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STATE SCHOOL OF HIGHER
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HEALTH BEHAVIORS OF ADOLESCENTS AND ADULTS

Edited by
STANISŁAWA SPISACKA

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POPE JOHN PAUL II STATE SCHOOL OF HIGHER EDUCATION
IN BIAŁA PODLASKA

Health behaviors of adolescents and adults

Zachowania zdrowotne młodzieży i osób dorosłych

Edited by

Stanisława Spisacka

Biała Podlaska, wrzesień 2013

Scientific Reviewers:
Prof. dr hab. Zbigniew Borzęcki
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Editorial address:
Instytut Zdrowia
Państwowa Szkoła Wyższa
im. Papieża Jana Pawła II w Białej Podlaskiej
21-500 Biała Podlaska ul. Sidorska 102, tel. (083) 344 99 18
e-mail: zdrowie@pswbp.pl

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Foreword

This book is a collection of research reports dealing with health problems. Staying healthy or regaining health is influenced by health behaviors, which prefer the adopted and health-determining lifestyle. Behaviors such as maintaining physical activity and ideal body weight, proper nutrition and avoiding risky behaviors have a positive impact on health. It is important to identify why and when a person chooses a specific behavior affecting the level of health. The authors analyze the impact of attitudes and values formed in the process of upbringing and education on health protective behaviors and health risk behaviors. The results of research on Physical Education students' career choices were presented in an interesting manner, showing that the students have chosen the way to achieve a balanced life. The issues of risky behavior was introduced, including the effects of alcohol on fetal development. The analysis explores the influence of knowledge and awareness on developing a sense of responsibility for the state of one's own health. One of the chapters is devoted to the problems of nutrition and obesity. A preliminary study on the potential for obtaining a dietary supplement generated from *Phlebia radiata* was described, and eating habits and their impact on health, as well as the risk factors that determine obesity were discussed. The raised issues concerning health behaviors are still current and require careful observation, research and undertaking effective therapeutic and prophylactic treatment.

Stanisława Spisacka

Chapter I

Attitudes and values in relation with risk behaviors of the youth and adults

Postawy i wartości a zachowania ryzykowne młodzieży i dorosłych

Maria Burmecha-Olszowy, Katarzyna Rychcińska

Department of Humanities Science and Health Promotion University School of Physical Education in Wroclaw
Katedra Nauk Humanistycznych i Promocji Zdrowia, Instytut Turystyki i Rekreacji Akademii Wychowania Fizycznego we Wrocławiu

The declaration of attitude to life by students of academy of physical education
Deklarowane postawy życiowe studentów wychowania fizycznego

Summary
Attitude and values are possible to measure via inter alia Charles Morris 'life paths' questionnaire that describes preferences to choose certain 'life paths'. There are three personality traits marked out in the questionnaire: promethean, bacchanal, Buddhist and 13 other life paths. Studies show that in 2001-2012 students full-time and part time at The Physical Education University chose life path number 7 as their favourite. The main aspects of this life path describe inside and outside strength. The students refused the paths number 11,13 and 2 that show extreme and radical principles. Full time students are more active and ready to take the risks included in life path number 12. Postgraduate students were more focused on kind interaction with people and this is shown in path number 3.

Key words: attitude, paths of life, students of Academy of Physical Education, value, declarations

Streszczenie
Postawy i wartości można zmierzyć m.in. za pomocą kwestionariusza „ścieżki życia" wg Charles'a Morrisa, który określa preferencje wyboru drogi życiowej. Wyróżniono w nim trzy podstawowe cechy osobowości: prometejski, dionizyjski i buddyjski oraz 13 dróg życiowych. Badani w latach 2001-2012 studenci studiów dziennych i zaocznych Akademii Wychowania Fizycznego jako najbardziej preferowaną postawę wybrali drogę numer 7, której głównym założeniem jest harmonijne łączenie aktywności wewnętrznej i zewnętrznej. Odrzucili natomiast drogi 11, 13 i 2 prezentujące wartości skrajne i radykalne. Osoby studiujące dziennie większy nacisk kładły na aktywność i ryzyko zawarte w opisie drogi 12 niż jak w przypadku studentów studiów podyplomowych na życzliwe interakcje z innymi ludźmi reprezentowane przez drogę 3.

Słowa kluczowe: postawy, drogi życia, studenci AWF, wartości, deklaracje

Introduction

The work of many authors not just Charles Morris asks questions about life attitudes and values. In everyday language life attitudes and life values are used interchangeably usually with a lack of understanding for their deeper meaning. Many times people

assume that attitudes and values mean the same to describe how individual people behave. However after deeper analysis of these two characteristics we can clearly see a separate meaning and definine each of them. M. Marody (1976) suggested there are problematic aspects of definining attitude and values as mentioned in empirical and theoretical research that does not show any coordination between them.

There is no new distinct definition regarding attitudes and values to confirm a separate meaning. Empirical evidence is in short supply although further research is in process. It is essential to use as much evidence and research as available. W.J Thomas and F.Znaniecki are considered to be originators of an 'attitude' definition in their book 'Polish Peasants in Europe and America'

They present attitudes in terms of values and describe them as 'any fact that has an express meaning within is or may be an object of action' The values are presented among other things as beliefs about states or behaviours that have got influences on decision making skills and characterize structure (Schwartz, Blisky, 1987, s.551).Skills are generally listed in a hierarchy of importance to the individual from the most to the least important. Schwartz and Bliski (1994) as a result of wide ranging research highlighted 10 main values that contain individual types.

The main categories are power that contains success and ambition also hedonism, stimulation, self-drive, globalism, kindness, conformity and safety (Schwartz, Blisky, 1994, s.169).Attitude is described as a tendency for positive or negative evaluation (Wojciszke, 2006, s.180) or judgment (positive or negative) of people, objects and concepts. Characterising this is that attitude always belongs to someone and has a specific direction. Accordingly to what Wojciszke (2006) determines, it is possible to have thousands of attitudes however only a few values. Author also like Nowak (1973) and Madrzycki (1970) pointed to a common definition that contains three components: Emotional relation, Cognitive and Behavioural. Emotional relations to an object or person, Cognition shows internal conviction and Behavioural has got a connection to a chosen tendency.

Different factors may have a positive or negative impact. The literature suggests there could also be zero attitude (Nowak, 1973, s.26). Taking into account results of research especially from social psychology it is important to highlight that individual behaviour often depends on situations even though it could be distinctly differently from declared attitudes. The classical concepts of value and attitudes are perceived as relatively constant and lasting. Recently in the light of new research there is a trend to say that they can also have a dynamic as well as flexible character. For that reason it is important what the person who is subject to research is thinking about just before the research starts. The same person can have different versions of a hierarchy of values and attitudes depending on specific information given.

Data & method of research

It is important that future teachers attempt to test their values, priorities, and the way they look at themselves as individuals and the world around them. For example it could be said that a person who is going to work with children and young people should have a stabile vision of themselves in a work environment.

Shalome Schwatz completed an international research project about primary school teacher's values. He chose them as the most representative occupation group because they teach the youngest people about values (Wojciszke, 2006, s.179).

What are the most common attitudes declared by students of Physical Education? Do people who want to become a teacher have a similar personality profile? Is the difference between their values significant? Analysis of this research will help to answer these questions. Research shows that current circumstances may have a big impact on the choice of a particular life path. "The methodological strategies claim that the compatibility of attitude with behaviour is significant even though there is not enough research that can confirm this theory" (Wojciszke, 2006, s.202). Collected research material will first specify the view on values and life attitudes.

