

DIVERSITY OF NUTRITION AMONG MALE AND FEMALE UKRAINIAN STUDENTS

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Abstract Adequate nutrition is one of the most important factors of a good state of health. The objective of the study was recognition of the mode of nutrition and behaviours related with concern about silhouette among students from the Ukraine.

Materials and Method. The study was conducted in 2013 among 2,125 students, including 1,291 females and 834 males, from 12 study specialties at the National University in Lutsk. The method of a diagnostic survey was applied with the use of a questionnaire. The study showed significant differences in the regularity of consumption of meals to the benefit of males. Females, in their behaviours, more frequently avoided eating, felt fear of gaining weight, and lost control over eating. With respect to behaviours related with concern about silhouette, females significantly more often applied exercises in order to reduce body weight, while males in order to gain body weight. A positive behaviour in both sexes was a trace application of drugs and other pharmacological means to improve own silhouette.

Key words nutrition, female students, male students, Ukraine

Introduction

Nutritional habits and their regularity exert a great effect on our health. An important issue is the current investigation of nutritional behaviours of students from various countries due to their cultural specificity (Antal et al., 2006; Brunt, Rhee, 2008; Delinsky, Willson, 2008; Kiziltan, Karabudak, Unver, Sezgin, Unal, 2006; Mammias, Bertias, Linardakis, Moschandreas, Kafatos, 2006; Popowa-Ramova, 2015). Polish studies conducted in 2000 showed that the majority of the population (68%) consider that they eat healthily; however, as many as 21% had an opposite opinion concerning this problem (Falkowska, 2000).

In Poland, studies concerning nutrition among female students are relatively common and pertain to very different types of universities, mainly medical (Karina, Rektor, 2005; Krzych, 2004; Olędzka, Węglowska, Szczepańska-Chudy, Bobrowska, 2004; Paško, Krośniak, Chłopicka, Zachwieja, 2005; Smorczevska-Czupryńska, Ustymowicz-Farbiszewska, Cymek, Dubiel, Karczewski, 2009; Stefańska, Ostrowska, Czapska, Karczewski, 2005; Szponar, Krzyszycha, 2009; Zarzecka-Baran, Wojdak-Haasa, 2008), physical education (Gacek, 2004; Medrela-Kuder,

2003) pedagogical (Mięśowicz, Palus, 2002), agricultural (Wyka, Żechałko-Czajkowska, 2007), and universities of technology (Malara, Góra-Kupilas, Joško, 2006; Olędzka, Moczyłowska, Rogalska-Niedźwiedz, 2002).

The researchers also undertook studies concerning the specificity of nutrition of female students (Jasnos et al., 2003; Rasińska, 2009; Smorzewska-Czupryńska, Ustymowicz-Farbiszewska, Cymek, Dubiel, Karczewski, 2009; Socha, Borawska, Markiewicz, Charkiewicz, 2009; Wojciechów-Gazel, Mickiewicz, Krzyśków, 2013).

The following of nutritional habits and health behaviours related with concern about silhouette among students, with consideration of specificity of males and students, allows even more comprehensive recognition of their preferences and factors which condition these preferences. The importance of the problem encouraged the authors to recognize the mode of nutrition of female and male students in Ukraine.

Methodology of research

The objective of the study was recognition of the mode of nutrition of students from Ukraine, with consideration of the specificity of sex.

Material and methods

The study was conducted in 2013 among 2,125 students, including 1,291 females and 834 males, aged 17–22 from 12 study specialties: philology, international relations, national sciences, physical culture and health, pedagogy, law, biology, geography, history, physics, fine arts, and mathematics, at the National University in Lutsk, Ukraine. The method of a diagnostic survey was applied, using a questionnaire designed at the Institute of Rural Health in Lublin, Poland, which contained questions concerning nutritional behaviours, behaviours concerning silhouette, and including the application of exercises in order to gain or reduce body weight.

