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Students' health behaviors – own research
Zachowania zdrowotne studentów – badania własne

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Summary

Introduction
Life style is the main health determiner. Early adulthood is the best period for achieving long-term advantages by choosing healthy life style. However, the results of the research concerning health behaviours of the young people done in Poland and in the world are not satisfactory.
The aim of the study
The aim of the research paper was to evaluate health behaviors among the young people studying on various courses at one of the universities in Bydgoszcz. The aim of the research was also to state whether there is any difference between health behaviors of the students studying on medical courses and non-medical ones and whether there is a difference in health behaviours among women and men.
Material and Methods
150 students (82 women and 68 men) from the University of Bydgoszcz studying: Physiotherapy, Dietetics and Logistics were examined. The research was done with use the Inventory of Health Behavior (IoHB) by Juczyński. Statistical analysis was done with the package PQStat package version 1.4.8.
Results
An average IoHB result for the entire examined group amounts to 6.96 sten which forms the border between results medium and high. The best IoHB questionnaire results were obtained in the category "proper nutrition habits", the worst in the category "health practices".
Conclusions
There is a need for further research concerning health habits among the young people and dissemination of health promotion programs at all educational levels.

Key words: health behaviors, students.

Streszczenie

Wstęp
Styl życia jest głównym determinantem zdrowia. Wczesna dorosłość jest najlepszym okresem dla osiągnięcia długotrwałych korzyści z wyboru zdrowego trybu życia. Jednakże wyniki badań dotyczących zachowań zdrowotnych młodzieży prowadzonych w Polsce i na świecie nie są zadawalające.
Cel badań
Celem pracy była ocena zachowań zdrowotnych młodzieży studiującej w jednej z bydgoskich szkół wyższych na różnych kierunkach studiów. Badania miały także na celu określenie, czy istnieje różnica w zachowaniach zdrowotnych studentów studiujących na kierunkach medycznych i niemedycznych oraz czy istnieje różnica w zachowaniach zdrowotnych między kobietami i mężczyznami.
Materiał i Metody
Badaniami objęto 150 studentów (82 kobiety i 68 mężczyzn) z Bydgoskiej Szkoły Wyższej studiujących na kierunkach: Fizjoterapia, Dietetyka i Logistyka. Do badań wykorzystano Inwentarz zachowań zdrowotnych (IZZ) Zygfryda Juczyńskiego. Analizę statystyczną przeprowadzono wykorzystując pakiet PQStat wersja 1.4.8.

Wyniki
Średni wynik kwestionariusza IZZ dla całej badanej grupy wynosi 6,96 sten, co stanowi granicę między wynikami średnimi i wysokimi. Najlepsze wyniki kwestionariusza IZZ uzyskali studenci Dietetyki, najgorsze studenci Logistyki. W całej badanej grupie najlepsze wyniki uzyskano kategorii „prawidłowe nawyki żywieniowe", najgorsze w kategorii „praktyki zdrowotne".
Wnioski
Istnieje potrzeba dalszych badań zachowań zdrowotnych młodzieży i upowszechniania programów promocji zdrowia na wszystkich etapach edukacji.

Słowa kluczowe: zachowania zdrowotne, studenci.

Introduction

Human health means well-being in terms of bio-psycho-social spheres. In the 70s of the 20th century M. Lalond presented a theory of "health fields" which constitutes four main factors conditioning health. The factors include the following [1]:

- life style, pro- and anti- health behaviours (50- 52%);
- physical environment, environment micro-climate, clean water, noise, proper humidity, temperature, pollution (20%);
- genetic predispositions (20%);
- health care organization and its functioning, accessibility and quality of provided medical services (10- 15%).

According to this concept life style becomes the main health determiner. According to the strategy prepared by WHO for the European region lifestyle is "a way of life based on mutual relation between conditions of life in a broad sense and individual patterns of behaviors determined by social and cultural factors as well as individual features" [2]. Early adulthood is the best period for achieving long-term advantages for choosing a healthy lifestyle [3]. However, the results of the research concerning health behaviours of the young people done in Poland and in the world are not satisfactory. Young people do sports less often, make numerous nutrition mistakes, take stimulants, and take risks in terms of love life [4,5]. In connection with the aforementioned this seems appropriate to implement intensive actions in terms of health education starting from the primary school and finishing at the university level. University courses focusing on medical professions offer in their syllabuses subjects connected with health promotion and health education. However, they are not implemented on the courses connected with medicine.

The aim of the study

The aim of the research paper was to evaluate health behaviors among the young people studying on various courses at one of the universities in Bydgoszcz. The aim of the research was also to state whether there is any difference between health behaviors of the students

studying on medical courses and non-medical ones and whether there is a difference in health behaviours among women and men.

Materials and Methods

Material

150 students (82 women and 68 men) from University of Bydgoszcz took part in the research:

Group I (n=50) – students of Physiotherapy (35 women, 15 men);

Group II (n=50) – students of Dietetics (37 women, 13 men);

Group III (n=50) – students of Logistics (10 women, 40 men).