Key points to consider when choosing a test hypothesis is the concept of declaration of attitude. We can consider two main research questions Which of the presented life paths is declared as the most representative for Physical Education students? Does the difference between a declared life path (and taking into account the nature of a teacher's job and specific ways of teaching technique, results of research can be a source of interesting analysis) be useful to profile Physical Education students. Research was conducted between the years 2001-2012 at The University of Physical Education (within the Physical Education department) Research was conducted on 478 students in full time or postgraduate study. The questionnaire was anonymous and students did not know what the aim of the research was. The questionnaire 'Life Paths' was developed by Charles Morris and this was used as the main research method. The questionnaire shows a preference for a particular life path and attitude choices for individuals.

Profiles of every life values subject to three main components:

1. Active striving to find a connection with a preferred value. This is a source of pleasure and satisfaction.
2. Anticipation and prediction of a preferred tendency for more pleasure than others.
3. Following common sense during making a decision.

For the needs of designating preferred values the author has distinguished three essential personality traits: Promethean, Dionysian, Buddhist. The first describes manipulative values. The second applies to feelings and passion. The last is connected with balancing endeavour and life desires (Siek, 1986, s. 198) Morris showed at the beginning of his research questionnaire 7 life paths however he soon extended this to 13.

1. Focused on holding the most important human values
2. Focused on finding internal independence, freedom from pressure caused by people and other things
3. Focused on an understanding of people and showing them kindness
4. Focused on sensual and epicurean way to use life
5. Focused on actions and cherishing life with others
6. Focused on consistent changes and creation reality
7. Focused on harmonic connection of actions, feelings and contemplation
8. Focused on careless enjoyment of health and a life of pleasure
9. Focused on passive feelings of stimulation
10. Focussed on self-control and stoic way to cope with adversity

11. Focussed on analysis and meditation of our own internal life
12. Focussed on braver actions and risk taking
13. Focussed on a submission to purposefully engage with cosmic power & nature (Siek, 1986,s.1999).

Author of the questioner describes values as a tendency or capacity of alive creatures to their chose describe object as better and more preferred then other (Morris, 1956, s.10; Siek, 1986).Following of those values exclude prefer of others. In case of student X who picked up path number 7 that describes smooth connection between action and risk taking. In case of future sport and education teachers their chose is explained .Marking process of questioner means of sorting out in order life paths from the most to the least preferred. Respondents are asked to mark paths from 7 to 1 where 7 are the highest and 1 the smallest. Next respondents are asked to mark 3 of the most preferred path (scale from 1 till 0,25)and the least preferred (scale from -1 until -0,25)

Description of research results

The answers given by the research groups about their preferences are pointing to the same life path. The respondents gave the highest mark to path number 7(43% of votes from postgraduate students and the same amount from full time students). This path is talking about focusing on connecting actions with feelings and contemplation. Presented values in path number 7 are the most conductive circumstances to balance life where different styles are valued. The aim of this life path is to keep the right proportion between using, actions and contemplation.

Full time students (23% votes) chose path number 12 in 2nd place. This life path discusses brave action and risk taking. Path number 12 is very different to path number 7. In this case it is important to adapt to risky and brave circumstances. Actions taken by individuals are focused on external life that should bring enjoyment. In contrast postgraduate students (24%) gave a high mark to path number one. That path tells about looking for freedom and independence. All actions taken by individuals must be lead by calmness and moderation. Temperance and intelligence are characteristics for this path.

Choice and the diversity of answers can be caused by the age difference. Full time students belong to an age group between 19-24 and want to find risk and they are more inherently brave. Freedom and independence is also important for them. This seems to be supported by the research and their life path choice. The life path that talks about freedom and independence has been marked 3rd. Postgraduate respondents in 3rd position marked the path that tells us about showing and giving respect to others.

Extended research questions

1: Choose the most and least prefered life path by postgraduade students

2: Choose the most and least prefered life path by full time students

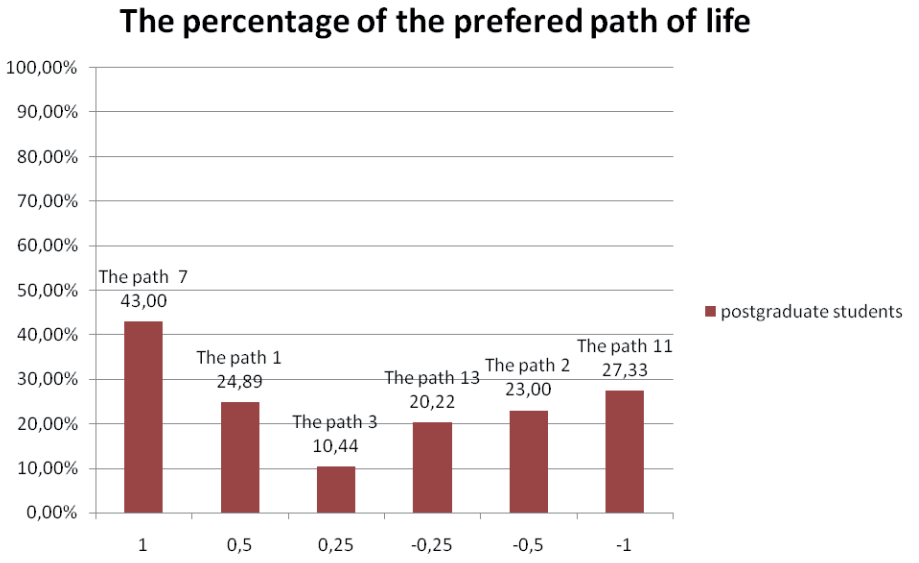


Fig. 1 Selection of the most and least preferred paths of life by postgraduate students

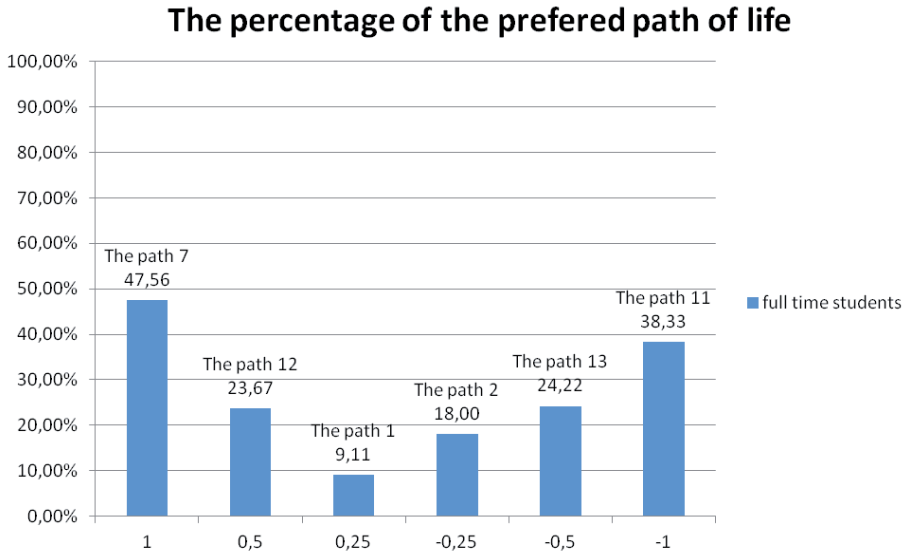


Fig. 2 Selection of the most and least preferred paths of life by full-time students

