EVALUATION OF BMI IN THE SELECTED SAMPLE OF TRNAVA UNIVERSITY STUDENTS

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Abstract: *The study results bring analysis BMI values of students Trnava University in relation to age, gender and nutrition. BMI analysis was carried out based on height and weight of individual respondents, what we measured the direct measurement and weighing. The research sample consisted of 1386 respondents selected the four faculties of Trnava University (educational, law, philosophical, and Faculty of Health and Social Work).*

Based on the calculation of BMI and its assessment in relation to age and gender of respondents, we found that a majority of respondents had a normal weight. The incidence of overweight and obesity occurred mainly in respodnentov men, in women were surprising finding of a significant incidence of underweight. It should be noted that a similar risk of underweight than overweight, respectively obesity. The incidence of both is undesirable. Risk of the importance of physical appearance and smartness brings undesirable behavior of youth, wrong eating habits, poor diet and irregular eating preferences.

Keywords: *BMI, overweight, obesity, underweight, university students*

Theoretical background

University students are from the development perspective in the category of young adults 18 to 25 year olds. We can say the age, which is generally characterized by reaching maturity in the somatic, psychological and social. Although they are a healthy and educated young people, yet they are not rescued from applying various effects, which are closely linked to the way of life and especially the study of high school. Thats why a university course is an important period in the life of every student.

Changing climate changing their lifestyle to an independent life, what affecting theirs nutrition (Colico ‚Baric'et al., 2003). Nutrition and eating habits of students of various universities are deal in several published studies (Racette et al., 2005, Steptoe et al., 2002, Biro, L. et al., 2005, Papadakis, A. et al., 2007). Eating habits and food preferences are influenced by changed living conditions and financial capabilities of

students (Papadakis - Scott, 2002), increasing preference intake food in the form of snacks (Nicklas et al., 2001).

Changed living conditions and financial possibilities of influencing eating habits and food preferences and dietary modification of food, increasing irregular food intake and preference in the form of fast food, which may reflect negatively on the overall health and in particular the occurrence unbalanced weight.

Research Hypotheses

Using a questionnaire we tried to verify some hypotheses.

Hypothesis H1:

We assume that the younger students will be better than BMI as a older.

Hypothesis H2:

We assume that women will be more balanced BMI than men.

Hypothesis H3:

We expect that BMI of respondents with good eating habits will be more balanced than BMIof respondents with incorrect eating habits.

Hypothesis H4:

We expect that BMI of respondents with good dietary preferences will be more balanced than BMI of respondents with incorrect dietary preferences.

Research sample

The research sample consisted of 1,386 students of Trnava university. The number of respondents divided by faculty and gender shown in the following Table 1.

Table 1: Number and gender of respondents from Trnava university faculties involved to research

Students		
Faculty	**Total**	**Gender**
Faculty of Education	399	36 male
		363 female
Faculty of Philosoph	401	89 male
		312 female
Faculty of Law	300	92 male
		208 female
Faculty of Health and Social Work	286	66 male
		220 female
Total	**1386**	

Research methods

On the basis of a study dedicated to eating habits and food preferences of Greek university students published by Papadakis, A. et al. (2007) was used a modified questionnaire survey devoted to dietary habits and preferences of students of different faculties of the University of Trnava. The questionnaire was anonymous and the return was 93 %. Reliability was assessed by calculating the questionnaire Cronbachovho alpha, its value was 0.8764.

Research consisted of a series of questions based on the detection frequency of intake of individual foods. One question that focused on dietary preferences consisted of a list of 33 foods. In the table for each food respondents selected one of eight options that reflect their preference for the food. Each statement in questionnaire were assigned by numerical values that data can be statistically evaluated and compared, and we used the scoring using the positive scoring.