Research tools

The research was done with the use of the Inventory of Health Behaviours (IoHB) by Juczynski. The questionnaire consists of 24 statements describing various types of behaviours connected with health (nutrition habits, prophylaxis behavior, positive attitudes, health practices). The general indicator for the increase of health behavior measured with the IoHB scale is placed between 24 and 120 points. The number of points received was converted into the sten scale (Standard Ten Scale) and interpreted in the following categories: low (1-4 stens), average (5-6 stens) and high results (7-10 stens) [6].

Statistical methods

Statistical analysis was performed on the basis of the PQStat package version 1.4.8. The examined variables were presented in a form of descriptive statistics (arithmetical average, median, minimum, maximum, standard aberration). The schedule of variables was checked with the Lillefors test. The results from three groups were compared with the Anova (Kruskal-Wallis) test at the significance level $\alpha = 0,05$. The results from two groups were compared with the t – Student test for independent groups with the significance level $\alpha = 0,05$. The results were presented in a form of charts.

Results

The average result for the IoHB questionnaire for the entire group amounts 6.96 sten which constitutes the upper limit for average results.

While analyzing individual categories of health behaviors in the entire group the results are presented in the following way:

Proper nutrition habits - (PNH) (the average from points gained in questions 1,5,9,13,17,21) – 3.15.

Prophylaxis behavior – (PB) (the average from points gained in questions 2,6,10,14,18,22) – 3.09.

Positive psychological attitude – (PPA) (the average from points gained in questions 3,7,11,15,19,23) – 2.98.

Health practices – HP (the average from points gained in questions 4,8,12,16,20,24) – 2.95.

Graphic interpretation of the results is presented in the Figure 1.

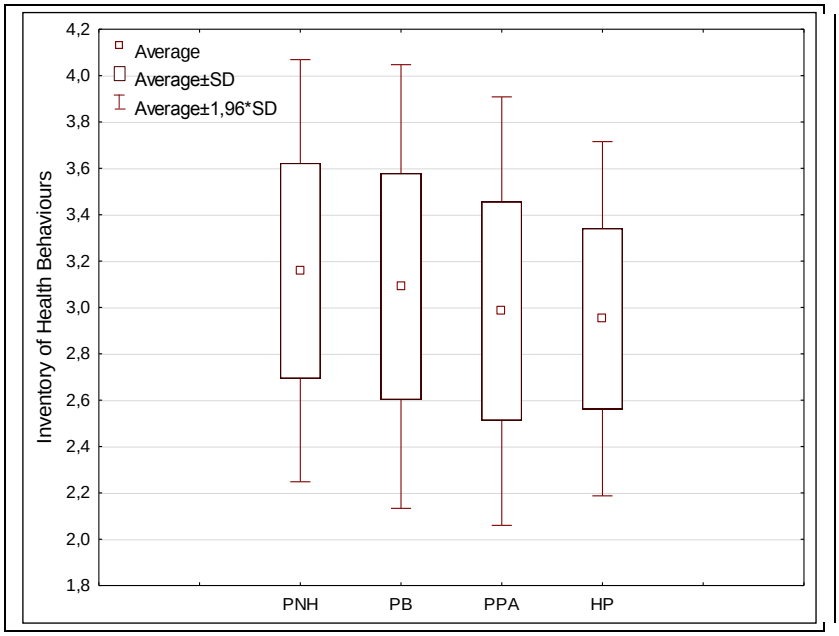

Figure 1. Results of individual health behaviours categories in the entire examined group
PNH - Proper nutrition habits, PB - Prophylaxis behavior, PPA - Positive psychological attitude, HP - Health practices

The results of the research for individual groups are presented in the following way:

Average result for IoHB questionnaire for students of **Physiotherapy** amounts 6.64 sten which constitutes the upper limit for average results.

Average result for IoHB questionnaire for students of **Dietetics** amounts 8.32 sten which constitutes a high result.

Average result for IoHB questionnaire for students of **Logistics** amounts 5.94 sten which constitutes an average result.

Graphic interpretation of the results is presented in the Figure 2.

