

## ANXIETY LEVEL AND THE BODY MASS INDEX AMONG STUDENTS

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**ABSTRACT.** Nowadays we hear frequently speaking about the link between the BMI values and humans` s health state. Increased levels of BMI are often associated with cardiovascular diseases, eating disorders, low self-esteem, and with increased levels of anxiety too. The aim of our study is to emphasize, at the level of the first year students, if there is a relation between the BMI level and the anxiety state level.

**Key words:** *body mass index, anxiety, students*

**REZUMAT. Indicele de masă corporală și gradul de anxietate în rândul studenților.** La ora actuală se vorbește, tot mai des, despre legătura dintre valorile indicelui de masă corporală și starea de sănătate a indivizilor. Valori crescute ale indicelui de masă corporală sunt adesea asociate cu boli cardiovasculare, cu dereglări în alimentație, ale imaginii/stimei de sine, și nu în ultimul rând cu valori crescute ale anxietății. Studiul de față își propune să evedențieze dacă, la nivelul studenților de anul I, există o corelație între valorile indicelui de masă corporală și gradul de anxietate al subiecților.

**Cuvinte cheie:** *indicele de masă corporală, anxietate, studenți*

### Introduction

Nowadays we frequently hear speaking about how obesity affects the people's health state. Obesity and overweight are often associated with mental health difficulties (Tichener & Wong, 2015).

American Psychiatric Association (2013) approached the term social anxiety disorder which can be translated by an intense fear induced by evaluation from others. Their studies have shown a positive association between obesity and social anxiety disorders, especially in female's subjects (Tichener & Wong, 2015). Anxiety is considered a tension, a reaction to stress situations, an answer for an imaginary or a real danger (Feldman, 2011; Bassi,

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2014). Weinberg and Gould (as cited in Jarvis, 2006) presents the concept of anxiety as being “a negative emotional state with feelings of nervousness, worry and apprehension associated with activation or arousal of the body” (p.114). Some authors describe the anxiety like a reaction to stress which can sustain our activities. In the absence of this anxiety, people wouldn't be motivated for studying or working with responsibility at their job. Some people manifest anxiety even there are not real reasons. When this kind of anxiety affect the people efficiency, the specialists name it anxiety disorders (Feldman, 2011).

### Material and methods

In our study we have used the following research methods: bibliography study, M. Hamilton anxiety scale, and statistical analysis. The data was analyzed using SPSS 19 statistical program. We have also used Chi square test at a p=.05 significance level and the Pearson Correlation.

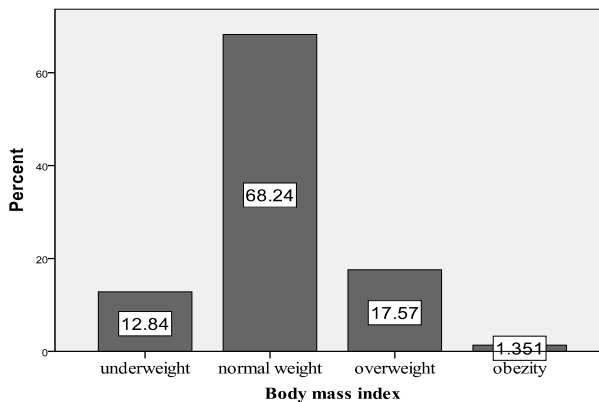


Chart no. 2 Body mass index percent

The anxiety level was established by adding up scores from all 14 items.

Every item had five level of scale, from 0 till 4, where 0 means that anxiety is not present and 4 means the presence of a sever anxiety level. We have used the weight and the height measurements of the subjects for establishing the body mass index. The BMI is calculated by dividing the body mass to the square of the body height, being expressed in units of  $\text{kg}/\text{m}^2$  (National Heart Lung and Blood institute, Calculate your body mass index, n.d. para. 1). Our study involved 148 students enrolled in Babeş-Bolyai University, students from Faculty of Educational Sciences and from Faculty of History.