From the measured data (height and weight), we calculated separately for each student his BMI (Body Mass Index).

$$BMI (kg/m2) = body weight (kg) height (m2).$$

Table 2 - Evaluation of body mass index

Values of BMI(kg.m-2)	classification
pod 18,5	underweight
18,5 - 24,9	normal weight
25,0 - 29,9	overweight
30,0 - 39,9	obesity
over 40,0	severe obesity

Data from questionnaires were processed in a table in Excel, we evaluated a multiple analysis of variance in the program STATISTICA. From data we create images in the form of graphs.

Results and discussion

Figure 1 evaluate the impact of gender and age on BMI of the respondents. We found a statistically significant effect of gender and age on the BMI of students of Trnava university, the evidence supporting the value of students' lower ($p = 0.0377$) than in students, where this factor showed a highly statistically significant ($p = 0.000000004$) (Figure 1). On this basis, we found that a hypothesis is confirmed.

From the data processed we have found that BMI of female-student increase with increasing age. In female students aged 18 years, we have found underweight, continues to occur until the age of 24 years, at a later age appears overweight or obesity. Most of the female respondents aged 19-23 years have the normal value of BMI. Men BMI increase with age less significant, but obesity in this gender is higher (7.7 %). Percentage of men with normal weight (76.9 %) is higher than the percentage of women (61.2 %), where we recorded a significant degree of the occurrence of underweight (28.4 %). These findings show that hypothesis 2 is not confirmed.
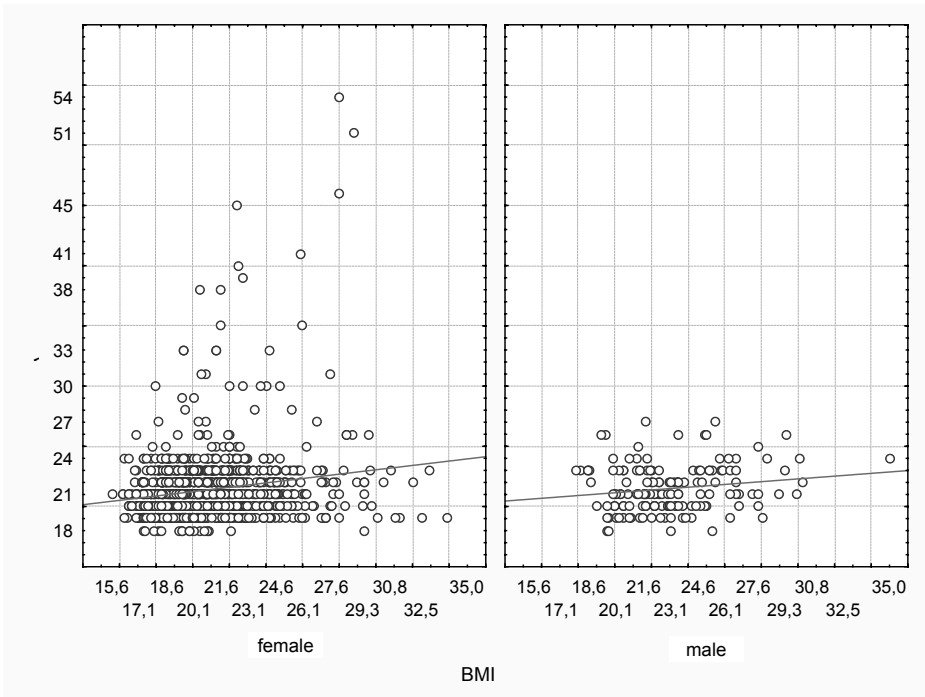
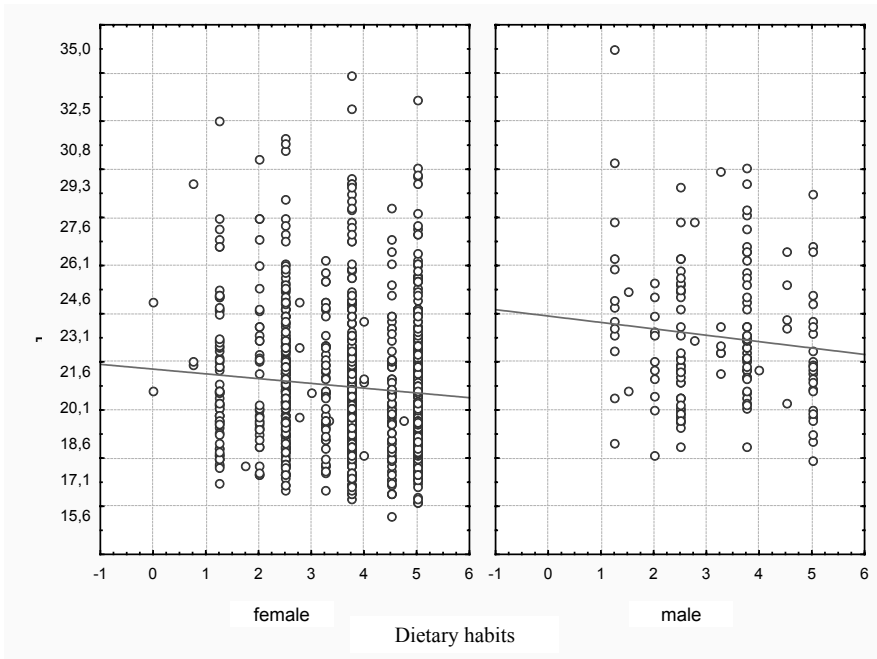Figure 1 Effect of age and gender of student BMI