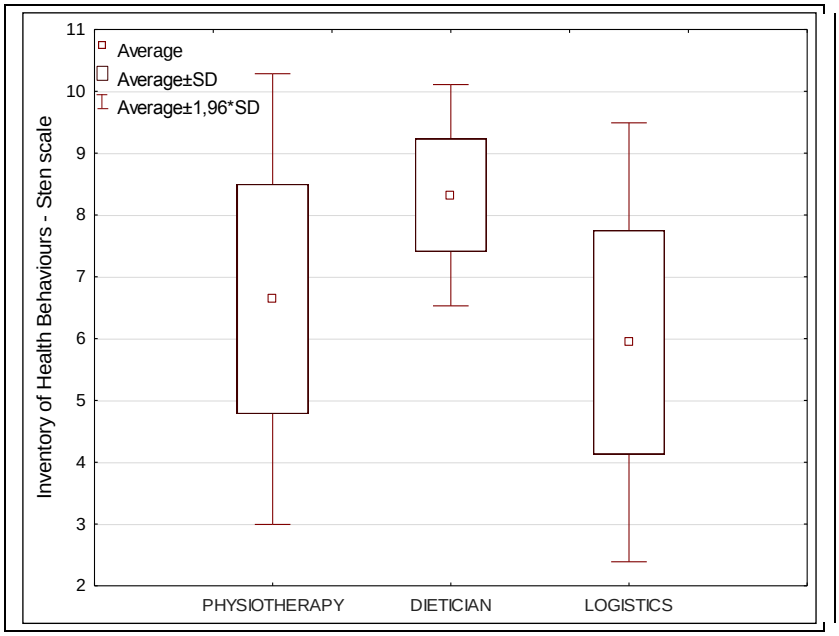

Fig.2. Average sten values for IoHB questionnaire for individual groups of students

While analyzing individual categories of health behaviors in the group of **Physiotherapy** students the results are presented in the following way:

Proper nutrition habits - (PNH) (the average from points gained in questions 1,5,9,13,17,21) – 3.41.

Prophylaxis behavior – (PB) (the average from points gained in questions 2,6,10,14,18,22) – 3.30.

Positive psychological attitude – (PPA) (the average from points gained in questions 3,7,11,15,19,23) – 3.21.

Health practices –(HP) (the average from points gained in questions 4,8,12,16,20,24) – 2.97.

Graphic interpretation of the results is presented in the Figure 3.

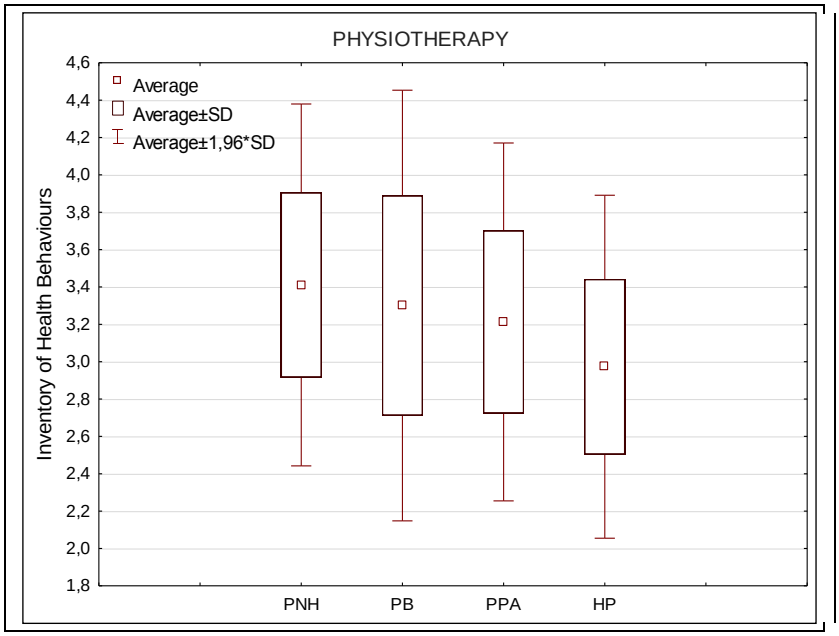

Fig. 3. Results of individual health behaviours categories for Physiotherapy students PNH - Proper nutrition habits, PB - Prophylaxis behavior, PPA - Positive psychological attitude, HP - Health practices

While analyzing individual categories of health behaviors in the group of **Dietetics** students the results are presented in the following way:

Proper nutrition habits - (PNH) (the average from points gained in questions 1,5,9,13,17,21) – 3.25.

Prophylaxis behavior – (PB) (the average from points gained in questions 2,6,10,14,18,22) – 3.18.

Positive psychological attitude – (PPA) (the average from points gained in questions 3,7,11,15,19,23) – 3.04.

Health practices – (HP) (the average from points gained in questions 4,8,12,16,20,24) – 3.04.

Graphic interpretation of the results is presented in the Figure 4.

