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## ПОШИРЕНІСТЬ ЗДОРОВОГО СПОСОБУ ЖИТТЯ СЕРЕД УКРАЇНСЬКИХ СТУДЕНТІВ

Якименко І., Цибулін О., Шаповалов Є.

## HEALTHY LIFESTYLE BEHAVIORS AMONG UNIVERSITY STUDENTS IN UKRAINE

# H

Healthy lifestyle behaviors of young people influence their health during future life and thus affect public health of future generation of adults. Healthy lifestyle characteristics include nutritious diet, sufficient physical activity, non-smoking, alcohol restriction, safe sexual behavior, and behaviors that do not contribute to injuries [1]. Obviously, adherence to healthy lifestyle depends on socioeconomic factors, cultural background, age and gender of the individual. In 2015, the worldwide population of young people aged between 10 and 24 years is estimated to be about 1.8 billion, representing 25% of the global population [2]. The size of this part of population makes youth's health status important not only as a determinant of health of future adult generation, but also for global social

<sup>1</sup>YAKYMENKO I.,

<sup>2</sup>TSYBULIN O.,

<sup>1</sup>SHAPOVALOV YE.

<sup>1</sup>National University of Food Technologies, Kyiv, Ukraine  
<sup>2</sup>Bila Tserkva National Agrarian University, Bila Tserkva, Ukraine

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### РАСПРОСТРАНЕННОСТЬ ЗДОРОВОГО ОБРАЗА ЖИЗНИ СРЕДИ УКРАИНСКИХ СТУДЕНТОВ

<sup>1</sup>Якименко І., <sup>2</sup>Цыбулин А., <sup>1</sup>Шаповалов Е.

<sup>1</sup>Национальный университет пищевых технологий

<sup>2</sup>Белоцерковский национальный аграрный университет

**Цель работы.** Изучить приверженность студентов украинских университетов здоровому образу жизни.

**Материалы и методы.** Методом добровольного анонимного анкетирования проведена оценка приверженности студентов двух университетов киевского региона (n=211) здоровому способу жизни.

**Результаты.** Выявлено, что среди студентов возрастом от 17 до 21 года, излишний вес имеют 7,1% студентов, значительная часть молодежи, особенно парни (74,7%), систематически занимаются физическими упражнениями. Вместе с тем, 25,6% студентов курят и 61,6% употребляют алкоголь (хотя бы иногда). Менее половины опрошенных употребляют овощи и фрукты в достаточном количестве и молочные продукты ежедневно. Более 70% студентов допускают негативное влияние окружающей среды на их здоровье и признают недостаточное материальное обеспечение для лучшей приверженности здоровому способу жизни.

**Выводы.** В целом студенческая молодежь в Украине имеет большую приверженность к здоровому образу жизни, чем старшее поколение, но курение и потребление алкоголя остаются серьезной угрозой для ее здоровья.

**Ключевые слова:** здоровье, образ жизни, молодежь, окружающая среда, курение, алкоголь, питание, физические нагрузки.

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**ПОШИРЕНІСТЬ ЗДОРОВОГО СПОСОБУ ЖИТТЯ  
СЕРЕД УКРАЇНСЬКИХ СТУДЕНТІВ**

**<sup>1</sup>Якименко І., <sup>2</sup>Цибулін О., <sup>1</sup>Шаповалов Є.**

<sup>1</sup>Національний університет харчових технологій

<sup>2</sup>Білоцерківський національний аграрний  
університет

**Мета роботи.** Дослідити прихильність студентів українських університетів до здорового способу життя.

**Матеріали і методи.** Методом добровільного анонімного анкетування проведено оцінку прихильності студентів двох університетів київського регіону (n=211) до здорового способу життя.

**Результати.** Виявлено, що серед студентів віком 17-21 років надмірну вагу мають 7,1%, значна частина молоді, особливо хлопці (74,7%), систематично займаються фізичними вправами.

