J Turgut Ozal Med Cent 2017;24(1):1-9
ORIGINAL ARTICLE DOI: 10.5455/jtomc.2016.10.107

The relation between the body perceptions and eating habits of the students in Inonu University

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Abstract

Objective: The study has been planned in order to examine the relation between the eating habits of university students and the other factors influencing this relation.

Materials and Methods: The study was conducted in the cross-sectional design in Inonu University, and the sampling method, which is used in situations where the number of the universe is known, was used in the study, and the 573 students were contacted with the layered sampling method according to the faculty. The data were collected with face-to-face method by using the Body Perception Scale and Eating Habits Test, and with a questionnaire form that evaluated the demographic socio-cultural characteristics and eating habits of the students.

Results: According to the Body Mass Index of the WHO, 78.4% of the students were at normal weight; 12.6% were found to be slightly overweight. 17.5% of the students received points that were below 135 from the Body Perception Scale, and were found to have lower body perception levels. It was determined that 32.3% of the students, who participated in the study, received over 26 points, which is the cutoff score of the eating habit test, and had obvious eating disorders. It was determined in the correlation that there was a positive and statistically significant relation between the Eating Habits and Body Perceptions Scales of the students($r=0.189$;$p<0.05$).

Conclusion: It was determined that the majority of the students were in normal weight according to Body Mass Index classification, and less than half of the students had obvious eating disorders. It was also determined that the students, who had eating disorders, had high body perception satisfaction levels.

Keywords: Body Perception; Students; Eating Disorders.

INTRODUCTION

Body Perception is defined as the struggling behaviors of individuals to reach their desired form and is accepted as the concept which evaluates the beliefs and thoughts on their physical looks (1). In various disciplines, this concept is defined as "the picture of our own body that is shaped in our minds and the picture telling us the form of it that is visible to us" or "a picture existing in the mind containing the shape, size and form and similar characteristics and the emotions related with these characteristics" (2). The Body Perception starts to be formed as of the first age in which the individual begins to distinguish himself/herself from the outer world, and changes throughout life by developing constantly.

Body Perception is influenced by many factors such as age, body structure and weight status, self-power, stimuli, feeling of confidence, sensitivity for the body and the meaning given to it, the pressure of the media, and the value given by the society to the look of the body as well as bodily developments (3). If there is difference between the body owned in reality by individuals and the body shape they actually desire to have, the dissatisfaction of the body appears. It has been reported that the dissatisfaction of the body is it higher levels especially in girls during adolescent period (4). In these periods, the desire to have the ideal body sizes that are defined by the society and the changes made on the diets and wrong dietary practices may cause inadequate and malnutrition (5). Eating disorders, incidence of which has been increasing at an obvious level as of 1980s, require early diagnosis and treatment because of the high prevalence in young adults, and due to the comorbidity and mortality together with other spiritual and bodily problems (6, 7). Eating disorders are classified in DSM-IV as anorexia nervosa, bulimia nervosa and the eating disorders that cannot be named otherwise. Their prevalence in the society is nearly 1-3% (8).

In various studies conducted on university student girls, it was reported that the prevalence of anorexia nervosa varies between 0.1-4.0% and the prevalence of Bulimia

Received: 04.10.2016
Accepted: 13.10.2016

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2017;24(1):1-9
DOI:10.5455/jtomc.2016.10.107

nervosa varied between 18-20% (9,10). The prevalence being reported high in females in studies conducted so far is associated with biological changes and social burdens experienced in this period (11,12). Although Anorexia nervosa starts in 15-19 Age group, there are several studies reporting that the prevalence of it to start is increasing before puberty or in middle age or over ages (13).

In the etiology of eating disorders, there are some approaches that explain this situation with domestic problems, the existence of eating disorders and psychiatric disorders within the family, low self-respect, obesity, struggling to lose weight, the acceptance of sexuality, puberty problems, socio-cultural norms, sexual trauma, and biological and genetic factors (14,15).

Although it is claimed that eating disorders are more frequent in the socio-economic group of medium and high level, this assumption has become highly discussed in recent years (16). It has also been reported that the body image and eating habit disorders are associated with each other (17).

This study was planned to examine the relation between the eating habits and body perceptions of university students and the other factors influencing this relation.