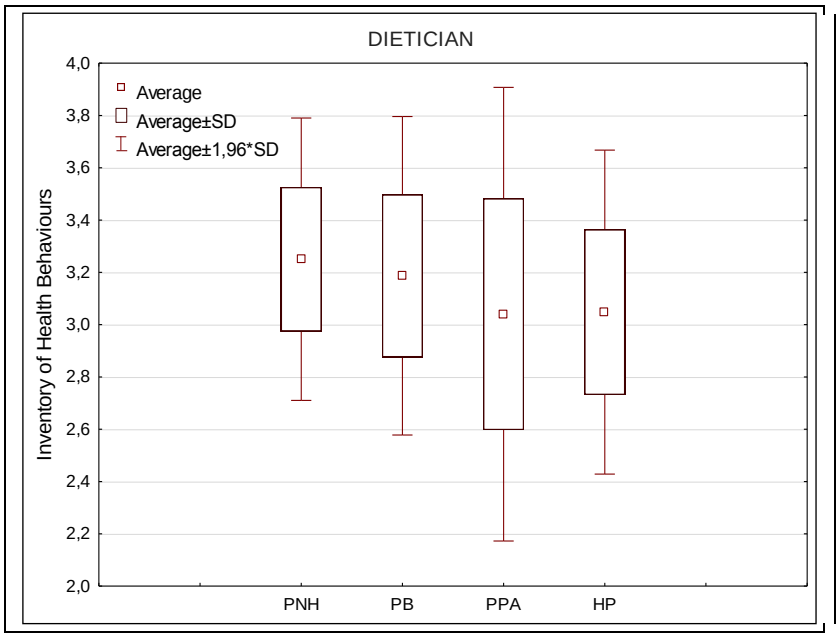

Fig. 4. Results of individual health behaviours categories for Dietetics students PNH - Proper nutrition habits, PB - Prophylaxis behavior, PPA - Positive psychological attitude, HP - Health practices

While analyzing individual categories of health behavior in the group of **Logistics** students the results are presented in the following way:

Proper nutrition habits - (PNH) (the average from points gained in questions 1,5,9,13,17,21) – 2.81.

Prophylaxis behavior – (PB) (the average from points gained in questions 2,6,10,14,18,22) – 2.78.

Positive psychological attitude – (PPA) (the average from points gained in questions 3,7,11,15,19,23) – 2.69.

Health practices – (HP) (the average from points gained in questions 4,8,12,16,20,24) – 2.83.

Graphic interpretation of the results is presented in the Figure 5.

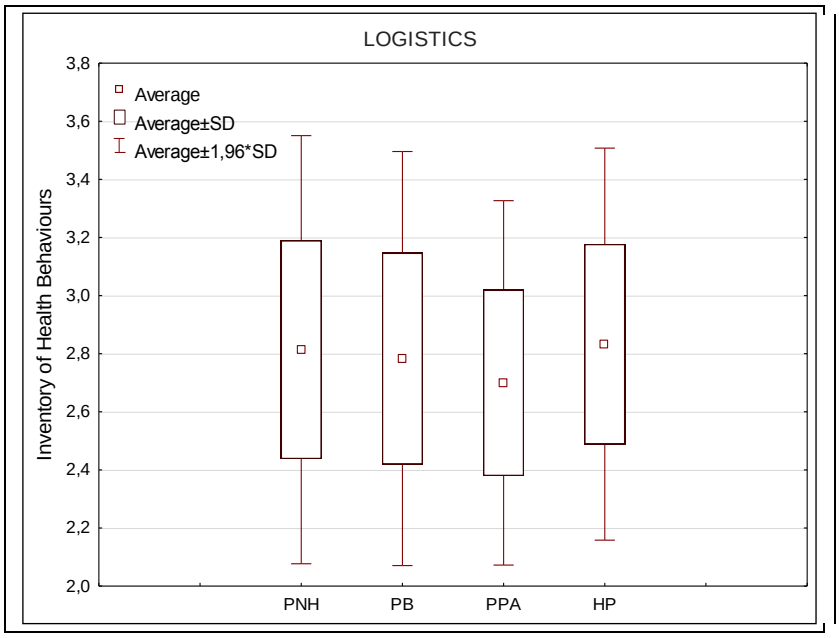

Fig. 5. Results of individual health behaviours categories for Logistics students PNH - Proper nutrition habits, PB - Prophylaxis behavior, PPA - Positive psychological attitude, HP - Health practices

The next stage refers to the comparison of the IoHB questionnaire results among the examined groups.

Tab. I. Descriptive statistics and comparison of the IoHB questionnaire results among the examined groups

Variable	N (group numerical amount	Descriptive statistics							ANOVA – KRUSKAL-WALLIS	
		Arithmetic average	Standard deviation	Minimum	Lower quartile	Median	Upper quartile	Maximum	Statistics H	p
IoHB - sten PHYSIOTHERAPY	50	6.64	1.85	3	5.25	7	8	10	45.795	0.00001
IoHB – sten DIETETICS	50	8.32	0.91	6	8	8	9	10		
IoHB – sten LOGISTICS	50	5.94	1.81	3	5	6	7	10		

While comparing the values of $p < 0{,}00001$ in the Anova (Kruskal-Wallis) test based on the statistics H with the significance level $\alpha = 0.05$ it was stated that there is a statistically significant difference in the results for the IoHB questionnaire among the examined groups. The best results were obtained for the Dietetics students and the worst for the Logistics students.

Graphic interpretation of the results is presented in the Figure 6.