Разом з тим, 25,6% студентів палять і 61,6% вживають алкоголь (принаймні іноді). Менше половини опитаних студентів споживають фрукти та овочі у необхідній кількості та молочні продукти щодня. Понад 70% опитаних припускають негативний вплив довкілля на їхнє здоров'я та визнають недостатню матеріальну забезпеченість для кращої прихильності до здорового способу життя.

**Висновки.** Загалом студентська молодь в Україні має кращу прихильність до здорового способу життя, ніж старше покоління, але паління та вживання алкоголю залишаються серйозною загрозою для її здоров'я.

**Ключові слова:** здоров'я, спосіб життя, молодь, довкілля, паління, алкоголь, харчування, фізичне навантаження.

and economic development [3]. And analysis of healthy lifestyle behaviors in this cohort of population is closely connected to the issue. It is known, that healthy lifestyle behaviors significantly reduce the level of diseases and as a result decrease all-cause mortality of population [1]. On the other hand, unhealthy lifestyle behaviors such as bad dietary habits and a lack of physical activity are well known risk factors for cardiovascular disease, type 2 diabetes and some cancers [4].

Ukraine has one of the worst public health indices in the region [5]. The prevalence of poor health was previously reported to be much higher for young adults in the former Soviet Union regions than in Western Europe and North America (odds ratio 4.26, 95% CI 1.77–10.24) [6]. Indeed, according to the Parliament hearing in Ukraine, in 2011, 45% of young males and 35% of young females smoked; and 68% of boys and 64% of girls

drunk alcohol [7]. For comparison, in the USA, only 9.6% of adolescents aged 12-17 consume alcohol and 20% smoke, which resulted from rigorous public health efforts [8]. Meanwhile, we hardly can find modern data on health behaviors among Ukrainian university students as the most active and educated part of youth.

Our study aims to survey Ukrainian university students on their adherence to healthy lifestyle behaviors.

**Materials and methods.**

The survey was carried out during March-June 2016 among volunteer students at two universities of Kyiv region, central part of Ukraine. A printed questionnaire included 24 questions on age, gender, height and weight of individual, smoking, consumption of alcohol, consumption of fruits and vegetables, daily milk/dairy product consumption, having breakfast daily, using a computer and a cell phone, environmental impacts, and economic conditions of the individual.

Totally 237 students were surveyed, and 211 questionnaires (89.4%) were selected as filled in understandable without missing any questions. Thus, they were used for subsequent analysis.

Body mass index (BMI) was derived from weight and height of respondents according to the formula  $BMI = \text{Weight} / \text{Height}^2$  (kg/m<sup>2</sup>). The normal BMI was restricted in our analysis 18 to 25 kg/m<sup>2</sup> according to the World Health Organization (WHO) recommendations. Smoking was assessed in Yes/No question with additional question on quantity of cigarettes per day for those who smoked. Consumption of alcohol was assessed in Yes/No question with further specification for those who drink: less than 2 bottles of beer or 2 glasses of wine per week; more than that amount of alcohol per week; and more than that amount of alcohol per day. Proper fruit and non-starchy vegetable consumption was assessed as 400 g per day or more, according to the WHO

Table 1

**Healthy lifestyle behaviors among Ukrainian university students**

Indices	All students (n=211)		Females (n=104)		Males (n=107)		RR Females / Males	CI, 95%
	n	%	n	%	n	%		
Normal BMI	187	88,62	93	89,42	94	87,85	1,01	0,92 - 1,12
Non-smoking	157	74,4	85	81,73	72	67,28	1,21	1,03- 1,42
Non-drinking alcohol	81	38,38	51	49,03	30	28,03	1,74	1,21- 2,51
Rare drinking alcohol	98	46,44	49	47,11	53	49,53	0,96	0,73- 1,28
Proper physical activity	139	65,87	59	56,73	80	74,76	0,75	0,62- 0,92
Proper consumption of fruits and vegetables	100	47,39	64	61,53	37	34,57	1,77	1,31- 2,40
Daily milk/dairy products consumption	96	45,49	50	48,07	47	43,92	1,09	0,81-1,46
Daily breakfast	123	58,29	62	59,61	61	57,01	1,04	0,83-1,31

