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Stosowanie suplementów diety wśród młodzieży akademickiej

Streszczenie

Wstęp. Sposób odżywiania człowieka ma istotne znaczenie zarówno dla zdrowia, jak i dobrego samopoczucia. Skład diety musi być zróżnicowany w zależności od wieku, aktywności fizycznej, wykonywanej pracy i stanu zdrowia. Powinien uwzględniać właściwą podaż białka, węglowodanów, tłuszczów składników mineralnych i witamin. W obliczu dynamicznie rozwijającego się rynku substytucyjnych i komplementarnych artykułów przeznaczenia żywieniowego, należy zwrócić szczególną uwagę na rozpowszechnienie stosowania suplementów diet wśród młodzieży akademickiej. Systematyczne monitorowanie skali stosowania suplementów diety wśród studentów pozwoli ocenić częstość występowania zachowań nieprawidłowych w tej kategorii, a także wpłynąć na stosowanie suplementów diet w sposób racjonalny i bezpieczny.

Cel. Ocena rozpowszechnienia stosowania suplementów diety w środowisku młodzieży akademickiej miasta Rzeszowa z uwzględnieniem podziału na płeć i kierunek studiów.

Materiał i metoda. Badaniami objęto ogółem 208 studentów Uniwersytetu Rzeszowskiego, studiujących na kierunkach takich jak: filologia polska, angielska, rosyjska, germańska, oraz wychowanie fizyczne. Badania przeprowadzono metodą sondażu diagnostycznego z wykorzystaniem techniki ankiety. W opracowaniu statystycznym wykorzystano test niezależności chi-kwadrat.

Wyniki. W wyniku przeprowadzonych badań stwierdzono, że większość badanej młodzieży akademickiej (55,2%) nie spożywa i nie spożywało żadnych suplementów diety. Wśród studentów, którzy nie uzupełniali diety suplementami dominują mężczyźni (70,5%) i studenci wychowania fizycznego (61,1%). W populacji studentów spożywających suplementy najczęściej kupowanymi preparatami były: zawierające witaminy i składniki mineralne (56,1%) oraz ekstrakty roślinne (15,7%. Płeć (p=0,026) i kierunek studiów (p=0,023) wpływają na rodzaj najczęściej kupowanego suplementu: kobiety preferują suplementy wpływające w kolejności: na stan skóry lub paznokci, wspomagające układ odpornościowy, procesy myślenia i koncentrację; mężczyźni wspomagające układ odpornościowy i suplementy specjalnego przeznaczenia dla sportowców. Studenci kierunków filologicznych kupują najczęściej: preparaty poprawiające stan skóry lub paznokci oraz procesy myślenia i koncentrację i także wspomagające układ odpornościowy; studenci wychowania fizycznego - preparaty poprawiające stan skóry lub paznokci, wspomagające układ odpornościowy i przeznaczone dla sportowców. Badani studenci przyjmują suplementy diety zgodnie z zaleceniami zawartymi w ulotce informacyjnej (88,0%) i w wysokim odsetku (41,1%) nie odczuwają potrzeby konsultacji z lekarzem samego faktu przyjmowania suplementów.

Wnioski. Niniejsza praca potwierdza fakt stosunkowo częstego przyjmowania suplementów diety przez młodzież akademicką, która spożywa je zgodnie z zaleceniami producenta, ale bez zasięgnięcia opinii lekarza rodzinnego.

Słowa kluczowe: suplementy diety, płeć, kierunek studiów, studenci.

The use of dietary supplementation among university students

Abstract

Introduction. The human diet is essential both for health and for well-being. The composition of the diet has to be diversified and adjusted to age, physical activity, occupation, and health. The diet should provide a proper supply of proteins, carbohydrates, fats, mineral components, and vitamins. Facing the dynamic development of the market of substitutes and complementary food and drink articles, special attention should be given to the scale of the use of dietary supplements among university students. Systematic monitoring of the scale of the dietary supplements use among university students would help to avoid abnormal behaviours in this respect, and influence the rational and safe use of dietary supplements.

Aim. The aim of the study was to evaluate the prevalence of dietary supplements use among Rzeszów university students broken down by gender and field of study.