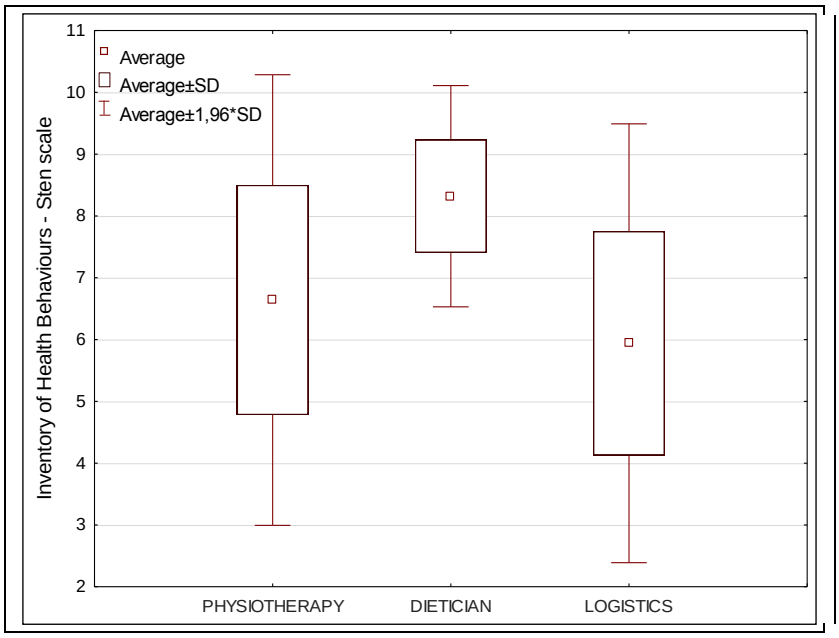

Fig. 6. Comparison the IoHB questionnaire results among the examined groups

Analysis for the IoHB questionnaire results for women and men.

Tab. II. Descriptive statistics and comparison of the IoHB questionnaire results among women and men in the entire examined group

Variable	N (group numerical amount)	Descriptive statistics							t-Student for independent groups	
		Arithmetical average	Standard deviation	Minimum	Lower quartile	Median	Upper quartile	Maximum	Statistics t	p
IoHB – sten WOMEN	82	7.48	1.64	3	7	8	9	10	3.925	0.000132
IoHB – sten MEN	68	6.33	0.91	3	5	7	8	10		

While comparing the value of p = 0,000132 in the t – Student test for independent groups based on the statistics t with the significance level α =0.05 it was stated that there is a statistically significant difference in the results for IoHB questionnaire among women and men in the entire examined group. Women obtained better results than men.

Graphic interpretation of the results is presented in the Figure 7.

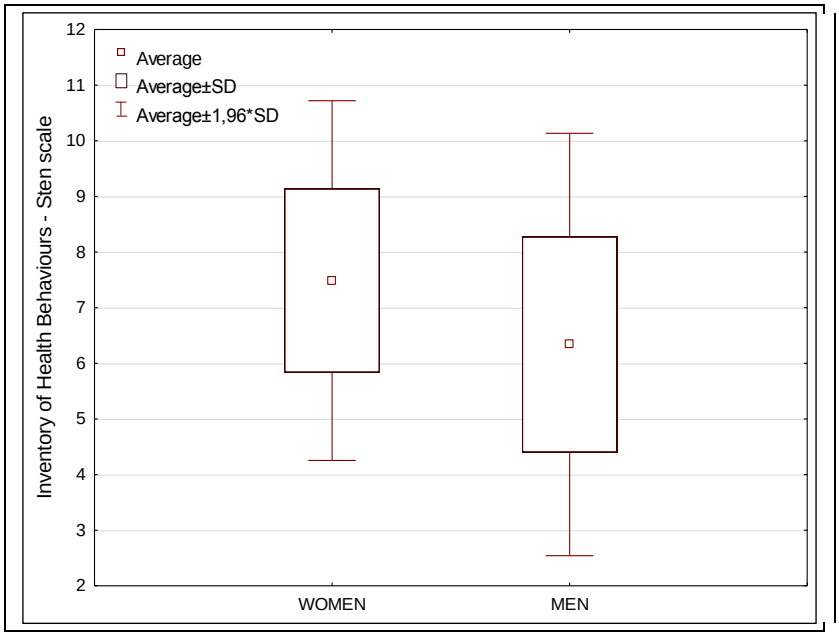

Fig. 7. Comparison of the IoHB questionnaire results among women and men in the entire examined group

The next stage refers to the analysis of individual categories of the IoHB questionnaire among the examined groups.

Tab. III. Descriptive statistics and comparison of the IoHB questionnaire – category: „PNH -proper nutrition habits" among the examined groups

Variable	N (group numerical amount)	Descriptive statistics							ANOVA – KRUSKAL-WALLIS	
		Arithmetical average	Standard deviation	Minimum	Lower quartile	Median	Upper quartile	Maximum	Statistics H	p
IoHB (PNH) PHYSIOTHERAPY	50	3.41	0.49	2.33	3.33	3.33	3.5	4.83	47.160	0.000001
IoHB (PNH) DIETETICS	50	3.25	0.27	2.33	3.16	3.33	3.33	3.66		
IoHB (PNH) LOGISTICS	50	2.81	0.37	2	2.66	2.83	3	3.5		

While comparing the values of $p < 0{,}00001$ in the Anova (Kruskal-Wallis) test based on the statistics H with the significance level $\alpha = 0.05$ it was stated that there is a statistically significant difference in the results for IoHB: Proper Nutrition Habits questionnaire among the examined groups. The best results were obtained for the Physiotherapy students and the worst for the Logistics students.

