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ORIGINAL

Health behaviors in early adulthood

Authors' Contribution:
A Study Design
B Data Collection
C Statistical Analysis
D Data Interpretation
E Manuscript Preparation
F Literature Search
G Funds Collection

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abstract

Background During the early adulthood health promoting behaviors are created, but also risky behaviors increase. The research of health behavior is believed to be currently a valid method for estimating the health status of the population. The purpose of the research was to evaluate the health behaviors of young adults studying at various courses in Bydgoszcz universities.

Material/Methods The study involved 313 people studying in the fields of health and engineering. The study used the Inventory of Health Behaviors (IoHB) by Z. Juczyński.

Results Throughout the treatment group an average level of health-related behavior was shown. The highest level of health-related behavior has been shown in a group of students of Nutrition, the lowest in the group of students of Construction. The results of the students related to health were higher than the results of engineering courses. The women's results were higher than men's results.

Conclusions Special attention should be paid to health education of young people in order to form proper pro-health attitudes.

Key words health behaviors, early adulthood

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INTRODUCTION

The need to care for public health has become a goal of the Polish National Health Program for 2016–2020 [1]. The operational objectives of the program include:

- improving a diet, nutritional status and physical activity;
- prevention and resolution of problems related to the use of psychoactive substances, behavioral addictions and other risky behaviors;
- prevention of mental health problems and improving the well-being of the public;
- promotion of healthy and active ageing.

The research of health behavior is believed to be currently a valid method to measure the health status of the population. It is also an important element in the planning and evaluation of the health promotion and health education programs.

Early adulthood is a period when people reach their peak physical and psychosocial development [2]. At the same time, this is the period when young people are exposed to stressful situations, often leading to the states of neurotic disorders and depression [3–5]. This may involve the fact that at that time there are numerous internal conflicts and new stressful situations (launch of studies, a new peer group, taking up the first job) for a young adult [6]. During this period, they perpetuate the health promoting behaviors as well as the anti-health behaviors which in some young people, after a phase of experimentation, consolidate. Then they decide whether in the adult life the behaviors risky to their health will remain.

THE AIM OF THE STUDY

The purpose of the research was to evaluate the health behaviors of young adults studying at various courses in universities in Bydgoszcz. The second aim of the research was to state whether the level of health behaviors differentiates students of the courses related to health in comparison to students of engineering courses. A comparison of the level of women's health-related behaviors with those of men was also carried out.

MATERIAL AND METHODS

The study involved 313 people (159 women and 154 men), at the age of 21 to 27 years old, studying in the fields of health (Physiotherapy, Nutrition, Public Health, Cosmetology) and engineering courses (Logistics, Construction, National Security). The research was carried out with use the Inventory of Health Behavior (IoHB) by Zygfryd Juczyński (in Polish: Inwentarz Zachowań Zdrowotnych IZZ). IoHB consists of 24 statements that describe any kind of behavior related to health [7]. The numerical values are counted in order to obtain the overall rate of health behaviors. These values range from 24 to 120 points. The higher the score, the higher the intensity of the behavior. The raw results are calculated into standardized sten standards: sten 1–4 – low results; sten 5–6 – average results; 7–10 sten – high scores. Apart from such an interpretation, the severity of the 4 categories of health behaviors is separately calculated:

- PNH – proper nutrition habits – a type of food eaten;
- PB – prophylaxis behavior – adherence to health recommendations, obtaining information about health and disease;
- PPA – positive psychological attitude – avoiding too strong emotions, stress, tension and depressing situations;
- HP – health practices – daily habits, physical activity, sleep, rest.

The maximum amount of points that can be obtained in a particular category of health-related behavior is 5. Statistical analysis was performed using the software PQStat, version 1.4.6. In the statistical analysis the descriptive statistics, parametric and non-parametric tests were used. The normality of the distribution of the variables was verified using the Shapiro–Wilk test. In order to compare results between the six groups, the Anova test was used for independent groups; in order to compare the results between the two groups – Student's t-test was used for the independent groups. The significance level $\alpha = 0.05$ was adopted.

RESULTS

Table 1 shows the descriptive statistics for the results of the questionnaire IoHB across the whole tested group.

Table 1. The descriptive statistics for the results of the questionnaire IoHB across the whole tested group

Variable	Descriptive statistics				
	n	$\bar{x}$	SD	Min.	Max
IoHB – sten	313	6.18	2.13	1	10
IoHB – proper nutrition habits	313	3.21	0.54	1.67	4.83
IoHB – prophylaxis behavior	313	3.02	0.61	1.33	4.50
IoHB – positive psychological attitude	313	3.12	0.66	1.50	5.00
IoHB – health practices	313	2.95	0.55	1.83	4.50

n – number of observations; $\bar{x}$ – arithmetic average; Min – minimum; Max – maximum; SD – standard deviation

In the next stage, a comparison of the results of the questionnaire IoHB – sten between students of various courses was made. The results are presented in Table 2.