Material and methods. The study included 208 students of the University of Rzeszów, studying the following majors: Polish, English, Russian and German philology, as well as physical education. In the statistical analysis, the chi-square test was used.

Results. The majority of the students did not use dietary supplements (55.2%): herein the largest groups were men (70.5%) and physical education students (61.1%). Among those using dietary supplements, the most frequently bought preparations contained vitamins and mineral components (56.1%), as well as herbal extracts (15.7%). Gender (p=0.026) and the study field (p=0.023) affected the type of a frequently bought supplement. The students used dietary supplements according to recommendations included in the leaflet (88.0%) and did not need to consult the dietary supplements use with a doctor (41.1%).

Conclusions. As a result of the study it was found that the majority of the students did not use any dietary supplements. Among those students who did not have contact with dietary supplements, men and physical education students prevailed. In the population of students using dietary supplements, the most frequently bought preparations contained: vitamins and mineral components, and herbal extracts. Gender and the study field had an influence on the type of the frequently bought supplements. Women preferred the following supplements: those affecting skin or nails, improving the immune system, intellectual processes, concentration, while men chose preparations improving the immune system and special supplements for sportsmen. The philology students often buy skin and nails-affecting supplements and those improving processes of thinking, concentration, as well as the immune system, and the physical education students - skin and nails-affecting supplements, preparations improving the immune system and special supplements for sportsmen. The students use dietary supplements according to recommendations included in the leaflet, and a large proportion of them (41.1%) did not need to consult the use of dietary supplements with a doctor.

Key words: dietary supplementation, gender, field of study, students.

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INTRODUCTION

Our daily diet should contain a proper proportion of nourishing components. The specialist literature indicates that a well-balanced diet should provide a sufficient quantity of necessary mineral components. However, there are situations when nutrition itself may not be sufficient and is often completed with dietary supplements. Various kinds of health problems, age or cultural nutrition habits are related to this kind of situations [1]. For many years, supplementing a diet with nourishing components in the form of different preparations has been very common in the world, and particularly among adults. Dietary supplements most often contain: vitamins and mineral components, as well as other substances showing a nourishing effect, or any other physiological one, e.g. indispensible fat acids or amino acids. Most of meals we consume are exposed to a variety of processes reducing their nutrition value. It leads to consumption of food that does not cover the physiological requirements and, at the same time, disturbs the natural control of one's diet.

At present, a dynamically developing market of substitutes and complementary food and drink articles, is observed. Companies responsible for the distribution of food and drinks use a niche of a specific product, acquiring thereby an increasing number of clients not fully aware of the effect of the dietary supplement or over-the-counter medicines (OTC) [2]. The potential need of diet supplementation in society seems to be a significant phenomenon, which is proved, among others, by the number of new dietary supplements included in the Chief Sanitary Inspectorate registry of products first launched on the market in the territory of the Republic of Poland. The results of the present study show that a large proportion of all medicines sold in Poland are OTC medicines [3]. A serious danger is posed by the fact that the source of information about therapeutic products or dietary supplements, purchased on the large scale in the local stores or gas stations, are mass media and advertising leaflets [4]. It is shown in the study carried out by Wdowiak et al. (2006), that women take medicines more frequently than men [3, 5]. The described tendency can be more and more often observed among young people [3].

Due to the prevalence of dietary supplements there is a need for regular studies aiming to evaluate this kind of behaviours among young people. University students are particularly susceptible to mass media information about the possibility to supplement their diet. This phenomenon requires a reliable analysis of behaviours related to the safety of use of dietary supplements available on the Polish market. The literature provides that approximately 50% of the studied group indicated TV commercials and magazine counseling as factors shaping health behaviours of modern university students [4]. Mass media play a significant role in the perception of the world by young people, including the choices related to their lifestyle [6]. Therefore more attention should be devoted to education of young people and to activities shaping a pro-health lifestyle of academic students. It is necessary to convince university students that dietary supplements are not medicines and may only be used to supplement a diet with various components according to individual indications [7]. Special attention should be given to the ability to evaluate individual health needs and to adopt hygienic and health practices in everyday life.