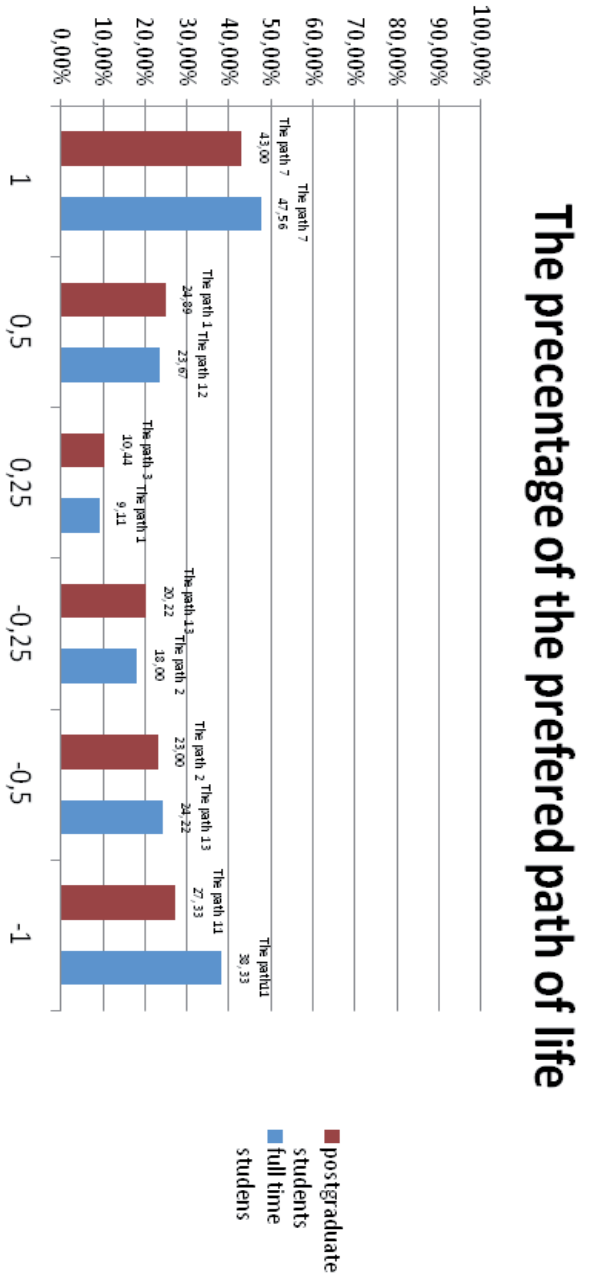


Fig. 3 Selection of the most and least preffered paths of life by full-time students and postgraduate students

Fulltime and postgraduate students gave the lowest mark to life path 11 (Full Time 38% and Postgraduates 27%) where certain values are analysed. The main theme of life path 11 is contemplation of internal life deprived of any external influences and also aspirations for a peaceful internal life. The next two life values have been rejected by both group respondents however in the opposite order. Full time students evaluated path number 13 as second from the end (24% full time students and 20% postgraduate students). The results show that respondents are not convinced to align natural power to outer-space. Path number 13 has a certain character and shows respect for values such as modesty and dedication. The core theme is connected with being close to people and nature and that makes people feel secure. Students who study fulltime do not think about internal independence as a priority in their life because of their experience and chosen values. Therefore the 2nd path has been marked as third from the end. (13% of votes) The main value suggests the 2nd path is an aspiration to become independent from external influences. Each individual should lead their own life. Postgraduate students give this path 23%.

Discussion

The main aspects of Morris's 'life paths' have been utilised in the Kulmatycki and Bukowska report 'Life attitudes and coherence between students of Special Needs in Physical Education' (2006) The results of this research are very similar. There is no difference between physical activity students of two profiles: teachers and teachers who work with people with special needs who have chosen the same live path as in the Bukowska and Kulmatycki report (2006, s.168). The respondents of both groups have chosen the life path number 7.

Both research groups refused the same paths of life. Respondents did not prefer life paths number: 2, 11 and 13. The report's analysis showed that there is no difference in answers when we look at the sex, age and profile of studies. In physical activity students the most negatively assessed values were connected with looking for happiness and inner fulfilment (strivings about contemplation and meditation) Research shows that they do not prefer things concerned with the spirits. On the other hand physical activity students assessed very positively life paths which are equivalent to contemplations, actions and usage.

The students who were studying during the day and post graduate students emphasized a similar path of life which they like. Interestingly it is the fact that the actual research groups are pretty much the same as was shown (with the psychical activity student profile of special needs) in 1999-2003. It could suggest that the most preferred paths of life have universal values. Taking into account and looking at the most preferred path of life (number 7) it shows equality and harmony due to a desire for an exploratory life style. Among interviewed students the highest marked value is the possibility of connecting an active lifestyle with contemplation and self – awareness.

The students refuse paths which show extreme and radical principles. The negatively marked paths of life are concentrated on inner life and self-analysis (the path number 11). Also the paths number 2 and 13 are refused. The aim of these paths is feelings of independence and politeness. Looking for the freedom from the world and people as well as keeping it all to nature were the least chosen paths of life. Research shows that students do not like radical attitudes. This is the same result as in earlier research.

Conclusion

Looking at the report's key notes, which were presented in the first part of this report, is worth thinking about a students real attitudes. Is it possible to measure them, using their imagination? There are a variety of things that could have a big influence for a chosen attitude at one moment in time. This is to consider that student values are the same in their real life. However, research shows that students who mark the most positively chosen paths and is an important indicator of their true life preferences.

Charlie's Morris questionnaire shows the tendency of preferred paths of life. Research of other authors shows that 'Individual mindset and lifestyle preferences are not the base values when decisions of the educational profiles are been completed' (Bukowska, Kulmatycki, 2006). However this could suggest a preference for an organizational style of occupational physical activity for students. Taking into account that interviewed students both who have been studying during the day and postgraduate students choose path of life number 7 as the most preferred. Their main aim is connecting inner and outer activity in harmony.

Research shows that refusing 2, 11 and 13 paths may say a lot about a lack of tendency during taking radical principals. There is only one important difference among preferred paths of life. This was that students who were studying during the day were more active and ready to take risks. Students who were studying during the day interact more. Post graduate students prefer interactions between different people (Path life number 13). The result of the research correlates to earlier research showing the similarity of the student groups at the University of Physical Activity. There was no difference between profiles and organizational things (like daily or postgraduate studies).

Analysing the research is it worth to consider if decelerated values are real preferred in the interviewed students life? Or rather they would like to live like that and taking those points. Even if the research was anonymous the results may show a desire rather than actual current life situations. When interviewed people are forced to think relatively deeply about their values and attitudes, then you will have auto concentration (self awareness) at this moment interviewed people may take the opinions of different people around them or virtual and social links. It could be that the most aware of the research group manifest these attitudes that society accepts and advocates.

This is easier to show values corresponding with life path 11 which promotes the top of people values. This life path was in the 2nd place (with postgraduate students) and 3rd place with daily students. The truth could be different. It is hard to admit that you prefer pleasure like epicureans do. Interestingly is the fact that mainly the day time students do not prefer life paths number 5 and 8. Daily students usually are more active because they are younger than post graduate students. Being active and having a happy life with others (path number 5) or carefree about health and life pleasures (path number 8) look as they are suitable for young students.

Nevertheless students who were studying during the day chose path number 12. This 'life path' represents bold actions and risk taking principals. This value is not linked with life paths number 5 and 8 which we covered earlier. Generally speaking students prefer social types of values than individual benefits. The results of research show that being direct to understanding people and giving them kindness were pointed as the most important principals (for postgraduate students). The choices show that people who take particular life paths have noble imaginations about their life and the role of their life.