Results

While analysing differences in nutrition among male and female students the following was considered: number of meals consumed per day, place of their consumption, behaviours related with nutrition, and behaviours related with concern about the appearance of the silhouette. Statistical analysis was performed using the software STATISTICA V10; significance level was set at $p = 0.05$.

Number of meals consumed during the day

Students from Ukraine most frequently consumed 3 meals per day (47%), and in a similar proportion – 4 and more meals (28%), and 1–2 meals (24.5%) (Table 1).

Males consumed meals significantly more often than females. In the case of 4 and more meals, their indicators were 36.6% and 23.2%, respectively. In turn, females more often consumed 1–2 meals, 29.9% and 16.2%, respectively. Possibly, the observed differences resulted from the fact that females try to eat more rarely in concern about their silhouette, which is not favourable for health.

It is also noteworthy that males significantly more frequently consumed main meals every day. This concerned the first and second breakfast, afternoon snack and supper. No significant differences between males and females were found according to the consumption of dinner. Females, to a higher extent, did not consume main meals: first breakfast – 34.5%, compared to 27.7% of males, second breakfast – 12.4%, compared to 6.5% of males, afternoon

snack – 17.8%, compared to 12.8% of males, and supper – 7.8%, compared to 2.0% of males. The positive phenomenon was the fact that only approximately 1% of both males and females did not eat dinner. The problem of consumption preferences of individual product groups has not been undertaken in this study.

Table 1. Number of frequency of consumption of meals by students from Ukraine, according to sex*

Number of meals consumed per day				
Sex	1–2	3	4 or more	Statistics
Females	351 (29.9%)	550 (46.9%)	272 (23.2%)	$X^2 = 64.78$ $p < 0.0001^*$
Males	124 (16.2%)	362 (47.3%)	280 (36.6%)	
Total	475 (24.5%)	912 (47.0%)	552 (28.5%)	
Frequency of consumption of first breakfast				
Sex	Every day	Several times a week	I do not eat	Statistics
Females	427 (39.8%)	276 (25.7%)	370 (34.5%)	$X^2 = 13.14$ $p = 0.0014^*$
Males	270 (39.7%)	222 (32.7%)	188 (27.7%)	
Total	697 (39.8%)	498 (28.4%)	558 (31.8%)	
Frequency of consumption of second breakfast				
Sex	Every day	Several times a week	I do not eat	Statistics
Females	439 (39.8%)	528 (47.8%)	137 (12.4%)	$X^2 = 31.43$ $p < 0.0001^*$
Males	378 (51.2%)	312 (42.3%)	48 (6.5%)	
Total	817 (44.4%)	840 (45.6%)	185 (10.0%)	
Frequency of consumption of dinner				
Sex	Every day	Several times a week	I do not eat	Statistics
Females	997 (79.4%)	241 (19.2%)	17 (1.4%)	$X^2 = 2.40$ $p = 0.3008$
Males	630 (78.4%)	168 (20.9%)	6 (0.8%)	
Total	1,627 (79.0%)	409 (19.9%)	23 (1.1%)	
Frequency of consumption of afternoon snack				
Sex	Every day	Several times a week	I do not eat	Statistics
Females	377 (34.4%)	523 (47.8%)	195 (17.8%)	$X^2 = 15.42$ $p = 0.0005^*$
Males	294 (42.7%)	306 (44.5%)	88 (12.8%)	
Total	671 (37.6%)	829 (46.5%)	283 (15.9%)	
Frequency of consumption of supper				
Sex	Every day	Several times a week	I do not eat	Statistics
Females	780 (64.6%)	333 (27.6%)	94 (7.8%)	$X^2 = 133.24$ $p < 0.0001^*$
Males	714 (87.5%)	86 (10.5%)	16 (2.0%)	
Total	1,494 (73.9%)	419 (20.7%)	110 (4%)	

*The number of answers is smaller than the total number of respondents, because they did not always reply to all of the questions. Statistical significance at $p < 0.05$.