MATERIALS and METHODS

The universe of the study consists of the students studying at Inonu University, Central Campus. In this study, which was designed in the cross-sectional design, was conducted between March and May 2014 by using the sampling method used in studies where the number of the universe is known, and the number of the students to be included in the study was determined to be 561 with 1.5 design effect. Five hundred seventy-three students were contacted with the layered sampling method by considering the possibility of being questionnaires that might be excluded from the evaluations. In order to conduct the study, written approval was received from the Ethics Board of Inonu University, Faculty of Medicine (2014\62). The study data were collected by using a questionnaire form that evaluated the demographical socio-cultural characteristics of the students and their eating habits; and the Body Perception Scale (BPS) and Eating Habit Test (EHT), any by applying the face-to-face interview technique. After the data collections tools were applied as questionnaires in the study, each dataset was checked and was transferred to the computer medium after excluding the questionnaires that were answered with missing points. In statistical analyses, the Kolmogorov-Smirnov test (K-S) and the Student t and One Way Anova tests were used for the data that fit normal distribution; and the Mann-Whitney U and Kruskal Wallis tests were used for the data that did not fit normal distribution; and the $p<0.05$ value was accepted as being significant at all evaluations.

Eating Habit Test (EHT)

Eating Habit Test was developed by Garnel and Garfinkel as a self-evaluation scale to measure the symptoms of anorexia nervosa (18). The test has two forms consisting of 40 and 26 questions, and the answers are evaluated as "always-never" is a six-step form. EHT-26 is the modified form of EHT-40 and is obtained by excluding 14 questions (which were found unnecessary about coefficient analysis). The validity and reliability study of EHT-40 for Turkey was performed by Savasir and Erol (19); and the validity and reliability study of EHT-26 for Turkey was performed by Assoc. Dr. Murat Bas (20). In this study, EHT-26 was used. The cutoff value for EHT-26 is 26 points. As the points received go higher, the existence of eating disorder becomes more obvious. Although the types of eating disorders of people who receive high points from EHT vary according to their behaviors, they are mostly AN and BN (20, 21).

Body Perception Scale (BPS)

BPS was developed in 1953 by Secord and Jourand, and the validity and reliability study of it was performed in 1989 by Hovardaoglu (22). The scale includes 40 items, and each item is related with an organ or a part of the body (like arm, leg, face) or a function of the body (like sexual activity level). Each item is given points varying from 1 to 5; and replied as "I do not like it at all", "I do not like it", "I am indecisive", "I like it" and "I like it much". The total point in the scale varies between 40 and 200, and the level of the points being high show that the satisfaction level is also high. The cutoff value of the scale is 135 point, and those who receive below 135 are defined as the Body Perception Low Group.

RESULTS

52.9% of the students, who participated in the study were female, and 47.1% were male. 80.1% of the students were between 20-24 ages, 39.6% of them were staying at Credit and Dormitories Institution and 10.1% were working at a wage-earning employment. It was found that the general average of the grades of the 59% of the students were at medium-level. 14.6% of the students evaluated their weights to be over normal level (fat and overweight). 66.8% of the students considered their body weights as "normal", and it was found in measurements that 78.4% of the students had normal BMI values. According to WHO Body Mass Index classification, it was observed in the study that 78.4% of the students who participated in the study had normal weights, 12.6% were slightly fat, 7.5% were thin, 1.2% were obese. 46.2% of the students, who said that they skipped meals, they did so because they did not have time. In addition, 62.1% of the students also stated that they consumed biscuit-cake-chocolate-chips as snacks; 14% stated that they consumed beverages/coke/fruit juice; and 5.9% stated that they consumed yogurt-ayran-milk (Table 1).

64.6% of the students stated that they never had breakfast, and the rate of the students who stated that they definitely had breakfast was only 6.3% of all the students. 55.3% of the students, who participated in the study, stated that they never had lunch; and only 7% stated that they had lunch every day. 74% of the students stated that they never had dinner, and only 2.4% stated that they definitely had dinner (Table 2).