Graphic interpretation of the results is presented in the Figure 8.

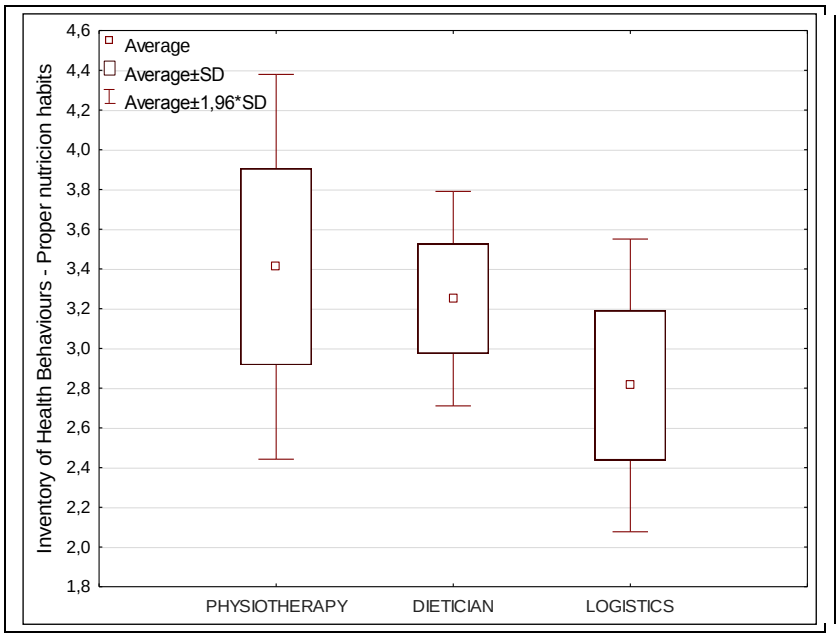

Fig. 8. Comparison of the IoHB questionnaire results: Proper Nutrition Habits in the examined group

Tab. IV. Descriptive statistics and comparison of the IoHB questionnaire – category: „PB - prophylaxis behaviour" in the examined groups

Variable	N (group numerital amount)	Descriptive statistics							ANOVA – KRUSKAL-WALLIS	
		Arythmetical average	Standard deviation	Minimum	Lower quartile	Median	Upper quartile	Maximum	Statistics H	p
IoHB (PB) PHYSIOTHERAPY	50	3.30	0.58	2.33	2.83	3.24	3.83	4.33	30.757	0.000001
IoHB (PB) DIETETICS	50	3.18	0.31	2.33	3	3.16	3.33	3.83		
IoHB (PB) LOGISTICS	50	2.78	0.36	2	2.5	2.83	3	3.66		

While comparing the values of $p < 0{,}00001$ in the Anova (Kruskal-Wallis) test based on the statistics H with the significance level $\alpha = 0.05$ it was stated that there is a statistically significant difference in the results for the IoHB: Prophylaxis Behaviour questionnaire in the examined groups. The best results were obtained for the Physiotherapy students and the worst for the Logistics students.

Graphic interpretation of the results is presented in the Figure 9.

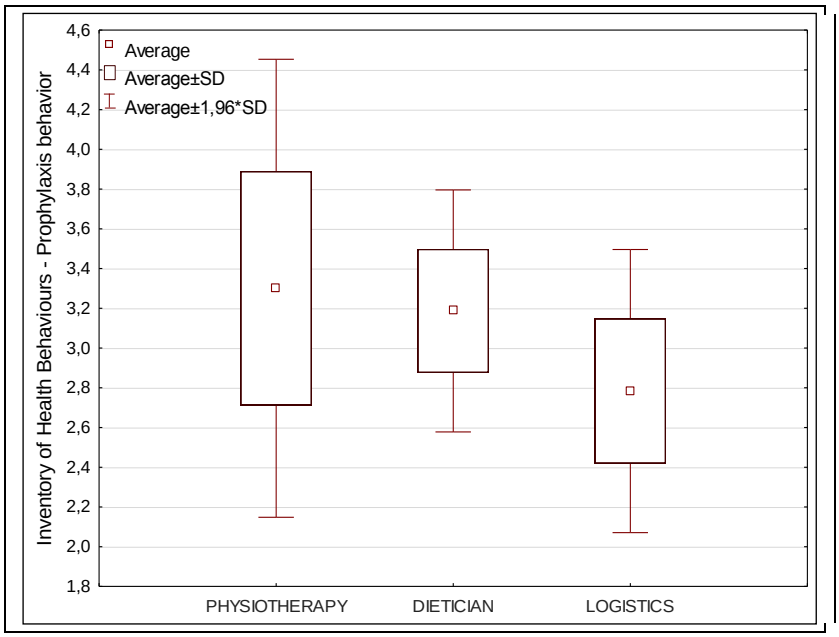

Fig. 9. Comparison of the IoHB questionnaire results: Prophylaxis behaviour in the examined group