Place of consumption of meals

The analysis covered 5 main meals, with the indication of their consumption at home or outside home. The students ate breakfasts and suppers nearly exclusively at home, 96.0% and 93.8%, respectively (Table 2).

Approximately 70% of students consumed the remaining meals at home. Females significantly more often than males had breakfast at home, while males – the second breakfast – 77.1% and 65.9%, respectively. Considering the place of consumption of the remaining meals, i.e. dinner, afternoon snack and supper, no significant differences were observed.

Table 2. Place of consumption of meals by students from Ukraine, according to sex*

Where do you eat first breakfast?			
Sex	At home	Outside home	Statistics
Females	716 (97.0%)	22 (3.0%)	$X^2 = 4.43$ $p = 0.0352^*$
Males	498 (94.7%)	28 (5.3%)	
Total	1,214 (96.0%)	50 (4.0%)	
Where do you eat second breakfast?			
Sex	At home	Outside home	Statistics
Females	679 (65.9%)	351 (34.1%)	$X^2 = 25.77$ $p < 0.0001^*$
Males	560 (77.1%)	166 (22.9%)	
Total	1,239 (70.6%)	517 (29.4%)	
Where do you eat dinner?			
Sex	At home	Outside home	Statistics
Females	884 (70.7%)	366 (29.3%)	$X^2 = 0.77$ $p = 0.3811$
Males	554 (68.9%)	250 (31.1%)	
Total	1,438 (70.0%)	616 (30.0%)	
Where do you eat afternoon snack?			
Sex	At home	Outside home	Statistics
Females	704 (74.7%)	238 (25.3%)	$X^2 = 0.17$ $p = 0.6825$
Males	468 (73.8%)	166 (26.2%)	
Total	1,172 (74.4%)	404 (25.6%)	
Where do you eat supper?			
Sex	At home	Outside home	Statistics
Females	1,043 (93.5%)	73 (6.5%)	$X^2 = 0.52$ $p = 0.4707$
Males	756 (94.3%)	46 (5.7%)	
Total	1,799 (93.8%)	119 (6.2%)	

* The number of answers is smaller than the total number of respondents, because they did not always reply to all of the questions. Statistical significance at $p < 0.05$.

Behaviours related with nutrition

The analysis included five behaviours, which in as many as four cases significantly differentiated the attitudes of males and females. Females more often reported: avoidance of eating meals, and loss of control over eating – 29.8%, compared to 23.3% of their male colleagues (Table 3).

No significant differences were found only with respect to the irregularity of nutrition, which concerned 28.7% of females and 26.4% of males.

Also, females significantly more frequently than males provoked vomiting, 10.8% and 6.5%, respectively; however, these behaviours were relatively rare.

The results obtained indicate that the mode of nutrition in females is far from being the correct behaviour.

Table 3. Behaviours related with nutrition among Ukrainian students, according to sex

Loss of control over eating			
Sex	No	Yes	Statistics
Females	906 (70.2%)	385 (29.8%)	$\chi^2 = 11.00$ $p = 0.0009^*$
Males	640 (76.7%)	194 (23.3%)	
Total	1,546 (72.8%)	579 (27.2%)	
Fear of gaining weight			
Sex	No	Yes	Statistics
Females	1,004 (77.8%)	287 (22.2%)	$\chi^2 = 142.94$ $p < 0.0001^*$
Males	806 (96.6%)	28 (3.4%)	
Total	1,810 (85.2%)	315 (14.8%)	
Provoking vomiting			
Sex	No	Yes	Statistics
Females	1,152 (89.2%)	139 (70.8%)	$\chi^2 = 11.30$ $p = 0.0008^*$
Males	780 (93.5%)	54 (6.5%)	
Total	1,932 (90.9%)	193 (9.1%)	
Avoiding eating			
Sex	No	Yes	Statistics
Females	833 (64.5%)	458 (35.5%)	$\chi^2 = 108.20$ $p < 0.0001^*$
Males	710 (85.1%)	124 (14.9%)	
Total	1,543 (72.6%)	582 (27.4%)	
Irregular nutrition			
Sex	No	Yes	Statistics
Females	921 (71.3%)	370 (28.7%)	$\chi^2 = 1.31$ $p = 0.2516$
Males	614 (73.6%)	220 (26.4%)	
Total	1,535 (72.2%)	590 (27.8%)	

Statistical significance at $p < 0.05$.