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DOI:10.5455/jtomc.2016.10.107

Table 1. Socio-Demographic Characteristics of the Participants

Socio-demographic characteristics	n	%
Gender		
Female	303	52.9
Male	270	47.1
Age		
19 and below	70	12.2
20-24	459	80.1
25 and over	44	7.7
Accommodation		
CDI	227	39.6
Private Dormitory	105	18.3
At a House with Friends	85	14.8
With Family	129	22.5
Other	27	4.7
Assessing the Body Weight		
Skinny	15	2.6
Weak	91	15.9
Normal	383	66.8
Fat	73	12.7
Overweight	11	1.9
Distribution of the BMI		
Weak	43	7.5
Normal	449	78.4
Slightly Fat	72	12.6
Fat	9	1.5
GANO (General Grade Average)		
Successful	181	31.6
Medium-Level	338	59.0
Unsuccessful	54	9.4
Wage-earning employment		
Yes	58	10.1
No	515	89.9
Reason for Skipping Meals		
Does not have time	265	46.2
Not prepared at home	51	8.9
Does not have appetite	210	36.6
Other	47	8.2
Snacks		
Beverage/coke/fruit juice	80	14
Biscuits/cake/chocolate/chips	356	62.1
Fruit	54	9.4
Yogurt/Ayran/Milk	34	5.9
Nuts	18	3.1
Other	31	5.4
Total	573	100

Table 2. The Consumption Status of the Main Course and Snacks of the Students

Consumption Frequency	Everyday		5-6 times a week		3-4 times a week		1-2 times a week		Never		Total	
Main Course Meal Consumption	n	%	n	%	n	%	n	%	n	%	n	%
Breakfast	36	6.3	45	7.9	56	9.8	66	11.5	370	64.6	573	100
Lunch	40	7.0	28	4.9	99	17.3	89	15.5	317	55.3	573	100
Dinner	14	2.4	24	4.2	30	5.2	82	14.3	423	73.8	573	100
Snacks Consumption												
Mid-morning	294	51.3	97	16.9	52	9.1	57	9.9	73	12.7	573	100
Afternoon	191	33.3	128	22.3	96	16.8	62	10.8	96	16.8	573	100
Night	180	31.4	129	22.5	81	14.1	59	10.3	124	21.6	573	100

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It was determined that 17.5% of the students, who participated in the study, had points that were below 135, which is the cutoff value of the Body Perception Scale; and 82.5% received points that were over 135 Points.

79.2% of the female students, who participated in the study, and 86.3% of the male students received over 136 in the Body Perception Scale. The difference between the averages of the Body Perception Scale points of the students, who participated in the study, was found to be significant according to their genders ($p<0.05$). 84.5% of those who smoked, and 81.5% of those who did not smoke received high points from the Body Perception Scale. The difference between the smoking and alcohol use status average points of the students was not significant ($p>0.05$). 72.4% of the students who participated in the study and who applied a method for the purpose of losing weight, and 84.4% of those, who did not apply any methods, received 136 and over points in Body Perception Scale. The average Body Perception Scale points of those who did not apply any diets were found to be significantly higher ($p<0.05$) (Table 3).

Table 3. The Status of the Points Received from the Body Perception Scale according to Some Variables

	Body Perception Scale Point				
	Low (≤135)		High (136≤)		
Gender	**n**	**%**	**n**	**%**	**p**
Female	63	20.8	240	79.2	**0.02**
Male	37	13.7	233	86.3	
Smoking Status					
Yes	30	15.5	164	84.5	0.37
No	70	18.5	309	81.5	
Alcohol Usage Status					
Yes	16	13.9	99	86.1	0.26
No	84	18.4	373	81.6	
Working at a wage-earning employment					
Yes	11	19	47	81	0.74
No	89	17.3	426	82.7	
Going on a Weight-loss Diet in the Past Year					
Yes	24	27.6	63	72.4	**0.007**
No	76	15.6	410	84.4	

When the accommodation status of the students was asked, the average points of those who stayed at a house with friends was found as 165.0 ± 24.0; the averages who stayed with their families was found as 163.8 ± 23.5; the averages of those who stayed at Private Dormitory was found as 161.0 ± 25.2; and the averages of those who stayed at State Dormitory was found as 154.8 ± 24.5. The averages of Body Perception Scale points of the students whose Income Levels were 2900 TL and over was found to be 166.9 ± 24.1. While the difference between the averages of the BPS points was not found to be significant according to the ages and school success grades of the students ($p>0.05$); the difference between the averages of those whose Income Levels were over 1900 TL was found to be significant ($p<0.05$). When the averages of BPS points according to BMI values were considered, it was observed that the averages of those who were Slightly Fat were found as 155.1 ± 25.3, and the averages of those who were fat were found as 131.5 ± 34.7, which is lower at a significant level than the other groups ($p<0.05$) (Table 4).