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Katarzyna Sygit

Unit of Health Promotion, Department of Physical Culture and Health Promotion, University of Szczecin
Zakład Promocji Zdrowia, Wydział Kultury Fizycznej i Promocji Zdrowia, Uniwersytet Szczeciński

Risky preservations with the essential problem of the youth from the rural environment

Zachowania ryzykowne istotnym problemem młodzieży ze środowiska wiejskiego

Summary
Introduction: Taking risky behaviours is a typical phenomenon amongst teenagers. Substances i.e. nicotine, alcohol or other substances are one of the greatest threats to health of children and young people psychoactive.
Aim: With purpose this the work is feeling presenting the problem taking substances is which (tobacco plant, liquors) by the young stock from the country environment.
Material and methods: With population examinations representative young people were included from 15 to 19 of year of living from the country environment (altogether 984 persons) and of their – parents, from the district drawn for examinations from the zachodniopomorski province. Author's – questionnaire forms of the questionnaire form were used for examinations. The collected information in questionnaire forms of questionnaire forms was encrypted and they drew up by a computer. A C Pearsona test was used to a statistical analysis of examined relations.
Results: How the considerable part of young people results from examinations is reaching for the tobacco plant and liquors. A dependence of smoking tobacco on the sex was stated examined much for the tobacco plant boys more often reach – (15.52%) than girls (10.62%). In case of drinking liquors they observed opposite situation. Much girls more often drink alcohol (59.12%) than boys (54.87%). More evenly a dependence of drinking alcohol on educating parents was stated (for them higher educating parents with it drinking alcohol bigger - 67.35%) and from the financial situation of the household and the income (for them higher income to 1 family member drinking alcohol is it higher – of the 23.76%).
Conclusions: The considerable part of the examined young stock from the country environment is taking substances (the tobacco plant and alcohol). Dependences of taking substances on chosen descriptive variables were also stated, so as: the sex, educating parents, the financial situation of the household and the income in the household.

Key words: substances, tobacco plant, alcohol, health behaviours

Streszczenie
Wprowadzenie: Podejmowanie zachowań ryzykownych jest typowym zjawiskiem wśród dorastającej młodzieży. Jednym z największych zagrożeń dla zdrowia dzieci i młodzieży są używki tj. nikotyna, alkohol czy inne substancje psychoaktywne

Cel pracy: Celem niniejsze pracy jest przedstawienie problemu jakim jest stosowanie używek (tytoń, napoje alkoholowe) przez młodzież ze środowiska wiejskiego.
Materiał i metody: Badaniami populacyjnymi reprezentacyjnymi objęto młodzież od 15 do 19 roku życia ze środowiska wiejskiego (ogółem 984 osoby) i ich rodziców z wylosowanego do badań powiatu z województwa zachodniopomorskiego. Do badań wykorzystano autorskie kwestionariusze – ankiety. Zebrane informacje w kwestionariuszach ankiet zakodowano i opracowano komputerowo. Do analizy statystycznej badanych zależności zastosowano test C Pearsona, V Cramera, R rang Spearman.
Wyniki: Jak wynika z badań znaczna część młodzieży sięga po tytoń i napoje alkoholowe. Stwierdzono zależność palenia tytoniu od płci badanych – znacznie częściej sięgają po tytoń chłopcy (15,52%) niż dziewczęta (10,62%). W przypadku picia napojów alkoholowych zaobserwowano odwrotna sytuację. Znacznie częściej piją alkohol dziewczęta (59,12%) niż chłopcy (54,87%). Równiej stwierdzono zależność picia alkoholu od wykształcenia rodziców (im wyższe wykształcenie rodziców tym spożycie alkoholu większe - 67,35%) oraz od sytuacji finansowej gospodarstwa domowego i dochodu (im wyższy dochód na 1 członka rodziny tym spożycie alkoholu jest wyższe – 23,76%).
Wnioski: znaczna część badanej młodzieży ze środowiska wiejskiego stosuje używki (tytoń i alkohol). Stwierdzono również zależności stosowania używek od wybranych zmiennych opisowych, takich jak: płeć, wykształcenie rodziców, sytuacja finansowa gospodarstwa domowego oraz dochód w gospodarstwie domowym.

Słowa kluczowe: używki, tytoń, alkohol, zachowania zdrowotne

Introduction

Undertaking of risky behaviours is a typical phenomenon among the adolescent youth. The frequency of the occurrence of these behaviours increases together with the age. Young people pass from the phase of the experimentation to growing more intense and the fixation of risky behaviours, what can play hell with wholesome and social. Most often met risky behaviours they are: the smoking tobacco, drinking of tipples, the usage of other substances psychoactive etc. (Barnekow et al. 2000).

The smoking of the tobacco according to the World Organization of the Health, constitutes the most important risk factor for the health, and also the major cause of the premature mortality in developed countries and being developed. Which health hazard carries behind himself the nicotine is gigantic and often is sometimes underestimated. One estimates that about 50% young people who begin the smoking becomes heavy smokers for the period at least 16-20 years (WHO, 2005).

Numerous investigations show that first experiences with the boozing it takes place within a period of growing. With the sentence of numerous authors (Foster et al. 2007; Kandel et al. 2007; Mazur et al. 2004) the boozing is one of many social behaviours (Foster et al. 2007). The regular and excessive consumption of the alcohol through the youth becomes a problem both for her herself as and for the society. Negative consequences of the boozing include wholesome, psychological problems, the trauma, events etc. From the beginning years 90 clearly grows up the percentage of pupils of often drinking the alcohol. In 2002 almost 29% 15-years-olds admitted that at least once had been in a position the intoxication, 34% boys and 23% girls (Sygit, 2003).

Aim

A purpose present of the work is the presentation of the problem which is the application of stimulants (the tobacco, tipples) through the youth from the rural environment and the description of the dependence among the application of stimulants and variable descriptive such as: the sex, the education of parents, the household income, the financial situation of the household.

Material and methods

With population representative research one included 984 persons from 15 to 19 the age year from the rural environment and 984 persons - their parents, from drawn by lot to research of one of administrative districts from the province West Pomeranian. The selection of the administrative district was random, and the youth – purposeful. For that purpose one prepared and one checked in pilotage author's research exploratory tools was which questionnaires – surveys, filled by the youth from 15-19 the age year, and the pursuance by their parents.

The collected information in questionnaires of surveys one encoded and one elaborated computer. To the statistical analysis of examined dependences one applied the test Chi Pearsona, V Cramera, R of ranks Spearman.

Results

- The situation socio-exist of country families from which comes the rural youth.

From full families it came 85,87% examined and incomplete (14,13%). Prevailed nonagrarian farms from which came the examined youth (83,23%); and from agricultural farms – 16,7%. In the household it is enough money on all (without the saving) only according to 6,7% examined. The greatest percentage of examined (35,52%) it gave, that we „economise and troubles are with greater shopping". As it gets out of carried out analysis 10,16% examined evaluated, that „money is enough on the cheapest eating but is not on clothes". The highest income on 1 person monthly in the household carries out 200 zloty (according to 40,37%), from 201-299 zloty (according to 45,36%) and from 300-391 (according to 14,27%). Main sources of income in the farm are: the production of agricultural – only 14,41%, from the agricultural pension 6%) and from other sources as many as 79,54% (Tab. 1).

Tab. 1. Situation socio-exist of country families from which comes the rural youth.