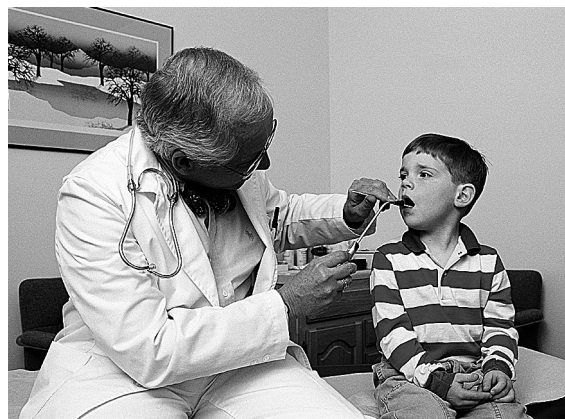
recommendations. Daily milk and dairy product consumption, and daily breakfast eating were estimated in Yes/No questions. Proper physical activity was recognized when individual spent at least 2.5 hours on physical exercises per week.

There were calculated total indices of surveyed population and assessed differences between gender subgroups, as well as between subgroups with normal BMI and those who overweight. Differences between subgroups were assessed due to relative risk approach (RR, CI 95%).

#### Results and discussion.

The students surveyed were 17-21 years old, 49.3% of females, mostly freshmen with biological or environmental science background. Most students had normal BMI (table 1), while 7.1% of them were overweight with BMI ranged from 25.1 to 32.1 kg/m<sup>2</sup>, and 4.3% were underweight with BMI ranged from 15.9 to 17.4 kg/m<sup>2</sup>. Overweight male students comprised 10.3% of male respondents and overweight female students comprised 3.8% of female respondents.

Three quarters of students did not smoke, and females smoked significantly less often than males, 19.3% against 32.7% (table 1). About half of females but only 28% of males did not consume alcohol at all. And about half of respondents, both young women and men consumed alcohol in amount less than 2 bottles of beers per week.



## ГІГІЕНА ДІТЕЙ ТА ПІДЛІТКІВ

Significantly more male students practiced proper physical activity than females, 74.8% against 56.7%, respectively. Instead, young women had almost twice higher percent of those who consumed proper amount of fruits and vegetables than young men. But totally only 47.5% of students consumed proper amount of fruits and vegetables daily. And only 45.5% of respondents consumed milk or dairy products daily. Daily breakfast had 58.3% of respondents.

As for the possible impact of modern technologies on students health, 45.1% of respondents talked on a cell phone up to 1 hour or more per day, and 58.5% of students used a computer up to 3 hours or more per day.

Among socio-economic aspects of respondents' health behaviors, there were discovered that 33.3% of students did not know about official healthy lifestyle recommendations, including the WHO recommendations. Significant part of respondents (77.1%) recognized that a bad physical environment could affect their

health, and 67.5% of them admitted that the Chernobyl accident / Chernobyl radiation could affect their health. And most students (70.4%) thought that they need better economic status for improving their healthy lifestyle adherence.

The analysis of healthy lifestyle indices in overweight cohort of students against their peers with normal BMI did not reveal statistically significant differences between two subgroups (table 2). Nevertheless, the subgroup of overweight students had twice less amount of individuals who did not drink alcohol at all and 31.5% less individuals with proper consumption of fruits and non-starchy vegetables.

Generally, our analysis demonstrated that Ukrainian university students have a broad variety in adherence to different healthy lifestyle characteristics. The positive indicator was a high level of young people with normal BMI. According to our findings, only 7.1% of respondents were overweight. This result corresponds to data of Tsos et al., 2014 [9], who found 8.7% of