The average EHT points of the students, who participated in the study, was 23.7 ± 17.0; and it was determined that 67.7% received 26 (which is the cutoff values for Eating Habit Test) and below points; and 32.3% received over 26 points.

The EHT average of the female students was found as 24.3 ± 1.6; and the average of the male students was found as 23.0 ± 1.8. The possible eating disorder rates of the female students was found at a higher level than the male students; however, the difference was not significant ($p>0.05$). No significant relation was found between the income levels and EHT averages of the students ($p>0.05$). When the EHT points of the students

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received according to the accommodation were considered, it was found that those who stayed at State Dormitory received 26.7 ± 1.8, which is the highest value. The EHT points of those who stayed in State Dormitory, were found to be significantly higher than those who stayed in other accommodation means ($p<0.05$) (Table 5).

Table 4. The Distribution of the Points Received from the Body Perception Scale According to Some Variables

Variables		Body Perception Scale Point	
Age	n	A.O± S.S	p
≤19	70	155.1 ± 26.0	0.28
20-24	459	160.2 ± 24.6	
25≤	44	159.8 ± 27.0	
Accommodation			
State Dormitory[a]	227	154.8 ± 24.5	**0.002**
Private Dormitory	105	161.0 ± 25.2	
At a House with Friends	85	165.0 ± 24.0	
At Family House	129	163.8 ± 23.5	
Other	27	154.9 ± 31.2	
Income Level			
≤900[a]	82	154.5 ± 26.2	**0.001<**
901-1900 [a]	191	154.9 ± 23.8	
1901-2900[b]	177	161.6 ± 24.9	
2900<[b]	123	166.9 ± 24.1	
Body Mass Index (BMI)			
Weak[a]	44	157.4 ± 23.7	**0.006**
Normal[a]	449	160.8 ± 24.6	
Slightly Fat[b]	73	155.1 ± 25.3	
Fat[b]	7	131.5 ± 34.7	
Place Lived for Most of the Time			
City[a]	392	161.6 ± 24.8	**0.01**
County	121	154.1 ± 24.9	
Village	60	156.8 ± 24.6	
School Success Grade			
Unsuccessful (≤1.99)	54	158.3 ± 23.7	0.55
Medium-Level (2-2.99)	338	158.8 ± 24.7	
Successful (3.00≤)	181	161.2 ± 25.9	

a, b the groups that create the difference and the ones that are different from each other

It was found that there was a statistically significant relation in a positive way between the EHT and BPSD points of the students ($r=0.189$; $p<0.05$). The BPS points were high in students who received high points from EHT. 3% of the EHT points ($r^2=0.03$) may be explained with the change in BPS points. A strong correlation at a low level was found between the two scales ($p<0.05$) (Table 6).

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Table 5. Distribution of the Points Received from the Eating Habit Test according to some Variables