MATERIAL AND METHODS

The study was conducted between January and May 2009, and covered 208 students of the University of Rzeszów, including 105 students of humanity faculties such as: Polish, English, Russian and German philology, as well as 103 students of physical education. The study population was purposefully chosen. The study population was restricted to the last-year students of 2nd level stationary studies. The selection of the group was determined by the stereotype opinion of the public concerning the relation of a specific field of study to a particular group of dietary supplements, according to which people studying philology, because of their intellectual strain, most often use supplements improving thinking processes and concentration; physical education students, as a result of their daily physical effort, supplement the energy loss with products for sportsmen.

A diagnostic survey conducted with the questionnaire technique was used in the present study. The original questionnaire consisted of 23 closed questions and was divided into 2 parts. The first one, containing 7 questions, was addressed to all the respondents and concerned their self-assessment of health state, rational nutrition, understanding of the idea of dietary supplement and dietary supplement use. The second part, consisting of 15 questions, was completed by those who used dietary supplements during 12 months before the study, or were using dietary supplements at the time of the study. The questions concerned the opinions of students regarding the source of knowledge about dietary supplements, the place of buying dietary supplements, the type of used dietary supplements, satisfaction with the effect of the used dietary supplements, consulting a health care professional about the use of dietary supplements, following recommendations included in the leaflet, as well as the knowledge about the effect of the used dietary supplements.

The survey tool was prepared in such a way that the answers for questions 8-23 (concerning detailed information about the dietary supplements use) were given only by those who positively answered question no. 6 – "Yes, recently or at present I have been using some kind of dietary supplements". The first part of the study included 208 participants (questions 1-7), and the second part - 84 (questions 8-23). The lack of answers to any of the questions included in the questionnaire was understood as the lack of desire to express an opinion on the given subject, which was included in the data analysis. There was a possibility to give more than one answer to the marked questions.

The participation in the survey was both voluntary and anonymous, and the research material was confidential. The students were given instructions in a cover letter, followed by the questionnaire and, before the survey, orally informed about the procedure and the purpose of the study. The study was carried out in the presence of the authors

of the questionnaire. The return of the filled-in questionnaires was accompanied by the confirmation of the participation agreements.

In order to check intelligibility of the questions included in the questionnaire, the proper study was preceded with a pilot study conducted among 50 students of the Polish philology. The results of a pilot study did not reveal structural defects in the tool.

The collected data was statistically prepared by means of the statistical package STATISTICA 9.0. The chi-square test was used for statistical analysis. The analysis was conducted by dividing the studied group according to the represented field of study divided by gender. The second part of analysis was performed on the basis of the results of 84 questionnaires completed by the respondents who declared to use dietary supplements in the period of 12 months before the study or at the time of the study.

RESULTS

Among 208 respondents, 105 (50.4%) were philology students, and the remaining 103 (49.6%) - physical education students. The majority (67.3%) were women, while men constituted 32.7%. People aged 23-24 were 74.5% of the studied population. The remainder (25.5%) consisted of people younger than 23 years of age. More than a half (57.2%) of the university students came from urban areas, and 42.8% from a rural background. The data analysis shows that the majority of the respondents (75.2%) perceive their material situation as good, 16.0% as very good, and 7.2% as difficult. Only 1.4% of the studied youth indicated that at present they have a very difficult material situation. In the studied group, the majority of students described their health as good (54.8%), 25.4% as very good, and 16.3% found it average. The remainder (19.8%) evaluated their health as bad.

A detailed analysis of the study material showed that the majority of students (58.2%) perceived their nutrition as regular. Every third studied person (26.4%) described their nutrition as irregular, and 16.3% of the respondents were unable to evaluate their nutrition. The highest proportion of people eating regularly was noted among the philology students (60.9%). The same answer was given by 53.3% of the physical education students. Every third student of physical education (36.8%) and 16.1% of the philology students described their nutrition as irregular. The result of chi-square test for independence reached the level of statistical significance p= 0.000. No statistical differences were observed between gender and the regularity of nutrition p=0.589. More than a half both of the women (58.5%) and the men (54.4%) claimed to eat regularly, while 24.2% of the women and 30.8% of the men declared irregular nutrition.