## Results

There is a statistically significant difference, at the level of gender regarding the participation in sport activities ( $\chi^2=12.63$ ,  $df = 1$ ,  $p<0.001$ ). According to our results 63 boys from 70 declare that they are involved in sport activities, meanwhile just 51 girls from 78 declared the same answer (Chart no.1).

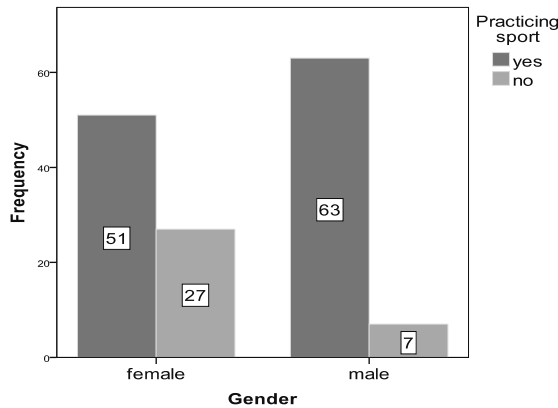


Chart no.1 Practicing sport - by gender

The graphic no. 2 emphasizes the way in which the BMI levels spread/ divide the subjects in categories like normal weight (68.24%), underweight (12.84%), overweight (17.57%) and 1.35% represented by those who can be registered with obesity.

Concerning the anxiety, the majority of subjects involved in our study (76.35%) present a mild severity, 14.19% from mild to moderate severity of anxiety, 6.08% from moderate to severe anxiety and 3,37% have a severe anxiety level (Chart no 3).

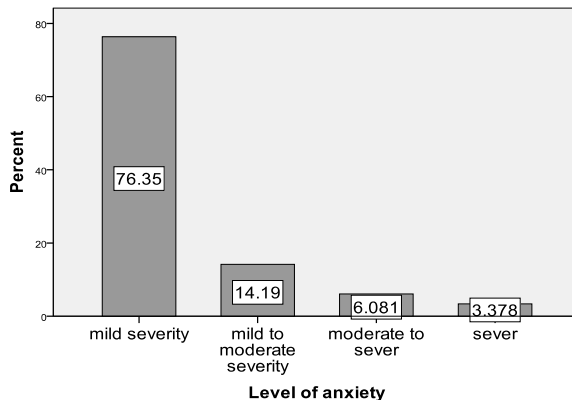
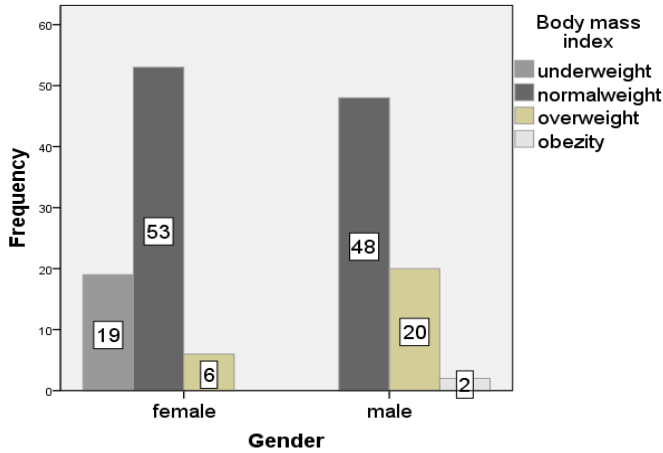


Chart no. 3 Level of anxiety



Grafic no.4 Gender and BMI

The graphic no. 4 presents the way in which the subjects are spread out in their gender and the values of BMI. There is a statistically significant difference at the level of gender regarding the BMI, ( $\chi^2= 28.437$ ,  $df=3$ ,  $p<0.001$ ).