Table 2. Statistical analysis of the results of the questionnaire IoHB – sten between students of individual fields of study

Variable		Descriptive statistics					Anova test	
		n	$\bar{x}$	SD	Min.	Max	F statistic	p
IoHB-sten	Dietetics	43	8.34	0.89	7	10	36.493439	0.00001
	Cosmetology	38	8.02	1.40	4	10		
	Public Health	46	7.02	1.74	3	10		
	Physiotherapy	50	6.64	1.85	3	10		
	Logistics	50	5.94	1.81	3	10		
	National Security	41	4.60	1.65	1	8		
	Construction	45	4.46	1.82	1	7		

n – number of observations; $\bar{x}$ – arithmetic average; Min – minimum; Max – maximum; SD – standard deviation

By comparing the p-value test of Anova based on statistics (F) with the level of significance $\alpha = 0.05$, it was found that there is a statistically important difference in the results of the questionnaire IoHB – sten between the treatment groups.

Table 3 shows the comparison of the results of the questionnaire IoHB – sten between the students of health-related courses and engineering students.

Table 3. The comparison of the results of the questionnaire IoHB – sten between the students of health-related courses and engineering students

Variable		Descriptive statistics					t-Student	
		n	$\bar{x}$	SD	Min	Max	t statistic	p
IoHB – sten	health-related fields of study	177	6.76	1.74	3	10	6.748476	0.00001
	engineering courses	136	5.32	2.01	1	10		

n – number of observations; $\bar{x}$ – arithmetic average; Min – minimum; Max – maximum; SD – standard deviation

By comparing the p-value Student's t-test based on the statistics of the t with the level of significance $\alpha = 0.05$, it was found that there is a statistically important difference in the results of the questionnaire IoHB –sten between students of health-related courses and engineering students.

The final stage of the research was to compare the results of the questionnaire IoHB – sten between women and men. The results are presented in Table 4.

Table 4. A comparison of the results of the questionnaire IoHB – sten between women and men

Variable		Descriptive statistics					t-Student	
		n	$\bar{x}$	SD	Min.	Max	t statistic	p
IoHB – sten	Women	159	6.44	1.63	3	10	2.757298	0.006173
	Men	154	5.91	1.84	1	10		

n – number of observations; $\bar{x}$ – arithmetic average; Min – minimum; Max –maximum; SD – standard deviation

By comparing the p-value Student's t-test based on statistics (t) with the level of significance $\alpha = 0.05$, it was found that there is a statistically important difference in the results of the questionnaire IoHB – sten between the women and men.

DISCUSSION

In this study, the level of health-related behavior among young adults (21–27 years old) was estimated using the Inventory of Health Behaviors (IoHB) by Z. Juczyński [7]. Throughout the study group an average level of health-related behavior was shown (6.18 sten). In analysis of the different categories of health-related behaviors also average results were obtained – the highest score was obtained in the category of "proper nutrition habits" (3.21), and the lowest one in the category "health practices" (2.95).

The diet, next to physical activity, is the most important determinant of human health. Nowadays healthy eating is getting more and more fashionable. Preparing a healthy meal has become less laborious due to the availability

of many food products. Many retail chains have introduced healthy food sections; advertising campaigns are run in the media, and there are numerous shows propagating, inter alia, the principles of healthy nutrition. On the other hand, "fast food" networks are still very popular, unfortunately, mostly visited by young people. The determinants of rational nutrition are, inter alia: the number and regularity of meals, a balanced diet, the quality of food products, appropriate time intervals between meals. The principles of healthy eating have evolved over the years. Since 1992, these principles were presented in so-called "pyramids of nutrition". The current version from 2016 is called "the pyramid of nutrition and physical activity" – stressing the role of physical activity in a healthy lifestyle. In this study, physical activity falls in the category "health practices", in which the test group received the lowest scores. The research clearly shows that moderate activity prevents cardiovascular diseases, promotes a reduction of cholesterol and lipid stabilization, has a beneficial effect on the relief of symptoms of depression and anxiety, and improves mental and emotional well-being as a result of increased levels of endorphins in blood [8–13].

In the tested group, average results were also obtained in the category "positive psychological attitude" (3.12), which involves avoiding too many emotions, stress, tension and depressing situations. Many epidemiological studies on the state of mental health prove that the number of young people suffering from mental problems – those related to the pace of life, stress and emotional problems – is growing rapidly in the world [14–17].

Because the tested group comprised students of higher education from Bydgoszcz, the aim to answer the question whether the level of health behaviors differentiates health-oriented students from engineering students was also achieved. The highest level of health behaviors has been shown in students of Dietetics (8.34 sten) and further in students of Cosmetology (8.02 sten), Public health (7.02 sten), Physiotherapy (6.64 sten). Significantly lower results were achieved in engineering students – Construction (4.46 sten), National Security (4.60 sten), Logistics (5.94). Similar results were obtained in our previous studies [18, 19] and studies of other authors [20–24]. The higher level of health behavior in the group of health-oriented students raises the question whether this result is a consequence of the study program, or vice versa – young people with more awareness of health behaviors choose the appropriate fields of study. For this purpose, it would be advisable to conduct diachronic research consisting in the examination of students of the first year and repeating the study during the last year at the university.

In this study, the level of health-related behavior of women and men was also compared. Significant statistical differences have been shown – women's results were higher than the results of men. Similar results can be found in the literature of the subject. Studies show that women care more about their health and undertake preventive behaviors [25–27].

CONCLUSIONS

1. The average level of health behaviors was demonstrated in the whole research group.
2. Students from majors related to health demonstrated significantly higher levels of health behaviors compared to engineering students.
3. The results for women were higher than men's results.
4. Special attention should be paid to health education of young people in order to form proper pro-health attitudes.

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