Variables		Eating Habit Test Point				
Gender	**N**	**X± S.D**	**Min**	**Med**	**Max**	**p**
Female	303	24.3 ± 1.6	**1**	**20**	**72**	
Male	270	23.0 ± 1.8	**1**	**18**	**92**	0.054
Age						
≤19	70	23.2 ± 1.2	2	21	58	
20-24	459	24.1 ± 1.7	1	19	92	0.26
25≤	44	21.2 ± 1.7	3	15	78	
Accommodation						
State Dormitory[a]	227	26.7 ± 1.8	1	21	92	
Private Dormitory	105	22.0 ± 1.4	3	19	72	
At a House with friends[b]	85	19.9 ± 1.5	1	15	78	**0.01**
At Family House	129	22.7 ± 1.6	2	19	62	
Other	27	22.1 ± 1.8	3	16	78	
Income Level						
≤900	82	19.8 ± 1.2	3	17	58	
901-1900	191	22.3 ± 1.5	1	19	78	
1901-2900	177	25.9 ± 1.9	1	20	92	0.10
2900<	123	25.4 ± 1.7	2	21	78	
Body Mass Index (BMI)						
Weak	44	25.5 ± 1.6	3	21	78	
Normal	449	23.8 ± 1.7	1	19	78	
Slightly Fat	73	23.0 ± 1.5	3	19	92	0.37
Fat	7	15.0 ± 9.8	3	13	35	
Place Lived for Most of the Time						
City	392	24.6 ± 1.7	1	19.5	92	
County	121	22.2 ± 1.5	3	18	72	0.19
Village	60	21.1 ± 1.6	1	17.5	72	
School Success Grade						
Unsuccessful	54	23.7 ± 1.8	3	18	78	
Medium-Level	338	22.5 ± 1.6	1	18.5	92	0.17
Successful	181	26.1 ± 1.8	3	21	78	
Working at a wage-earning employment						
Yes	58	21.2 ± 1.8	2	16	92	
No	515	24.0 ± 1.6	1	20	78	0.09
Going on Weight-loss Diet in the Last Year						
Yes	87	27.0 ± 1.3	3	25	58	
No	486	23.1 ± 1.7	1	18	92	**0.001<**

a, b the groups that create the difference and the ones that are different from each other

Table 6. The Correlation Analysis between the Eating Habit Test Scale and Body Perception Scale Points of the Participants

		Eating Habit Test	Body Perception
Eating Habit Test	R	1	0 189
	p		0.000
	N	573	573
Body Perception	R	0.189	1
	p	0.000	
	N	573	573

DISCUSSION

While 85.9% of the students, who participated in the study, were low-weight or normal; 12.6% were Slightly Fat; and 1.5% were obese. In a similar study, 97.1% of the students were found to be low-weight or normal; 2.5% were found to be Slightly Fat; and 0.4% were found to be obese (23).

According to the BMI classification, while the majority (78.4%) of the students had normal body weights; 14.1% were determined as being Slightly Fat\Fat. While 78.4% of the students, who participated in the study, had normal body weight according to the BMI, 66.8% considered themselves as being "normal"; and 7.5% considered themselves as "weak" according to the BMI classification. It is considered that the difference stems from the students, who had normal weights according to the BMI classification, expressing themselves as being "weak". Welch et al. conducted a study, and determined that there were inconsistencies between the real bodies and their perceived bodies of children (24). Eaton et al. conducted a study on high school students, and found that 65% of the students were in normal weight; however only 54% of them perceived themselves as being in normal weight (25). It is observed that the results reported in the literature support the findings of this study.

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64.6% of the participants stated that they did not have breakfast in the morning, 55.3% stated that they skipped lunch; and 73.8% stated that they skipped dinner. It was determined that the students skipped dinner with a high percentage, and skipped breakfast, which ranks as second. It is observed that the findings of our study are different from the similar studies in the literature. Sakamaki et al. (2005) conducted a study and determined that 82.3% of the female students and 66.8% of the male students had regular breakfast; and the rate of those who did not have any lunch was only 4.3% (23). Ermis et al. conducted another study and reported that lunch was the meal that was skipped with the highest percentage (52.6%), and breakfast followed it with a percentage of 39.7% (26). In other studies, which were conducted in different designs from our study, it was reported that lunch was the meal that was skipped at the highest level (27). It is considered that this difference between may be associated with the differences between the social services of the universities, which are socio-medico and catering of lunch to students, socializing among students, and the opportunities of the campus sites.

The majority of the students stated that they skipped meals because they did not have time or they had appetite problems. The mostly-consumed snacks were determined to be biscuit/cake/chocolate/chips, and the least ones were nuts. In many studies conducted so far, the excuse for skipping meals was reported to be "not finding time (28,29,26). In our study, the reasons for skipping meals show similarities with the ones reported in the literature. The students stated that they "could not find time" or they "did not want", and therefore skipped meals, this made us consider that they do not have adequate knowledge on nutrition, and do not care for it. Unalan et al. conducted a study and found that nuts were the mostly-consumed snacks (30).