Tab. V. Descriptive statistics and comparison of the IoHB questionnaires – category: „PPA - positive psychological attitude" in the examined groups

Variable	N (group numerical amount)	Descriptive statistics							ANOVA – KRUSKAL-WALLIS	
		Arithmetical average	Standard deviation	Minimum	Lower quartile	Median	Upper quartile	Maximum	Statistics H	p
IoHB (PPA) PHYSIOTHERAPY	50	3.21	0.48	2.5	2.83	3.16	3.5	4.33	28.886	0.000001
IZZ (PPA) DIETETICS	50	3,.04	0.44	2.16	2.70	3	3.33	3.83		
IZZ (PPA) LOGISTICS	50	2.69	0.32	1.83	2.5	2.74	2.83	3.33		

While comparing the values of $p < 0{,}00001$ in the Anova (Kruskal-Wallis) test based on the statistics H with the significance level $\alpha = 0.05$ it was stated that there is a statistically significant difference in the results for IoHB: Positive Psychological Attitude questionnaire in the examined groups. The best results were obtained for the Physiotherapy students and the worst for the Logistics students.

Graphic interpretation of the results is presented in the Figure 10.

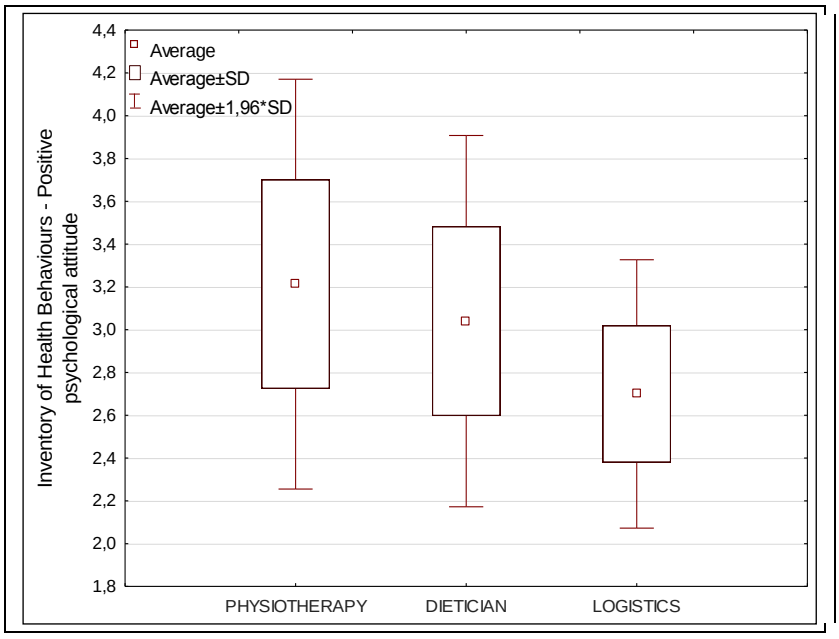

Fig. 10. Comparison of the IoHB questionnaire results: Positive Psychological Attitude in the examined group

Tab. VI. Descriptive statistics and comparison of the IoHB questionnaire – category: „HP -health practices" in the examined groups

Variable	N (group numerical amount)	Descriptive statistics							ANOVA – KRUSKAL-WALLIS	
		Arithmetical average	Standard deviation	Minimum	Lower quartile	Median	Upper quartile	Maximum	Statistics H	p
IoHB (HP) PHYSIOTHERAPY	50	2.97	0.468	2.16	2.66	3	3.16	4.5	8.903617	0.011657
IoHB (HP) DIETETICS	50	3.04	0.316	2.33	2.83	3	3.16	4		
IoHB (HP) LOGISTICS	50	2.83	0.344	1.83	2.66	2.83	3	3.8		

While comparing the values of p = 0,011657 in the Anova (Kruskal-Wallis) test based on the statistics H with the significance level α =0.05 it was stated that there is a statistically significant difference in the results for IoHB: Health Practices questionnaire in the examined groups. The best results were obtained for the Dietetics students and the worst for the Logistics students.

Graphic interpretation of the results is presented in the Figure 10.

