value: 10.831; p: ,055						
BMI								
Underweight	n	29	14	2	5	3	3	56
	%	6,8	7,7	3,6	6,0	7,7	21,4	7,0
Normal	n	279	122	40	57	24	11	533
	%	65,6	67,0	71,4	67,9	61,5	78,6	66,6
Overweight	n	104	43	13	20	11	0	191
	%	24,5	23,6	23,2	23,8	28,2	0,0	23,9
Obese	n	13	3	1	2	1	0	20
	%	3,1	1,6	1,8	2,4	2,6	0,0	2,5
Total	n	425	182	56	84	39	14	800
	%	53,1	22,8	7,0	10,5	4,9	1,8	100,0
		Chi-Square Value: 11,392 ; p: ,724						

Table 6. Correlation of students' depression level and age, height, weight, waist circumference

		Beck Total	Age	Height	Body weight	BMI	Waist circumstance
Beck Total	r	1					
	p						
Age	r	-,026	1				
	p	,469					
Height	r	-,085*	,022	1			
	p	,016	,526				
Body weight	r	-,099**	,020	,717**	1		
	p	,005	,576	,000			
BMI	r	-,072*	,018	,240**	,805**	1	
	p	,041	,609	,000	,000		
Waist circumstance	r	-,082*	,047	,497**	,818**	,738**	1
	p	,020	,185	,000	,000	,000	
*. Correlation is significant at the 0.05 level (2-tailed).							
**. Correlation is significant at the 0.01 level (2-tailed).							

4. DISCUSSION

The university period is a special period in parallel with the separation of the students from the family, the transition to a new friend environment and the changing external factors, eating habits and lifestyle. The decisive feature of this period is the efforts to adapt to the new conditions that is established with both the psychological and the eating habits (1). The gender ratio of the students in this study was 42,9% male and 57,1% was female. Students who have the average age 21,22±1,801 years, %7,0 are underweight in terms of BMI, 66.6% are normal, 23.9% are overweight and 2.5% are obese. The BMI (underweight, normal, overweight, obese) ratios of the students show a statistically significant difference (p <0.05); male students are more overweight and more obese than female students. 53.1% of students have normal level of depression, 22.8% minimal level, 10.5% have moderate level, 4.8% have severe depression and 1.7% extreme depression. No statistically significant difference was found between BMI values and depression levels of students (p> 0.05); depression rates of students who are underweight, normal, overweight, and obese are close to each other. There was no statistically significant difference (p> 0.05) between students' age groups and depression levels; depression was observed at a higher level in the 19-22 age group. A statistically significant difference was found between students' depression levels and age-height length, body weight and waist circumference measurements (p <0.05); depression levels increase as the students decrease in height; as the weight, BMI and waist circumference increases, depression levels slightly increase.

In this study, majority of students are normal in terms of BMI and male students are more overweight and obese than female students. Similarly, in their studies on university students, majority of students were found to be neutral in terms of BMI, and female students were more overweight and obese than male students (27-28-29-30). This situation can be explained by the fact that female students have more normal BMI than male students and have normal BMI, as a result of their efforts to be appreciated they pay attention to their nutrition, in parallel.

In this study, when the level of students' depression is examined; depression level for majority of students was found to be normal. Similarly, in the study of Güzel on university students, the depression level of the majority of students was found to be normal (31). In Abdullayev's study on university students in 2019, the depression level of the majority of students was found to be normal (32). In the study of Arkoç on university students in 2019, the depression level of the majority of students was found to be normal (33). This can be explained by the fact that students' mental reactions are at a level that can manage negative processes, depending on the system and events they are in, as well as individual differences. And this can be explained by the fact that depression levels can be normal.

In this study, students in the low age group were found to be more depressed than students in the high age group. This may be due to the higher number of students with low age groups, or because lower age groups have difficulty adapting to the new university environment through the process of leaving the family environment.

When the BMI and depression levels of the students were examined, the depression levels of the underweight, normal, overweight, and obese students were found to be close to one another. In a different way, in the study of Güzel on university students in 2016, the depression level of students who were normal and 1st degree overweight was found to be lower than the depression level of individuals with high BMI (31). This can be explained by the fact that the differences in perceptions of students towards their weight may have different effects on their psychology.