The family pattern		The farm		The economic situation of the household (for example)		The income on 1 person in the household (zloty)			The main source of income of the household		
full	incomplete	agricultural	nonagrarian	very goods	evils	200	201-299	300-399	the farm output	the pension	other
85,87%	14,13%	16,77%	83,23%	6,74%	10,16%	40,37%	45,36%	14,27%	14,41%	6,05%	79,54%

The most of the examined youth from the rural environment constituted girls – 55,20%, however boys constituted the percentage 44,80% (Fig.1). The difference between fractions statistically essential ($p<0,05$).

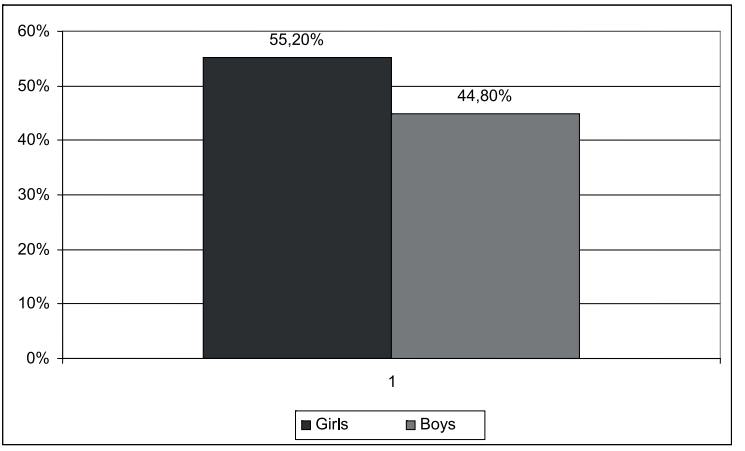


Fig. 1. Structure of examined in respect of the sex

As result of carried out research one found, that in the group of the examined youth from the rural environment 10,67% burns the tobacco, 4,38% burns on an empty stomach, and 63,42% never smoked the tobacco and does not burn still. the fraction of smokers is substantially higher from fractions burning on an empty stomach ($p<0,05$) and substantially statistically lower from the fraction of non-smoking ($p<0,05$) persons. (Fig.2).

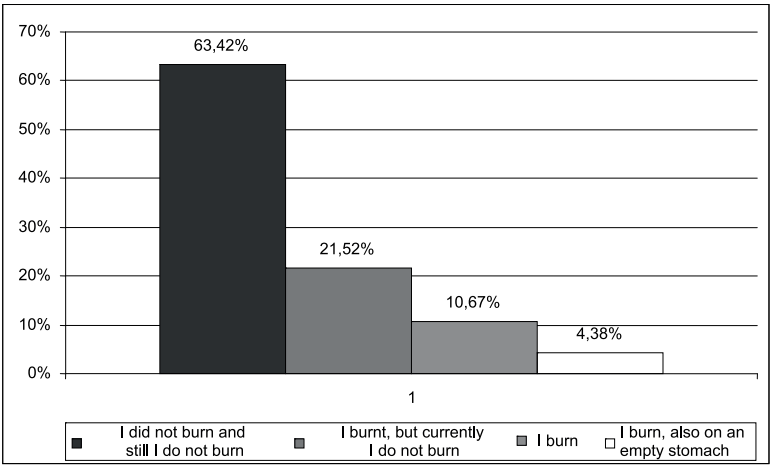


Fig. 2. Smoking of the tobacco through the youth from the rural environment

As it gets out of research, as many as 50,07% youths from the rural environment consumes the alcohol of chance, and 2,37% drinks systematically (at least 4 x on week-days). Differences of the balk with fractions statistically essential (p<0,05) (Fig.3).

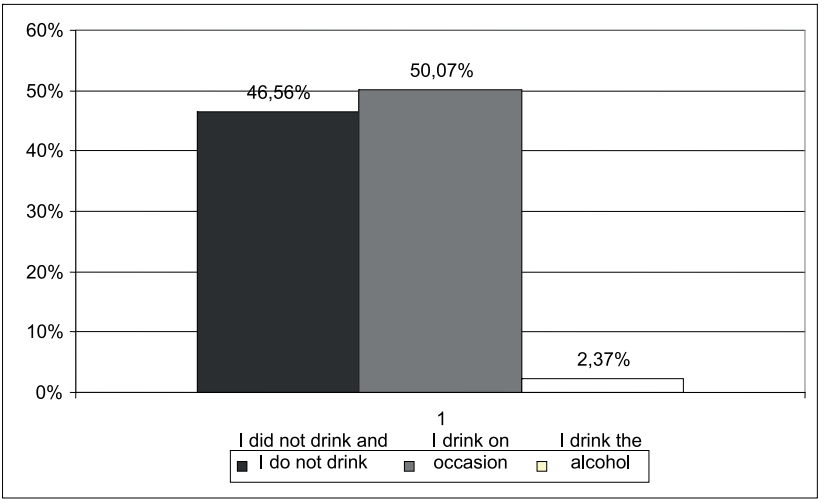


Fig. 3. Boozing through the youth from the rural environment

- Dependences of the application of stimulants (the tobacco and tipples) from some variable descriptive.

One found the statistically essential dependence (p=0,04996) among the sex of the examined youth from the rural environment and with the smoking of the tobacco. In the group of examined girls 10,62% it smokes cigarettes where of 3,30% also on an empty stomach. However in the group of examined boys 15,52% it smokes cigarettes whereof 5,47% burns also on an empty stomach (Tab.2).

Tab. 2. the Dependence of the smoking of the tobacco from sexes examined

The Sex	The smoking of the tobacco				Total
	I never burnt and still I do not burn	I burnt once, but currently I do not burn	I burn	I burn also on an empty stomach	
The woman	356 65,20%	114 20,88%	58 10,62%	18 3,30%	546
The man	248 56,62%	98 22,37%	68 15,52%	24 5,47%	438
Total	604	212	126	42	984
Chi^2 Pearsona	7,82	df=3	p=0,04996		
V Cramera	0,09				
R rang Spearman	0,07	t=2,3213	p=0,002048		

As gets out of research the smoking of the tobacco through the youth did not depend on the education them parents (p>0,05). Alarming is however the fact, that in the group of examined whose parent (the fulfilling questionnaire of the survey) had the higher education, as many as 25,68% youths smokes cigarettes.

The least percentage burning one noted down in the group of examined whose parent (the fulfilling questionnaire of the survey) had the professional (12,07%) (Tab.3) secondary education.

Tab. 3. Dependence of the smoking of the tobacco of examined from the education of parents (according to the opinion of parents)

The education of the person fulfilling this survey	The smoking of the tobacco				Total
	I never burnt and still I do not burn	I burnt once, but currently I do not burn	I burn	I burn also on an empty stomach	
Basic	113 63,13%	35 19,55%	22 12,29%	9 5,03%	179
Average general	130 62,80%	40 19,32%	32 15,46%	5 2,42%	207
Average professional	296 60,53%	120 24,54%	59 12,07%	14 2,86%	489
Higher	46 42,20%	16 14,67%	28 25,68%	19 17,43%	109
Total	585	211	141	47	984
Chi^2 Pearsona	6,84	df=9	p=0,65328		
V Cramera	0,05				
R rang Spearman	0,00	t=,01381	p=0,98899		

One did not find the dependence among the smoking of the tobacco and with the income in the household (p>0,05). However essential is the fact, that in households in which the average income on one person monthly carries out 600 zlotych and more, as many as 23,76% examined stake cigarettes (Tab.4).