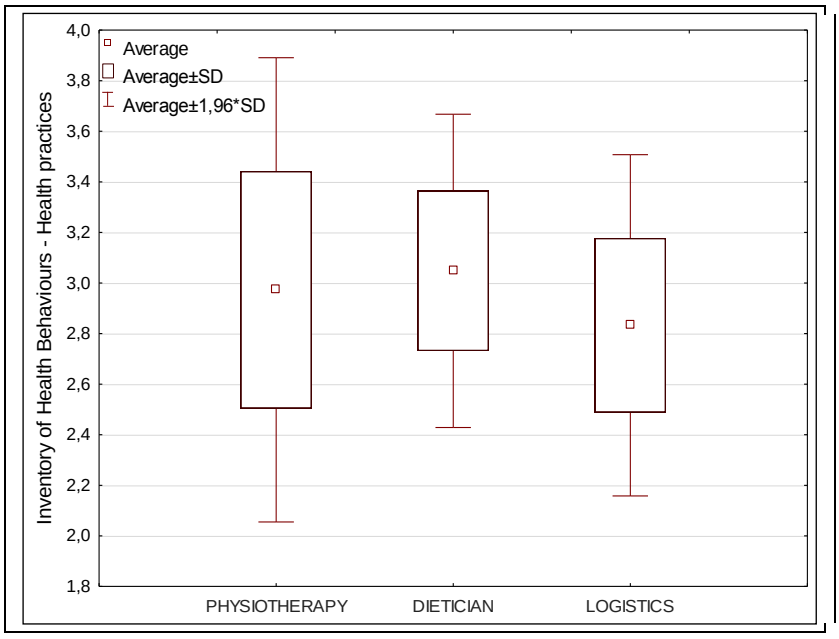

Fig. 11. Comparison of the IoHB questionnaire results: Health practices in the examined group

Discussion

The research aimed at evaluation of health behaviours of students studying on various courses: Physiotherapy, Dietetics and Logistics. The average result for the IoHB questionnaire for the entire examined group amounts 6.96 sten which constitutes the upper limit for average results. While analyzing the results in terms of sex women obtained better results for the IoHB questionnaire than men which is in accordance with the results received by other authors [7-9].

As this has already been mentioned in the introduction medical courses such as Physiotherapy and Dietetics offer subjects in their syllabuses concerning promotion of health and health education. Apart from that, they have their own specificity referring to specific health behaviours and the students of Dietetics acquire knowledge concerning principles of proper nutrition. In terms of Physiotherapy the most significant category is "healthy behavior", in particular the aspect of physical activity.

The results of own research only partially confirm these assumptions. While analyzing the IoHB questionnaire for specific groups of students the best results were obtained by the students of Dietetics (8.32), worse by the students of Physiotherapy (6.64 sten). The average

result for the IoHB questionnaire was obtained by the students of Logistics which amounted 5.94 sten.

Taking into consideration the specifics of education in terms of Physiotherapy more clear difference could have been suspected for health behaviours among the students of Physiotherapy and Logistics.

While analyzing categories of health behaviours for the entire examined group the highest average was obtained for the category „proper nutrition habits" which refers to the food eaten (wholegrain bread, vegetables, fruit). The worse results were obtained for the "prophylaxis behavior" category concerning health recommendations and acquiring knowledge about health and diseases. The worst results were obtained in the "positive psychological attitude" category which includes health behavior in psychological factors such as avoidance of emotions and stress as well as in the "health practices" category which refers to sleep, recreation and physical activity.

Analysis of the health behaviours categories for students of individual courses can be presented as follows. The students of Physiotherapy received the highest average in the category "proper nutrition habits" (average 3.41), the next category was "prophylaxis behavior" (average 3.30) and "positive psychological attitude" (average 3.21). The problem is the fact that the students of this course received the worst results in the category "health practices" (average 2.97).

The students of Dietetics obtained results which were very similar in all categories of health behaviours. However, they received the best results in the category "proper nutrition habits" (average 3.25) which is in accordance with the assumptions. They acquired worse results in the category "prophylaxis behavior" (average 3.18). In the categories "prophylaxis behavior" and "positive psychological attitude" the results were the same (average 3.04). What is more interesting, the students of Physiotherapy obtained the highest results in the category "proper nutrition habits" which should be a strong point for the students of Dietetics.

The students of Logistics received lower results in all categories of health behaviours in comparison with the students of Physiotherapy and Dietetics. The detailed analysis for this group presents as follows. The best results refer to the category "health practices" (average 2.83), worse results refer to the category "proper nutrition habits" (average 2.81) and "prophylaxis behavior" (average 2.78). The worst results were received in the category "health practices" (average 2.83). Special attention should be paid to the fact that the results for the last category for the students of Logistics are similar to the results obtained by the students of Physiotherapy.

In order to get the answer for the question to what extent does the course determine health behavior it would be necessary to do a diachronic research aiming at examining students of the first year and repeating the research in the last year of their studies. Nevertheless, the results from own research show that there is a need to promote programs concerning promotion of health, in particular on medical courses. From the point of view of the individual as well as in the context of doing the job for which the students are being prepared this is significant. The information concerning health behavior is more important for the patients when they are supported by practical usage implemented by medical staff.

Conclusions

1. The examined group of students obtained average results for IoHB questionnaire.
2. The best results for the IoHB questionnaire were received by the students of Dietetics, the worst by the students of Logistics.
3. For the entire examined group the results obtained by women were better than the results obtained by men.
4. The examined students received the best results in the category „proper nutrition habits", the worst in the category „health practices".
5. There is need of further research concerning health behaviour of the young and promoting health programs at all educational levels.

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