Behaviours related with concern about own silhouette

It is commonly considered that especially women during the period of their youth, and certainly during the period of university studies, are particularly concerned about the appearance of their silhouette. Thus, there arises the question whether the behaviours of female students are accompanied by their attitudes promoting health. Unfortunately, this image is only half-way positive with respect to physical exercises performed in order to reduce body weight, which are applied by slightly more than a half of the students – 53.1% (Table 4).

In this respect, female students may be distinguished among whom as many as 71.3% took care of physical activity, and significantly more often appreciated the role of exercises in concern about body weight loss. Males, in concern about their silhouette, very frequently (64%) applied physical exercises to gain body weight, and their behaviours were significantly different from those of females. Only 15.8% of female students used physical exercises in order to gain body weight.

A positive phenomenon among both male and female students was a trace use of practices which are dangerous for the organism, i.e. the taking of weight loss drugs, weight gain medicines, laxatives, diuretics, and anabolic steroids.

The taking of weight loss drugs concerned 1.2% of males and 2.6% of females; taking diuretics – 1.4% and 2.9%, respectively; laxatives – 1.2% and 2.3%, and weight gain medicines – 6.5% and 0.5%. The indicator concerning the use of anabolic steroids was even lower – 1.9% of males and 0.4% of females (Table 4). Despite trace indicators of use of dangerous agents, females significantly more frequently than males used weight loss drugs and diuretics, whereas males – weight gain medicines and anabolic steroids.

Table 4. Behaviours related with concern about own silhouette by students from Ukraine, according to sex

Performance of physical exercises to lose weight			
Sex	No	Yes	Statistics
Females	370 (28.7%)	921 (71.3%)	$X^2 = 438.06$ $p < 0.0001^*$
Males	626 (75.1%)	208 (24.9%)	
Total	996 (46.9%)	1,129 (53.1%)	
Performance of physical exercises to gain weight			
Sex	No	Yes	Statistics
Females	1,089 (84.2%)	204 (15.8%)	$X^2 = 519.88$ $p < 0.0001^*$
Males	300 (36.0%)	534 (64.0%)	
Total	1,387 (65.3%)	738 (34.7%)	
Taking weight loss drugs			
Sex	No	Yes	Statistics
Females	1,258 (97.4%)	33 (2.6%)	$X^2 = 4.71$ $p = 0.0300^*$
Males	824 (98.8%)	10 (1.2%)	
Total	2,082 (98.0%)	43 (2.0%)	
Taking weight gain drugs			
Sex	No	Yes	Statistics
Females	1,285 (99.5%)	6 (0.5%)	$X^2 = 66.70$ $p < 0.0001^*$
Males	780 (93.5%)	54 (6.5%)	
Total	2,065 (97.2%)	60 (2.8%)	
Taking laxatives			
Sex	No	Yes	Statistics
Females	1,262 (97.8%)	29 (2.3%)	$X^2 = 3.08$ $p = 0.0790$
Males	824 (98.8%)	10 (1.2%)	
Total	2,086 (98.2%)	39 (1.8%)	
Taking diuretics			
Sex	No	Yes	Statistics
Females	1,254 (97.1%)	37 (2.9%)	$X^2 = 4.58$ $p = 0.0323^*$
Males	822 (98.6%)	12 (1.4%)	
Total	2,076 (97.7%)	49 (2.3%)	
Taking anabolic steroids			
Sex	No	Yes	Statistics
Females	1,286 (99.6%)	5 (0.4%)	$X^2 = 12.14$ $p = 0.0005^*$
Males	818 (98.1%)	16 (1.9%)	
Total	2,104 (99.0%)	21 (1.0%)	

Statistical significance at $p < 0.05$.