The analysis of the frequency of eating meals showed that 41.3% of the students ate 4-5 meals daily, 34.1% ate 3 meals, 14.4% ate 2 meals, and 7.5% ate more than 5 meals daily. Only three women said that that they ate once a day (1.4%). Meals were most frequently eaten by the men (4-5 daily meals): 42.6%, the same answer was given by 40.7% of the women. 37.8% of the women and 26.4% of the men ate 3 meals a day, 23.5% of the men and 10.0% of the women ate twice a day. More than 5 meals a day were eaten by eleven women (7.8%) and five men (7.3%). Almost half of the physical education students ate 4-5 meals a day (46.6%). The same answer was given by 36.1% of the philology students. Three meals a day were eaten, respectively, by: 37.1% of the philology students and 31.0% of the physical education students. 18.0% of the philology students and 10.6% of the physical education students ate twice a day. More than five meals a day were eaten by 6.6% of the philology students and 10.6% of the physical education students. No statistical differences were observed between the field of study (p=0.162), gender (p=0.126) and the frequency of nutrition during a day.

A detailed data analysis of the dietary supplements use demonstrated that more than a half of the university students (55.2%) did not use any dietary supplements, and 40.3% of the respondents who used dietary supplements within 12 months before the study or at the time of the study, while 4.3% did not have an opinion about it.

The data presented in Table 1 shows that gender divides the studied group according to the used dietary supplementation (p=0.008). The majority of the men (70.5%) did not use dietary supplements either before or at the time of the study. The same answer was given by 47.8% of the women. Almost a half of the women (47.1%) and 26.4% of the men took different kind of dietary supplements. The answers analysis with reference to the field of study showed that dietary supplements were not used, either in the past or at the time of the study, by the majority of the physical education students (61.1%) and by almost a half of the philology students (49.5%). Daily nutrition was supplemented with dietary supplements by 42.8% of the philology students and 37.8% of the physical education students. The statistical significance index indicated the difference and reached the level p=0.031 (Table 1).

It results from Table 2 that the most often bought dietary supplements were the following: skin and nails supplements (27.6%), preparations improving the immune system (23.1%), the nervous system (thinking processes, concentration) (20.8%), preparations facilitating weight loss (12.6%), special supplements for sportsmen (10.4%) and preparations improving the circulatory of digestive systems (5.2%). The comparison of values concerning the type of the most often bought dietary supplements demonstrated that gender and the field of study distinguish the studied youth in the statistically significant way (respectively p=0.026; p=0.023). The women more frequently use skin and nails supplements (30.8%), preparations improving the immune system (21.4%), the nervous system (20.5%), and facilitating weight loss (14.9%). In turn men in the first place use supplements: improving the immune system (29.6%), supplements for sportsmen (25.9%) and improving nervous system (22.2%). The most often used supplements among physical education students were: skin and nails supplements (24.1%), the immune system (22.5%) and preparations for sportsmen (19.3%). The philology students most often bought: skin and nails supplements (30.5%), preparations improving the immune system (23.6%) and the nervous system (23.6%) (Table 2).

TABLE 1. Dietary supplements use according to gender and the field of study.

		Gender				Field of study					
No.	Problem	Woman		Man		Philology		Physical Education		n	%
		n	%	n	%	n	%	n	%		
1	Yes	66	47.1	18	26.4	45	42.8	39	37.8	84	40.3
2	No	67	47.8	48	70.5	52	49.5	63	61.1	115	55.2
3	Difficult to say	7	5	2	2.9	8	7.6	1	0.9	9	4.3
L	Total	140	100	68	100	105	100	103	100	208	100
		p=0.008				p=0.031					

TABLE 2. Type of the most often bought supplement.

1	Improving Weight Loss	16	14.9	1	3.7	8	11.1	9	14.5	17	12.6
2	Improving Immune System	23	21.4	8	29.6	17	23.6	14	22.5	31	23.1
3	Improving Nervous System	22	20.5	6	22.2	17	23.6	11	17.7	28	20.8
4	Improving Circulatory or Digestive System	6	5.6	1	3.7	6	8.3	1	1.6	7	5.2
5	Skin And Nails-Affecting Supplements	33	30.8	4	14.8	22	30.5	15	24.1	37	27.6
6	Sportsmen Supplements	7	6.5	7	25.9	2	2.7	12	19.3	14	10.4
L	Total	107	100	27	100	72	100	62	100	134	100
		p=0.026				p=0.023					

The answers do not sum up to N=84, because it was possible to chose more than one answer .