5. CONCLUSION

University students' depression level is normal and there is no relationship observed between the BMI and depression levels. There was relationship between students' depression levels and age-height length, body weight and waist circumference measurements; depression levels increase as the students decrease in height; as the weight, BMI and waist circumference increases, depression levels slightly increase. This study will enlighten on future studies due to the insufficient studies on this subject in our country. In addition, by contributing to the formation of a psychologically healthy, happy young population, in determining the factors that will affect the depression levels of young people, in order to assist the countries' health policies under the heading of preventive mental health and the fight against obesity, and the health of individuals in this direction. On the other hand, it is important in terms of contributing to reducing the social burden by decreasing the health expenditures that individuals make in this direction.

REFERENCES

[1] Mazıcıoğlu MM, Öztürk A. Üniversite 3. ve 4. sınıf öğrencilerinde beslenme alışkanlıkları ve bunu etkileyen faktörler. Erciyes Tıp Der 2003; 25(4): 172-178.

[2] Demirezen E, Coşansu G. Adolesan çağı öğrencilerde beslenme alışkanlıklarının degerlendirilmesi. STED 2005; 14(8): 174-178.

[3] Koç N, Yardımcı H. Obez adölesanların sağlıklı yeme durumlarının değerlendirilmesi (HEI-2010): Üçüncü basamak hastane deneyimi. Tür Çoc Has Der 2018; 3: 155-162.

[4] CDC (Centers for Disease Control). Centers for disease control and prevention guidelines for school health programs to promote lifelong healthy eating, MMWR. 1996; 45: 1-37 (Erişim Tarihi: 21 Mayıs 2020), http://www.cdc.gov/mmwr.

[5] Lobstein T, Baur L, and Uauy R. Obesity in children and young people: a crisis in public health. Obesity Rev 2004; 5(1): 4-85.

[6] Demory-Luce D, Morales M, Nicklas T. et al. Changes in food group consumption patterns from childhood to young adulthhood: the bogalusa heart study. J Am Diet Ass 2004; 104: 1684-1691.

[7] Kelder SH, Perry CL, Klepp KI. Longitudinal tracing of adolescent smoking, physical activity and food choice behaviours. Am J of Pub H 1994; 84:1121-1126.65.

[8] Köroğlu E. Depresyon Nedir Nasıl Baş Edilir, Hekimler Yayın Birliği, Ankara; 2006.

[9] Çevik A, Volkan VD. Depresyonun psikodinamik etiyolojisi. Depresyon Monografları Serisi 3. 1993. p.109-122.

[10] Beck AT. An inventory for measuring depression. Arch. Gen. Psychiatry 1961; 4: 561-571.

[11] Hisli N: Beck Depresyon Envanterinin üniversite öğrencileri için geçerliği, güvenirliği. Psikoloji dergisi 1989; 7-3-13.

[12] Beck A.T. Bilişsel Terapi ve Duygusal Bozukluklar, Litera Yayınları, İstanbul; 2005.

[13] Savaşır, I. Ve Batur, S. "Depresyonun Bilişsel Davranışçı Tedavisi", Bilişsel Davranışçı Terapiler, Ed. Savaşır, I., Soygüt, G. ve Kabakçı, E., 3. Baskı, Ankara, Türk Psikologlar Derneği 2003; 17-46.

[14] WHO (World Health Organization). Global database on BMI. (Erişim Tarihi: 21 Mayıs 2020), http://www.euro.who.int/en/health-topics/disease-prevention/nutrition/ahealthy-lifestyle/body-mass-index-bmi.

[15] WHO. Obesity and overweight. (Erişim Tarihi: 21 Mayıs 2020), https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight.

[16] Obezite Tanı ve Tedavi Kılavuzu. 6. Baskı. Ankara: Türkiye Endokrinoloji ve Metabolizma Derneği Yayını, Miki Matbaacılık San. ve Tic. Ltd. Şti.; 2018.

[17] Aytar G. Bir grup üniversite öğrencisinde yaşam olayları depresyon ve kaygı araştırması. XXI. Ulusal Psikoloji ve Nörolojik Bilimler Kongre Kitabı, 1985; 75-79.