Discussion

The studies concerning the mode of nutrition of students, irrespective of the academic environment, revealed many abnormalities. One of the important issues of the equality of nutrition is the number and frequency of consumption of meals.

The Ukrainian adolescents in the study most often consumed three meals per day. Males significantly more frequently consumed four or more meals per day, and to a greater degree than females, ate two basic meals, i.e. breakfast and supper. No significant differences between sexes were found with respect to the consumption of dinner.

The number of meals consumed by the respondents was lower than that recommended by the Polish Institute of Food and Nutrition, which recommends five meals per day, but, simultaneously, indicates that this habit is observed by approximately 20% of Poles (Falkowska, 2000). The studies conducted among students of universities in Poznań (Karina, Rektor, 2005) showed that the dominant number of meals per day was three or four, which was more often reported by males, and is equivalent to the results obtained by the students from Ukraine. Different results concerning the regularity and preference of meals were obtained among students of various specialties at the Medical University in Lublin (Szponar, Krzyszycha, 2009). The dominant number of meals was from three to five per day, which was more frequently mentioned by females, who also significantly more often consumed breakfast every day. Other studies (Jasnos et al., 2003) confirmed that only 40% of female students regularly consume meals.

Female students from Ukraine do not significantly differ from their contemporaries with respect to behaviours related with nutrition. Females more often indicated the avoidance of eating, fear of gaining weight, and loss of control over eating, which may mean that their mode of nutrition is not proper. These behaviours are probably related with concern about own silhouette and wish to be attractive. It is commonly known that females, and certainly during the period of university studies, care about their silhouette. The image of female students from Ukraine is only half-way positive. More than a half of them perform exercises in order to reduce body weight. Studies among female students from the Medical University of Silesia (Jasnos et al., 2003) showed that more than a half of them applied weight loss diet at least once in their lives. In the case of males, they more often than their female colleagues applied exercises to gain weight. This was confirmed by the studies of Rasińska who found that the meals of the majority of female students were characterized by a low calorific value, which indicated a clear tendency towards slimming, also confirmed by other researchers (Jasnos et al., 2003; Wojciechów-Gazel Mickiewicz, Krzyśków, 2013). A positive phenomenon among male and female students is the trace usage of practices dangerous for the organism, such as the taking of weight loss drugs, weight gain medicines, laxatives, diuretics, and anabolic steroids. Despite the trace use of the above-mentioned agents, female students significantly more frequently consume weight loss drugs and diuretics, while males more often take medicines for gaining body weight and steroids. Studies conducted among students of the Medical University in Łódź (Łaszek, Nowacka, Gawron-Skarbek, Szatko, 2011) showed that only 0.7% of respondents regularly applied steroids. A very low percentage of males (2.8%), and only 0.4% of females admitted that they sporadically applied steroids.

Conclusions

1. Adolescents attending universities consumed breakfast and supper nearly exclusively at home. Females significantly more often consumed breakfast at home, whereas males – second breakfast.

2. Nearly a half of the students most frequently consumed three meals per day; nevertheless, males significantly more often ate more meals. No significant differences between sexes were found according to the consumption of dinners.

3. Significant differences were observed in the behaviours of students concerning nutrition. Females more often than males avoided eating, felt fear of gaining weight, lost control over eating, and provoked vomiting.

4. In concern about own silhouette, females significantly more often performed exercises in order to lose weight, while males in order to gain weight.

5. Trace use of medicines and other agents for improvement of the silhouette was observed. Only the taking of weight gain drugs was slightly higher, which was significantly more often noted in males.

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