TABLE 3. Dietary supplements used according to their composition.

		Gender				Field Of Study					
No.	Composition	Woman		Man		Philology		Physical Education		n	%
		n	%	n	%	n	%	n	%		
1	Vitamines And Mineral Components										
2	Herbal Extracts										
3	Fat Acids	6	6.5	1	4.5	4	6.6	3	5.5	7	6.1
4	Fiber	12	13	0	0	8	13.3	4	7.4	12	10.5
5	Probiotics And Prebiotics	4	4.3	0	0	2	3.3	2	3.7	4	3.5
6	Amino Acids										
	Taurine, Creatine	5	5.4	4	18.1	3	5	6	11.1	9	7.8
L	Total	92	100	22	100	60	100	54	100	114	100
		p=0.219				p=0.571					

The dominant group of the supplements used because of their composition were: preparations containing vitamins and mineral components (56.1%), herbal extracts (15.7%), and fiber (10.5%). Gender and the field of study did not distinguish the students in relation to the supplements used because of their components (respectively p=0.219; p=0.571) (Table 3).

Among factors helping to decide about the purchase of a particular dietary supplement the students most often indicated: care for health (46.8%), care for external appearance (28.8%), and advertising (12.6%).

The data analysis concerning the respondents' satisfaction with the quality and effectiveness of the used dietary supplements shows that a half of the students gave a positive answer (50.0%), a large group of the respondents did not have a clear opinion about it (40.5%), and 9.5% said they were dissatisfied with the used dietary supplements.

The students most often confirmed that they knew the composition and effect of the taken dietary supplement (71.2%). The lack of knowledge was admitted by 7.1% of the respondents, and 22.5% were not sure about the full knowledge about the composition and effect of the taken supplement.

The analysis of the source of information about the dietary supplements among the students of particular specializations showed that the specific field of study (p=9.749) and gender (p=0.150) did not distinguished the respondents. Generally, the students considered as most important sources of information: Internet (24.5%), TV (23.8%), family and friends (21.1%), press (14.5%), professional medical workers (7.5%), and radio (5.9%).

The data analysis concerning the use of dietary supplements according to recommendations included in the information leaflet that a great majority (88.0%) followed the recommendations taking dietary supplements, and 8.7% followed them occasionally. The remainder (3.3%) did not follow recommendations included in the information leaflet.

The main places of purchase of dietary supplements were: pharmacies (57.4%); supermarkets (12.0%); Internet (11.1%), herbal stores (6.4%) and healthy food stores (6.4%). Answering the question "Do you consult the dietary supplements use with a doctor?", 51.1% of the respondents indicated that they did not feel the need to consult the taken preparations with a doctor. 26.0% of the respondents informed doctors about dietary supplements they used, and 23.7% occasionally consulted the dietary supplements use with a doctor.

The data analysis considering the intention to take dietary supplements in the future showed that most often students (35.5%) were not able to determine their decisions related to the intention of using dietary supplements. Every third person (31.7%) said that they would not use dietary supplements, and 21.6% that it would not be necessary, while as many as 12.9% had difficulty to answer this question.

DISCUSSION

The Polish and world's specialist literature indicates that failure to follow the principles of rational nutrition is the most frequent characteristic of the nutrition pattern in university students. The present study demonstrated that more than a half of the studied group assessed their nutrition as regular. However, every third studied person described his or her nutrition manner as irregular. The most common habit observed among almost every third student was the 4-5 meals daily nutrition model. A large group of students indicated the 3 meals nutrition model. The obtained data enable to assess the frequency of nutrition as satisfactory. It is worth mentioning that regular nutrition is understood as eating at least 3 meals a day by an adult person, including first breakfast (it is assumed that the share of each meal in the daily food ratio complies with the standards) [8]. Similar nutrition habits, with respect to the frequency of eating meals, were described by Krzyszycha et al. and Binkowska-Bury, and among international scholars by Sakamaki et al. and Driskel et al. [9-12].