[18] Özdel L. Pamukkale Üniversitesi Öğrencilerinde Beck Depresyon Ölçeğine Göre Depresyon Sıklığı ve Sosyo-Demografik Özelliklerle Depressif Belirtilerin Karşılaştırılması. Pamukkale Üniversitesi. Sağlik Bilimleri Enstitüsü, Yüksek Lisans Tezi. 2001.

[19] APA (American Psychological Association). APA Guideline for The Treatment of Depression. Washington: 2019.

[20] Luppino FS, De Wit LM, Stijnen T, et al. Overweight obesity and depression: a systematic review and meta-analysis of longitudinal studies. Arch Gen Psych 2010; 67: 220-229.

[21] Balcıoğlu İ, Başer SZ. Obezitenin psikiyatrik yönü. Cerrahpaşa Tıp Fakültesi Sürekli Tıp Eğitimi Etkinlikleri 2008; 62: 341-348.

[22] Neki NS. Obesity and depression: Is there any link?. JK Sci 2013; 15: 164-168.

[23] Isasi CR, Parrinello CM, Jung MM, et al. Psychosocial stress is associated with obesity and diet quality in Hispanic/ Latino adults. Ann Epidemiol 2015; 25: 84-89.

[24] Zhijie MY, Parker L, Dummer TJ. Depressive symptoms, diet quality, physical activity and body composition among populations in nova scotia, Canada: report from the Atlantic partnership for tomorrow's health. Prev Med. 2014; 61: 106-113.

[25] Baysal A, Aksoy M, Besler T, Bozkurt N, Keçecioğlu S, Mercanlıgil S, Yıldız E. Diyet El Kitabı. 7. Baskı. Ankara: Hatipoğlu Yayınevi; 2013.

[26] Ceylan R. Entegre Eğitime Katılan ve Katılmayan Engelli Çocukların Annelerinin Depresyon ve Umutsuzluk Düzeylerinin İncelenmesi. Ankara Üniversitesi. Doktora Tezi. 2004.

[27] Tütüncü İ. Karaismailolğlu E. Üniversite öğrencilerinin beslenme bilgi düzeylerinin belirlenmesi. Ak Spor Sağ ve Tıp Bil Der 2013; 06: 29-42.

[28] Özkan İ, Adıbelli D, İlaslan E, Taylan S. Üniversite öğrencilerinin obezite farkındalıkları ile beden kitle indeksleri arasındaki ilişki. ACU Sağ Bil Derg. 2020; 11(1):120-126.

[29] Yılmaz Z. 18-25 Yaş Arası Üniversite Öğrencilerinde İnternet Bağımlığının Depresyon ve Yalnızlık İle İlişkisinin Değerlendirilmesi. İnönü Üniversitesi. Tıp Fakültesi, Tıpta Uzmanlık Tezi. 2019.

[30] Ben S. İstanbul'da Yaşayan Üniversite Öğrencilerinin Sosyal Anksiyete Düzeyleri İle Beden Algısı Olumsuz Değerlendirilme Korkusu Sosyal Görünüş Kaygısı Arasındaki İlişkinin İncelenmesi. Haliç Üniversitesi. Sosyal Bilimler Enstitüsü, Yüksek Lisans Tezi. 2017.

[31] Güzel K. Üniversite Öğrencilerinin Beden Algısının Depresyon İle İlişkisi : Mizacın Rolü. Üsküdar Üniversitesi. Sosyal Bilimler Enstitüsü, Yüksek Lisans Tezi. İstanbul, 2016.

[32] Abdullayev K. Üniversite Öğrencilerinin Bağlanma Stilleri ve Stresle Başa Çıkma Biçimleri İle Depresyon Düzeyleri Arasındaki İlişkinin İncelenmesi. Marmara Üniversitesi. Eğitim Bilimleri Enstitüsü, Yüksek Lisans Tezi. 2019.

[33] Arkoç M. Üniversite Öğrencilerinde Sporun Depresyon, Anksiyete ve Umutsuzluk Düzeyi Üzerindeki Etkisinin İncelenmesi. Üsküdar Üniversitesi. Sosyal Bilimler Enstitüsü, Yüksek Lisans Tezi. 2019.