Figure 2 Effect of dietary habits men and women (students) to their BMI

The assumption stated hypothesis 3, that eating habits will affect the value of BMI was confirmed in both sexes of students of Trnava university. From Chart 2 it is clear that the better eating habits of respondents impact to their BMI balanced, thus moving normal values. This effect was more prominent in women ($p = 0.0045$) than men ($p = 0.01969$).

In the next section we evaluated the dietary preferences of respondents. Each of them was able to determine the frequency of intake of the type of food in the table included foods that can be defined as beneficial to health, respectively. a negative impact on health.

To assess this question, we used the scoring 1-8, respectively. 8-1, the score values were assigned the health benefit of food. Custom compare the behavior of respondents, given the choice of food was made of the average values obtained for all 33 foods.

The choice, in terms of healthy eating unacceptable, meals is fundamentally contradicts the National Programme to fight obesity, as their consumption may directly lead to an increase in overweight and obesity, which affects the overall health of their consumers.

The evaluation, we found that differences in dietary preferences with regard to BMI of the respondents are more pronounced in women ($p = 0.00000002$). We found that the choice of quality food is in women with normal range of BMI limit. With inferior quality, respectively less divergent composition of the food spectrum increase the risk of underweight respondents, respectively. obesity. A similar conclusion was reached in men (students) who, however, this conclusion was less significant ($p = 0.05301$) (Figure 3). The hypothesis 4 is confirmed.
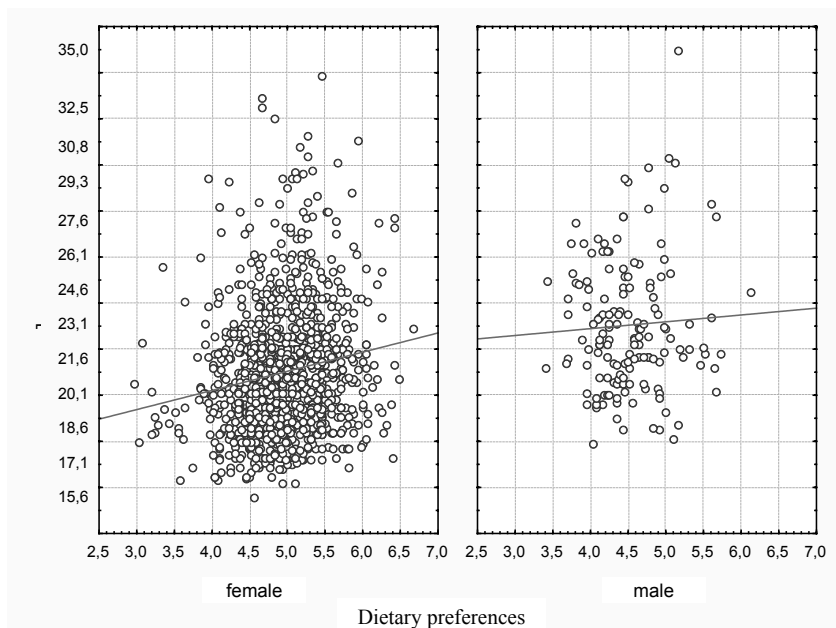