Subsequently, the analysis of the dietary supplements use showed that more than a half of university students did not use dietary supplements, and among those students who did not have any contact with dietary supplements the majority were men and physical education students. In the population of students using dietary supplements, the preparations containing vitamins and mineral components were taken most frequently, and as it is known, dietary supplements play a significant role in decreasing the risk of health disorders and facilitating treatment of diseases. In the last years, more and more attention is given to inadequate nutrition related to vitamins and mineral components deficiency. Their inadequate quantity favors many diseases due to non-balanced nutrition [1]. Young people should be advised to use dietary supplements with particular caution and it should be stressed that proper nutrition the best source of all necessary components in adequate quantities.

As it results from the study conducted among American students, 26.3% reported the use of non-vitamin, non-mineral supplements [13]. Against the background of observation presented in the world's literature, the studied group of respondents diverges from the tendencies appearing among young people. In the present study 43.9% of the students used non-nvitamin and non-mineral supplements. Anther study among Turkish students also demonstrated that only one in six students (16.5%) consumed non-vitamin or non-mineral supplements during the past year [14]. However, the comparative analysis with the studies of other authors on similar groups is not fully justified due to differences in methodology. It should be observed that in the present study women preferred skin and nails supplements, those improving the immune system, as well as thinking and concentration; men chose preparations improving the immune system and special supplements for sportsmen. Philology students most often bought: skin and nails supplements, preparations improving thinking and concentration and the immune system, while physical education students - skin and nails supplements, those improving the immune system, and special supplements for sportsmen. General tendencies are characteristic for the population of young people who consider their external appearance and health as very important. The field of study differentiated the studied group with respect to other kinds of dietary supplements enabling to achieve better results in the studied disciplines.

The main reasons why the respondents used dietary supplements were: care for health, care for external appearance, and advertising. In the studies presented by Perkin et al. (2002), the most frequent reasons for using dietary supplements were: improving energy, promoting weight loss and burning fat. Women were more likely to be using supplements for weight loss, stress relief, and prevention/treatment of colds and sore throats. Men were more likely to be using supplements to build muscle [13]. In turn, for Turkish students the most commonly given reasons were the improvement of energy and vitality (78.6%), promotion of weight loss (71.1%) and enhancement of athletic performance (64.3%) [14].

Student, who decided to use dietary supplements most frequently claimed that they knew the composition and effect of the taken supplement, and their main source of information were: Internet, television, family and friends, and the most often they bought the preparation in pharmacies, supermarkets and on-line. Those tendencies

agree with the results of other authors (Perkin et al. 2002; Ayranci et al. 2005) [13,14].

The respondents declared that they used dietary supplements according to the recommendation included in the information leaflet, a half of the group was satisfied with the quality and effect of dietary supplements. It is alarming that a high proportion of the respondents did not feel the need to consult the use of dietary supplements with a doctor. In the world's studies similar results can be found [15]. It should be kept in mind that failure to consult professional medical personnel (doctors, pharmacists, nurses) about the use of dietary supplements, and particularly those of an uncertain origin, may pose a serious threat to health.

CONCLUSIONS

1. The majority of the students (55.2%) did not use any dietary supplements in the last year. Among those students who did not have contact with dietary supplements, men (70.5%) and physical education students prevailed (61.1%).
2. In the population of students using dietary supplements the most frequently bought preparations were those containing vitamins and mineral components, as well as herbal extracts.
3. Gender and the field of study had an influence on the type of the frequently bought supplement. Women prefer the following supplements: affecting skin or nails, improving the immune system, thinking processes, concentration, while men choose preparations improving the immune system and special supplements for sportsmen. Philology students often buy: skin and nails supplements and those improving thinking processes, concentration, as well as the immune system, while physical education students - skin and nails supplements, those improving the immune system and special supplements for sportsmen.
4. The studied students use dietary supplements according to the recommendations included in the leaflet and a high proportion of them (41.1%) did not need to consult the dietary supplements use with a doctor.

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