Tab. 4. Dependence of the smoking of the tobacco of examined from the income in the household

The average income on 1 person monthly in the household carries out	The smoking of the tobacco				Total
	I never burnt and still I do not burn	I burnt once, but currently I do not burn	I burn	I burn also on an empty stomach	
200 zł	235 60,72%	82 21,19%	55 14,21%	15 3,88%	387
201-299	124 62,00%	48 24,00%	23 11,50%	5 2,50%	200
300-391	85 59,03%	29 20,14%	27 18,75%	3 2,08%	144
400-499	63 66,32%	24 25,26%	8 8,42%	0 0,00%	95
500-599	39 68,42%	11 19,30%	6 10,53%	1 1,75%	57
600 and more	36 35,64%	14 13,86%	24 23,76%	27 26,73%	101
Total	582	208	143	51	984
Chi^2 Pearsona	18,00	df=15	p=0,26286		
V Cramera	0,08				
R rang Spearman	-0,04	t=-1,143	p=0,25350		

One found the statistically essential dependence (p=0,00081) among the drinking of tipples and with the sex of examined In the group of examined girls, as many as 59,12% it reaches for tipples, however in the group of examined boys 54,87% (Tab.5).

Tab. 5. Dependence of the boozing from sexes examined

The sex	The boozing			Total
	I drank never and I do not drink still	He drinks	He drinks occasionally	
The woman	222 40,88%	321 59,12%	0 0,00%	543
The man	173 39,22%	242 54,87%	26 5,89%	441
Total	395	563	26	984
Chi^2 Pearsona	14,24	df=2	p=0,00081	
V Cramera	0,12			
R rang Spearman	0,02	t=,56098	p=0,57494	

As it gets out of carried out research one found the dependence (p=0,02895) among the boozing and the education of parents. In the group of examined whose parents (both) had the higher education, as many as 67,35% youths reaches for tipples. The least percentage of examined of consuming the alcohol (47,01%) was found in families in which one of parents has the secondary education, and second basic (Tab.6).

Tab. 6. Dependence of the boozing through examined from the education them parents

Your parents have an education	The boozing			Total
	I drank never and I do not drink still	He drinks	He drinks occasionally	
higher (both)	14 28,57%	33 67,35%	2 4,08%	49
average of general education (both)	22 34,38%	41 64,06%	1 1,56%	64
average professional (both)	179 40,50%	259 58,60%	4 0,90%	442
basic (both)	51 42,15%	67 55,37%	3 2,48%	121
1-higher 2-average	17 29,82%	40 70,18%	0 0,00%	57
1-average 2-basic	104 41,43%	118 47,01%	29 11,55%	251
Total	387	558	39	984
Chi^2 Pearsona	17,25	df=10	p=0,06906	
V Cramera	0,09			
R rang Spearman	-0,07	t=-2,188	p=0,02895	

The essential meaning in the evaluation of preservations of wholesome youths has the financial situation of the household.

As result of carried out research one found, that in households where the financial situation is very much goods (it is enough money on all) most often the youth reaches for tipples (61,33%). However in households in which the financial situation is the bad (money it is not enough on the eating and clothes) youth more seldom reaches for the alcohol (34,14%) (Tab.7).

Tab. 7. Dependence of the boozing through the examined youth from the financial situation of the household

Whether in the household	The boozing			Total
	I drank never and I do not drink	He drinks	He drinks occasionally	
it is enough money on all without the saving	25 33,33%	46 61,33%	4 5,33%	75
we economise, but it is enough on all	102 37,78%	166 61,48%	2 0,74%	270
we economise and troubles are with greater shopping	145 41,43%	204 58,29%	1 0,29%	350
money it is enough on the cheapest eating and clothes	39 38,61%	59 58,42%	3 2,97%	101
money it is enough on the cheapest eating but not on clothes	52 49,06%	54 50,94%	0 0,00%	106
money it is not enough on the cheapest eating and clothes	24 29,26%	28 34,14%	30 36,58%	82
Total	387	557	40	984
Chi^2 Pearsona	24,09	df=10	p=0,00736	
V Cramera	0,11			
R rang Spearman	-0,07	t=-2,214	p=0,02704	

One found the statistically essential dependence (p=0,00784) among the boozing through the examined youth and the income in the household. One finds , that the greatest percentage of the youth consuming tipples appears in families in which the average income on one person carries out from 300 to 599 zlotych (Tab. 8).

Tab. 8. Dependence of the boozing from the income in the household

The average income on 1 person monthly in the household carries out	The boozing			
	I drank never and I do not drink	He drinks	He drinks occasionally	Total
200 zł	177 46,09%	199 51,82%	8 2,08%	384
201-299	79 39,90%	118 59,60%	1 0,51%	198
300-391	52 35,62%	93 63,70%	1 0,68%	146
400-499	34 36,17%	60 63,83%	0 0,00%	94
500-599	22	36	0	58

	37,93%	62,07%	0,00%	
600 and more	18 17,30%	49 47,11%	37 35,57%	104
Total	382	555	47	984
Chi^2 Pearsona	16,30	df=10	p=0,09134	
V Cramera	0,09			
R rang Spearman	0,09	t=2,6647	p=0,00784	

Discussion

The situation wholesome population is greatly alarming, in this the state of health of children and youths from the environment urban and rural (Sygit et.al. 2008).

Findings indicate that exist many scarcities within the range preservations of youths favoring to their health (prowholesome); antiwholesome behaviours exceed over prowholesome behaviours (Sygit, 2003; Szymborki et al. 2000; Woynarowska et al. 2005).

On dependencies susceptible turn out especially young people to whom it is lacking the mature hierarchy of the value which do not undertake the trouble of the creation of positive bonds which are not resistant on the frustration, do not place to themselves requirements, do not undertake responsibilities too the own life and the behaviour which seek the immediate pleasure or the relief (Amadeo et al. 2003).

According to WHO, in Poland the greatest percentage of the loss of the health of the population of children and youths gets out of smoking of the tobacco (16%), the arterial hypertension (10,4%), the excessive consumption of the alcohol (9,2%) and the obesity (15%) (WHO, 2003).

The commencement of the smoking of the tobacco among children and youths causes greater and faster rubbed off wholesome. According to B. Woynarowskiej (2004) together with the age increases the percentage of teenagers whose wholesome behaviours wake reservations.

From among burning cigarettes – smokes currently every day 10,67% teenagers from the rural environment. In research B. Woynarowskiej (2003) this problem has concerned already 43% children for 11-15 years and violently grew up together with the age. Results of the present work indicate the differentiation of the level and the structure of the smoking of the tobacco, namely depending on: sexes examined (more often burn boys), educations of parents (more often reach for the tobacco the youth of which at least one of parents has the higher education) and the household income (the greater threat appears in households where the income exceeds 600 zlotych per person).

Psychosocial conditionings of the nicotine poisoning it gives A. Jakubik (1995). In research M. Jodkowskiej (1999) from among examined pupils 72,8% admitted to tests of the smoking of the tobacco. Every day it burnt 23,7%, substantially more often burnt boys than girls, living in town than in the country.

According to WHO, the smoking of the tobacco – constitutes the currently most serious risk factor for the health, and also the major cause of the premature mortality in developed countries (WHO, 2003). Wg B. Skrzyńskiej end B. Woynarowskiej (1997) percentages burning cigarettes, at least once a week 15 the years old youth was very high in European countries, e.g. 31% in Hungary, 21% in Norway and 20% in Poland, in my research he carried out 10,67%.

Drinks the alcohol of 2,37% youths from the rural environment. In earlier my research it drank the alcohol 8,9% the examined youth (Sygit, 2003). In other research (Borucka et al. 2004) tried tipples from 40-76% the youth aged 11-15 years (90% among 15 years-olds).