Figure 3 Effect of dietary preferences of women and men (students) to their BMI

It was found that weight gain and poor eating habits during university studies may lead to overweight and obesity in adulthood (Raccet et al., 2005). There is evidence that good nutrition and lifestyle can influence the genetic predisposition for obesity (Niklas et al., 2001).

Conclusion

In the presented study, we aimed to assess BMI of students of University in Trnava. Analysis of BMI values was made based on height and weight of the individual respondents, what we measured by the direct measurement and weighing. Found BMI we assessed in terms of age, gander, eating habits and dietary preferences of respondents. We found that the university environment, an organization providing food and education play an important role for nutrition students.

In this context, and based on these results, we propose the following recommendations:
- encourage students to take more responsibility in the approach to their health and to reinforce a positive approach to healthy lifestyles by organizing discussions with experts, health days, and so on.,
- to promote change bad eating habits of students, we propose to create conditions conducive to a healthier diet for students, school meals contribute to improving the eating habits of students and thus can major change in attitudes towards healthy eating and to promote a proactive approach to change lifestyle
- increase the number of students stravujúcich in school catering facilities, realization of new trends in nutrition and diet to create interest among students about healthy eating,
- improving the drinking regime in terms of quality and quantity of consumption of drinks
- extend the range of school food buffet for groups of students according to requirements such as fruit, vegetable salads, wholemeal bread and dairy products and thus give them the opportunity to choose healthier foods.

POSÚDENIE BMI VO VYBRANEJ VZORKE ŠTUDENTOV TRNAVSKEJ UNIVERZITY V TRNAVE

Abstrakt: V štúdii prinášame výsledky analýzy hodnôt BMI študentov Trnavskej univerzity v Trnave vo vzťahu k veku, pohlaviu a spôsobu stravovania, ktorí študenti uplatňujú. Analýzu BMI sme realizovali na základe hodnôt výšky a hmotnosti jednotlivých respondentov, ktoré sme zisťovali ich priamym meraním a vážením. Výskumnú vzorku tvorilo 1386 respondentov štyroch vybraných fakúlt Trnavskej univerzity v Trnave (pedagogickej, právnickej, filozofickej a fakulty zdravotníctva a sociálnej práce).

Na základe výpočtu BMI a jeho posúdenia vzhľadom na vek a pohlavie respondentov sme zistili, že nadpolovičná väčšina respondentov mala normálnu hmotnosť. Výskyt nadváhy a obezity sa vyskytoval najmä u respondentov mužov, u žien bol pre-

kvapujúcim zistením výrazný výskyt podváhy. Je potrebné zdôrazniť, že podváha predstavuje podobné riziko ako nadváha, resp. obezita. Výskyt oboch je nežiadúci. Riziko nadmerného zdôrazňovania významu telesného vzhľadu a módnosť nadmernej štíhlosti prinášajú nežiadúce správanie mládeže, nesprávne stravovacie návyky, zlé stravovací preferencie a nepravidelnosť stravovania.

Kľúčové slová: BMI, nadváha, obezita, podváha, univerzitní študenti