**Health behaviors among overweight Ukrainian university students as compared with normal weight students**

Table 2

Indices	Overweight (n=15)		Normal weight(n=187)		RR	CI, 95%
	n	%	n	%		
BMI	25,1-32,1		18 - 25			
Non-smoking	11	73,33	139	74,33	0,98	0,71- 1,35
Non-drinking alcohol	3	20	75	40,1	0,49	0,17- 1,39
Rare drinking alcohol	9	60	83	44,38	1,35	0,86- 2,10
Proper physical activity	9	60	128	68,44	0,87	0,57- 1,34
Proper consumption of fruits and vegetables	5	33,33	91	48,66	0,68	0,32- 1,42
Daily milk/dairy products consumption	7	46,66	87	46,52	1	0,57 - 1,760
Daily breakfast	10	66,66	107	57,21	1,16	0,79- 1,70

overweight students in Ukraine in 2013. On the other hand, according to Chagarna and Andreeva, 2014 [10], the risk of overweight increased among older population in Ukraine. For example, in 2000, among those under 40 years old, 16% of men and 12% of women were overweight, while among 40 and more years old already 47% of men and 60% of women were overweight in Ukraine. Thus, the obvious problem here is to promote healthy lifestyle behaviors and control the BMI from young to older ages. Overweight and obesity is a serious health problem for many developed country nowadays. For example, in 2000 only 40% of adult Americans had normal weight [11], and according to 2003-2006's national survey only 15.6% Americans aged 20-39 had normal body fat percentage [12]. While Ukrainian population seems do not bear a pattern of obesity epidemic found in Western countries, the overweight of older people is a significant risk factor for the older population in the country.

Optimistic result of our analysis is a high percentage of male students practicing sufficient level of physical activity systematically, at least 2.5 h per week, while female population was significantly less physically active. These data differ from the findings of the other survey of 2000 [10], which indicated that about 71% of adult population in Ukraine did not practiced any physical activities. It seems that we need the urgent national strategy on promotion of proper physical activity among older people to keep positive trend among student youth.

Improper level of fruit and vegetable consumption among Ukrainian students obviously has both social and economic roots, as every third student did not know about healthy behavior recommendations and most of the respondents recognized their insufficient economic status for proper healthy lifestyle behaviors.

Comparatively low level of daily milk consumption among students combined with often insufficient consumption of fruits and vegetables, especially among young men, can lead to a significant restriction of student diet in important nutrients like vitamins, minerals and phytochemicals. Our findings demonstrate that Ukrainian students 17-21 years old share the problem of inadequate nutrition with European peers. For example, according to the HELENA study, adolescents from the EU cities aged 12.5-17.5 ate a half of the recommended amount of fruits and vegetables and less than two thirds of recommended amount of milk and dairy products [13].

Intensive usage of cell phones and computers by significant part of university students can contribute to their health risks as well. For example, previously we demonstrated that up to 40% of Ukrainian students had physical discomfort and/or pain in the head or ear during long-term cell phone talks [14].

Our analysis confirmed that smoking and drinking alcohol are serious risk factors for Ukrainian population. While surveyed students were only 17-21 years old, quarter of them smoked and almost two thirds consumed alcohol at least sometimes. Moreover, among male students 32.7% smoked and 72% consumed alcohol (at least up to two bottles of beer per week). For comparison, among adult population in Ukraine, 54.3% smoked and 79% consumed vodka (at least rare) in 2000 [10].

Our study has some limitations. As we used self-reported data, it could be some misinterpretations in the answers, eg,

students might overestimate or underestimate their daily portions of fruits and vegetables, or precise level of physical activity. Also, we did not assess the level of food insecurity as a lack of consistent access to healthy safe food among the students. For example, recently there was reported that up to 37% of American college freshmen can be classified as food-insecure [15]. We can't interpret if the low percentage of Ukrainian students with excessive weight was due to proper diet and sufficient physical activity or food insecurity/malnutrition contributed in the issue. These issues will be a next stage of our research.

Conclusions. Ukrainian university students have much better adherence to healthy lifestyle behaviors than adult population in Ukraine. Low percentage of overweight students (7.1%) and rather high level of physically active students, especially among males (74.7%) are optimistic tendencies.

On the other hand, 25.6% of students smoked and 61.6% consumed alcohol (at least rare). Only 47.4% of surveyed students consumed sufficient amount of fruits and vegetables and only 45.5% consumed milk and dairy products daily. Most students recognized negative impacts of the physical environment, including Chernobyl radiation, on their health, and assumed their insufficient economic status for better adherence to healthy lifestyle.

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