In research J. Szymborski et al. (2000) 40% youths consumed the alcohol within last of 12 months (more also boys than girls), more often also in town than in the country the youth coming from families about the bad financial situation, more often got drunk than the youth well situated.

In present research one found also the dependence of the boozing from the education of parents (to them the higher education of parents this the greater consumption of the alcohol through the youth), the financial situation of the household and from the income (to them better financial condition this the consumption of the alcohol is greater). B. Woynarowskiej (2003), in 2002 29% 15 years-olds admitted that at least the once had been in a position the intoxication, (34% boys and 23% girls).

As gets out of numerous research the vast majority of the youth considers himself free persons from dependencies. This results probably from this that they do not know mechanisms of dependencies. Not to the end they realize that they are already heavy smokers or alcoholics. See because nothing bad in this that burn cigarettes, drink the alcohol whether indulge in drugs (Kandel et al. 1992).

Conclusions

Into results of carried out research, concerning of the application of stimulants (the tobacco and the alcohol) through the youth from the rural environment, one found:

I. the large percentage of the youth smokes cigarettes and reaches for tipples.

II. one found the dependence of the application of stimulants from chosen variable descriptive:

1. the smoking of the tobacco is substantially higher in the group of examined boys than girls;
2. the drinking of tipples is higher in the group of examined girls ;
3. the drinking of tipples is substantially higher in families in which parents have the higher education and in the farm domestic about the high material standard.

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Agnieszka Surynt

Department of Humanities Science and Health Promotion University School of Physical Education in Wroclaw
Katedra Nauk Humanistycznych i Promocji Zdrowia Akademii Wychowania Fizycznego we Wrocławiu

Self-assessment of the activity effectiveness under the program of health promotion and addiction prevention „COMMUNITY SPORTS COACH"

Samoocena skuteczności zajęć prowadzonych w ramach programu promocji zdrowia i profilaktyki uzależnień „TRENER OSIEDLOWY"

Summary
One of the most important questions concerning the effective program of dealing with aggressive behaviors of youth among city environment is asking about ways. Either in Europe or the United States of America exist patterns of using sport as an effective way of constructive orientation of undesirable behaviors but also behaviors which give chances to create social relationships. Wroclaw is one of the cities in Poland where this kind of program is carried out. It was started with initiative of Urban Sport Office in Wroclaw workers in 2003 and is continues still. Observations on the program were conducted since 2006, and one of the elements of the study is to evaluate the effectiveness of these activities. Therefore, the aim of this study is self- assesment of the activity effectiveness of health promotion and substance abuse prevention in the program „Community sports coach". After all, the success of this important social project largely depend on them. Due to coaches and their work the objective, which was originally planned, while citing this program in Wrocław, was possible to achieve.

Key words: children, sport activities, Community Sports Coach, program, self-assessment, efficiency

Streszczenie
Jednym z najważniejszych pytań dotyczących skutecznych programów radzenia sobie z agresywnymi zachowaniami młodych ludzi w środowisku wielkomiejskim, jest pytanie o sposoby. Zarówno w Europie jak i w Stanach Zjednoczonych istnieją wzorce wykorzystania sportu jako skutecznego sposobu nie tylko konstruktywnego ukierunkowania niepożądanych zachowań, ale też dających szansę na budowę więzi społecznych. W Polsce program o podobnych założeniach realizowany jest między innymi we Wrocławiu. Rozpoczął się on z inicjatywy pracowników Biura Sportu Urzędu Miejskiego we Wrocławiu w 2003 roku i kontynuowany jest do dzisiaj. Obserwacje nad tym programem trwają od 2006r a jednym z elementów badań ewaluacyjnych jest ocena skuteczności tych zajęć. Zatem celem niniejszego opracowania jest samoocena skuteczności zajęć prowadzonych w ramach programu promocji zdrowia i profilaktyki uzależnień „Trener Osiedlowy". Przecież

to właśnie w dużej mierze od nich samych zależy powodzenie tego ważnego społecznie przedsięwzięcia. Gdyby nie trenerzy i ich praca najprawdopodobniej nie udałoby się osiągnąć celu, który pierwotnie zakładano, powołując do życia program wrocławski.

Słowa kluczowe: dzieci, aktywność ruchowa, trener osiedlowy, program, samoocena, skuteczność

Introduction

„Community Sports Coach", a program for promotion of health and prevention of addictions, is a part of the wider government strategy popularizing active lifestyle. The government announcement says that „one of the fundamental tasks of the State is to provide citizens with opportunities to practice sport, regardless of their financial status or social position. Therefore enough attractive forms should be created to encourage as many people as possible to the sports activity. In accordance with the Strategy for the Development of Sport in Poland by 2015, the goal of the Ministry of Sport and Tourism is to reduce the gap between Poland and other European countries in this field. Implementation of these tasks is conditioned by a significant increase in funding for the purpose. Promotion of the healthy lifestyle is one of the most important tasks that must be consistently pursued. Development of sports infrastructure will be of great importance in this matter. We want to put emphasis on popularization of active lifestyle, namely family sports weekends, sports and tourism" (information from the website of the Ministry of Sport and Tourism of the Republic of Poland, January 28, 2011).

The strategies of modern prevention are directed into settlement interventions.

Due to „Ottawa Charter" the important significance in solving the psycho-community problems has the local community and the local cooperation in recovery of the life quality of inhabitants of given population and more common ways constructive of spending free time which include sport activity (Hamilton, Bhatti, 1996; Taylor, Edwards, 2001).

Recommendations in such a prevention can be found in many documents of WHO and ONZ. These kind of activity is addressed to children and young who live or learn in a given town district. The organizers are set on more to get into young people „excluded" from local community and juvenile risks groups (Botvin et al. 990; Galambos et al. 2000).

In Poland, a similar program, namely „Prevention of aggression and pathology among children and young people through sport", was taken in Lodz in 2008. Its main task is to "reduce the level of aggression and pathology of the younger generation, through creating opportunities for the participation of children and young people in various forms of physical activity". The information shows that its implementation will proceed using the European Union funds (according to the financial perspective 2007-2013) and the state budget. There is also an „Interministerial agreement under the program: prevention of aggression and pathology among children and adolescents through sport". According to the Expose of the Polish Prime Minister Donald Tusk from 23 November 2007, over the past years a program „My playground Orlik 2012" began to be implemented on a grand organizational and propaganda scale. The legal basis for the program is the regulation of

the Minister of Sports and Tourism from 6 April 2009 on the financing tasks related to the construction and renovation of sports facilities and sports development from state budget (Journal of Laws of April 7, 2009, No. 56, item. 463). The main objective of the program is to provide children and youths with modern sports infrastructure in order to engage them into sports and physical development under the guidance of coach-animator, and to popularize active lifestyle, namely family sports competitions, weekends with sport and tourism.

On the other hand, in Wroclaw there is a program of health promotion and prevention of addictions „Community Sports Coach", which has been implemented successfully since 2003. The program has been selected as a leader in the competition of programs on health promotion and prevention of addictions and it is implemented by Wrocław Sports School Association on behalf of Sports Bureau in the Municipal Office of Wrocław.

The main objectives of the program are: 1 increasing the number of children and young people spending time in safe, organized way in sports manner; 2 improve safety on playgrounds and green areas; 3 increase youth self-government; 4 arouse interest in the issue of the proper organization of leisure of children and youths among themselves, as well as parents, institutions working for children and young people, sponsors and others.