The difference between the averages of Body Perception Scale points of the students, who participated in the study, was found to be significant. Male students received statistically higher points than the female students ($p<0.05$). In similar studies, the Body Perception Scale Points of the male students were found to be statistically higher than those of females (31, 32, 33). This situation shows that female students care more about their bodies than the males, and their perceptions on this topic are higher. The averages of the Body Perception Scale points of the students, who did not apply any methods for the purpose of losing weight within the past year, were found to be statistically higher ($p<0.05$). In a study conducted on high school students, the "Body Perception Points" of those, who did not apply a method for losing weight in the past year, were higher than those who used a method (33). This finding supports our study, and may be interpreted as people who have high satisfaction levels about their bodies or about a part of it, do not feel the need for going on a diet.

79.2% of the female students, who participated in the study, and 86.3% of the male students received high points from the Body Perception Scale; which shows that the majority of the students, who participated in the study, have high satisfaction in Body Perception. In another study, it was determined that the two fifth (42.18%) of the participants had high satisfaction levels. In a study conducted, it was reported that two fifth (42.18%) did not have any concerns about their body images (34).

While the difference between the BPS average points of the students according to their ages was not found to be significant ($p>0.05$); the averages of the students, who had Income Levels over 1900 TL, were found to be significantly high ($p<0.05$). Uskun et al. conducted a study and could not find a significant relation between the BPS points according to their ages (33). This situation supports our findings, and may be expressed as the general feelings of a person on his/her body does not change with furthering age. Again, in the same study, no relations was determined between the income levels and scale points of the students. This finding is different from the finding of our study, and makes us consider that income may have influences on Body Perception not in a direct manner but in an indirect manner.

When the BPS averages are considered according to the BMI values, the points of those, who were Slightly Fat and Fat, were found to be lower ($p<0.05$). In other words, as the Body Mass Index increases, the body perception levels of people decrease. In studies conducted so far, it was reported that there was a relation between obesity and Body Perception, and there was an inclination in obese people to Body Perception disorders (35). Many obese individuals do not their physical looks, and this situation is generally the reason for their losing weight. People believe that their outer looks and attraction will increase by losing weight (36).

There are some studies in the literature with consistent results with our study (37). Again, in another study, it was found that there was a relation between the overweight people who had BMI 25 kg\m^2 and over and the Body Perception dissatisfaction (38). Uskun et al. conducted a study on high school students, and reported that the "Body Perception Point" did not differ according to BMI, and interpreted this situation as "the body perception of a person was influenced by other factors rather than the real body status" (33).

The percentage of having eating disorder in the students, who participated in the study, was found as 32.3%. Unalan et al. conducted a study on Vocational Health High School students, and determined that 14% of the students might have eating disorders (30). The difference between the EHT points received by the students according to accommodation was found to be significant, and it was observed that the points of those who were staying at State Dormitory were higher than the others ($p<0.05$). There are studies in the literature supporting the findings of our study (39). Staying at State Dormitory may be a disadvantaged situation in terms of nutrition like less regular nutrition, skipping meals, missing meals, or due to risks in coping with new

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DOI:10.5455/jtomc.2016.10.107

problems. Although there studies in the literature reporting that anorexia nervosa is observed more frequently in people from upper socio-economic level; in our study, it was observed that the different between the income levels and EHT average points of the students was not found to be statistically significant (40, 41). There are more studies that have results that are consistent with our study findings (42, 43).

CONCLUSION

According to WHO Body Mass Index classification, it was determined that 13% of the students, who participated in the study, were Slightly Fat; 1.2% were obese. It was also determined that more than half of the students skipped at least one of the three meals, which are breakfast, lunch, dinner, and consumed biscuit-cake-chocolate-chips instead of meals. It was observed that less than half of the students had obvious eating disorders, and the majority of them high satisfaction in terms of Body Perception. In addition, it was also observed that the body perception satisfaction levels of the students, who had eating disorders, were high. As a conclusion, eating disorders, which are becoming more and more widespread among the young generation, is defined as an "important medical situation" by the World Health Organization.

University students are under risk due to lack of information or information pollution, psycho-social and economic reasons, fashion and peer interaction and similar reasons. Informing the young people, families and instructors on this topic and raising awareness is important in this context.

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