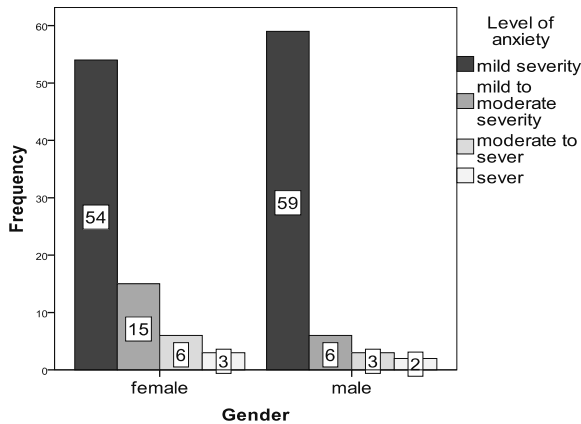


Chart no. 5 Gender and the level of anxiety

The gender differences regarding the anxiety level, are represented in graphic no. 5. According to our results, there is not a statistically significant difference, between the female and male subjects, concerning the anxiety level ( $\chi^2= 4.86$ ,  $df. = 3$ ,  $p= .182$ ).

The diagram shows us that there is no evidence regarding a curve relationship or a negative influence in aberrant values (fig.1)

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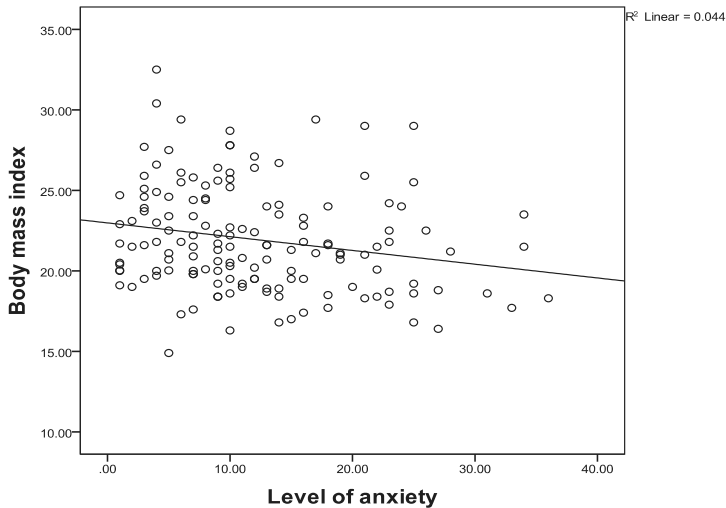


Figure 1. Correlation of BMI and anxiety

Statistical analysis of our data emphasizes the presence of a statistical negative relation ( $r = -.209$ ,  $df = 146$ ,  $p = .005$ ) between the level of BMI and the level of anxiety (Table 1). The data shows us that if the level of BMI increase, the level of anxiety will decrease.

**Table 1.** Pearson Correlation BMI and the level of anxiety

		Level of anxiety	Body mass index
Level of anxiety	Pearson Correlation	1	-.209**
	Sig. (1-tailed)		.005
	N	148	148
Body mass index	Pearson Correlation	-.209**	1
	Sig. (1-tailed)	.005	
	N	148	148

\*\* . Correlation is significant at the 0.01 level (1-tailed).

### Conclusions

In the collecting data instrument we have introduced an item connected with activity sport participation. The sport activity concept was described. We were surprised, in a good way, by the number of those subjects who declared that they are usually involved in sport activities.

Regarding the BMI values, the majority of the students have a normal weight, but this fact is certainly linked to their age  $20.13 \pm 2.5$ . Applying the Chi-square test, between gender and BMI variables, the results have emphasized a statistically significant difference ( $\chi^2 = 28.437$ ,  $df. = 3$ ,  $p < 0.001$ ).

Starting from the premise that the subjects are students in the first year, meaning that everything is new for them, colleagues, disciplines, professors, and the fact that they have roommates from different corner of the country, we expected to find high levels of anxiety. We were surprised by the fact that the majority of the subjects have a mild severity level of anxiety.

Applying the Chi-square test between gender and the anxiety level, the statistical analyzes reveal that there isn't a statistically significant difference between gender and the level of anxiety.

In our study we found a negative relation between the BMI and the level of anxiety. The diagram shows that meanwhile the level of BMI increases the anxiety level decreases. It would be interesting to involve, in a similar study, older subjects (around 30 years old), the results, regarding the relation between BMI and anxiety, might be different. In another study (Bassi et al. 2014) has obtained a positive correlation, at the level of students (hostelers), between BMI and the anxiety level.

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