Initially there were 3 persons employed, who carried out such activities in the selected sports and recreation areas of Wrocław. The positive effects observed resulted in the decision of the City to extend the area of operations of coaches and next year in April the number of people who became neighborhood coaches rose to 30, and in June 2004 to 32. In 2005 there were already 42 coaches and since 2006 the number of coaches has stabilized on a constant level of 47 people. Nowadays that number is also 47. The classes are held on weekdays and Saturdays with the possibility of some classes happening on Sundays. They are also carried out during the summer holidays. Each of the coaches has to carry out 15 hours a week, in previous years that number was 18. Thus, it is easy to calculate that the profit of the city thanks to "controlled" leisure is significant. Also, the number of areas under influence of coach increased. From the three areas covered by the program at the very beginning, the number was in turns 27, 32, 34 and in recent years as many as 35 districts.

Community sports coaches, indirectly by offering constructive leisure activities with the use of sports and recreational activities, are to counteract the pathological behavior among children and adolescents in the city of Wroclaw. Their main responsibilities include: 1.carrying out sports and recreational activities in the afternoon on the pitch set, 2.keeping the register of daily activities, 3. organizing sporting, recreational and tourist events 4. preparing schedule for the sporting holidays, 5.taking care of safety of the participants, 6.forming appropriate attitudes and patterns of behavior. Additionally, the neighborhood coaches have influence in the environment of children and adolescents from housing estates in Wrocław. They promote organized, active lifestyle, create a climate conducive to safety and health, shape self-governing attitudes and establish and facilitate cooperation with other social groups.

From the observations lead by organizers and program directors in previous years resulted that this idea is attractive and interesting for many Wroclaw residents (Surynt et al. 2007a; Surynt et al. 2007b; Surynt et al. 2009).

It was confirmed by the results of evaluation studies conducted in the years 2006-2011 (Surynt, Kulmatycki, 2010a; Surynt, Kulmatycki, 2010b; Surynt, Kulmatycki, 2011). And how the very coaches evaluate the program and the activities they carried out in the following years? After all, the success of this important social project largely depend on them. Due to coaches and their work the objective, which was originally planned, while citing this program in Wrocław, was possible to achieve.

To answer these questions late September and October 2012 there was once again, exactly the seventh time, conducted a study aimed to evaluate the program realized in yards and neighborhoods of Wrocław. Self-assessment of activities carried out by local coaches was also a part of the study.

Material and research

Three basic tools were used to evaluate the implementation of the program: sheet T, sheet O and sheet U.

Sheet T was filled out by neighborhood coaches, it contained 11 questions with regard to the activities organized by them (self-esteem).

Sheet O was filled out by trained evaluators. It included three groups of 10 questions.

Sheet U took into account the opinion of the participants of the program and consisted of 5 questions.

All sheets were filled in once at the end of the season of neighborhood coach work. The study has been extended to cover all the places where the coaches worked.

It was possible to carry out the research in 44 city areas of Wrocław from total 47 taking part in the program. It means that the presented material includes 44 local coaches opinion.

In the following study there were used data from spreadsheet T, which included the following questions: 1.An average number of participants active at the beginning of classes; 2.An average number of players active at the end of the classes, 3.Average number of participants of passive activities; 4.An average age of active participants; 5. Kind of dominant activity (team games, playing together according to the rules, spontaneous fun together, individual assignments, sub-division to rival groups); 6. Effectiveness of activities in terms of physical activity (very high, high, medium, low, very low), 7 . Safety during classes (very high, high, medium, low, very low); 8. Self-esteem of a coach as an organizer of today's schedule (very high, high, medium, low, very low); 9. Weather conditions for classes (very favorable, favorable, average, rather adverse, very adverse, does not matter); 10. Help from members of the local community (very big, big, medium, little, very little), and 11. The overall atmosphere of all classes (very good, good, medium, bad, very bad).

Data analyses

Given the number of people involved in the classes of „Community Sports Coach" in 2012 the average number of participants active at the beginning of classes was 12, while at the end of classes the number usually increased (an average of about 15). The average number of passive participants was about two people. Passive participants are those individuals who are physically present during the classes, but do not take part in them, such as accompanying persons (parents, grandparents) or simply onlookers (spectators, witnesses of the events, the curious passers-by). Young people that took part in the program in 2012 were most often about 13 years old.

The predominant type of physical activity according to coaches were team games, which occupied about ⅔ of all time of the classes. Subsequently appeared playing together according to the principles and individual assignments (table 1).

Tab.1. The dominant activity type of the classes „Community Sports Coach"

Answers	n	%
Team games	40	67,8
Playing together according to the rules	7	11,9
Spontaneous fun together	3	5,1
Individual assignments	5	8,4
Sub-division to rival groups	4	6,8
Total	59	100

n – number of examination, % - percentage

Considering the effectiveness of the classes in terms of physical activity it can be noticed that the coaches usually evaluated it as high (59,1% of responses). There are also typing the answer „very high" (27,3%) and „medium" (13,6%). None of the coaches has rated the effectiveness of activities as „low" and „very low" (Table 2).

Tab. 2. Efficiency of classes „Community Sports Coach" in terms of physical activity

Answers	n	%
Very low	0	0,0
Low	0	0,0
Medium	6	13,6
High	26	59,1
Very high	12	27,3
Total	44	100

n – number of examination, % - percentage

Similar responses occurred during the evaluation of safety of the classes. Maintaining safe conditions during the classes in the opinion of trainers was primarily high (63,6% of responses), very high (29,5%) and average (6,9%) (Table 3).

Tab. 3. Maintaining safety during the classes of „Community Sports Coach"

Answers	n	%
Very low	0	0,0
Low	0	0,0
Medium	3	6,9
High	28	63,6
Very high	13	29,5
Total	44	100

n – number of examination, % - percentage

Coaches evaluating themselves as organizers of the classes in the vast majority pointed to „high" self-esteem (68,2% of responses). 7 responses got also „very high" and „medium" (15,9%) self-esteem. Not even one coach has evaluated their self-esteem as „low" and „very low" (Table 4).

Tab. 4. Self-assessment of coaches as the organizers of classes „Community Sports Coach"

Answers	n	%
Very low	0	0,0
Low	0	0,0
Medium	7	15,9
High	30	68,2
Very high	7	15,9
Total	44	100

n – number of examination, % - percentage

An important element of the classes, due to their nature, are weather conditions, that could foster or hinder the classes and sometimes make it even impossible. In the opinion of coaches weather conditions for classes in 2012 in the majority of cases were favorable (43,2%), very favorable (22,7%) and average (20,4%). But there were also answers: „adverse" or „very adverse", which surely did not facilitate the work and favor attendance (Table 5).

Tab. 5. Weather conditions for classes „Community Sports Coach"

Answers	n	%
Very adverse	1	2,3
Rather adverse	4	9,1
Average	9	20,4
Favourable	19	43,2
Very favourable	10	22,7
Does not matter	1	2,3
Total	44	100

n – number of examination, % - percentage

Support from members of the local community was also a part of evaluation of the program, which coaches evaluated as the medium (36,4%) and big (29,5%). Many coaches declared also that the help was very big (15,9%). However, there appeared voices indicating the little and very little help (Table 6).

Tab. 6. Support from members of the local community during the classes of „Community Sports Coach"

Answers	n	%
Very little	6	13,6
Little	2	4,6
Medium	16	36,4
Big	13	29,5
Very big	7	15,9
Total	44	100

n – number of examination, % - percentage

The final element evaluated by the coaches was a general atmosphere of the whole classes. The vast majority of coaches evaluated it good and very good. 54,5% of coaches evaluated it „good", and 38,6% „very good". There appeared also an medium rate (6,9%). None assessed their classes bad and very bad (Table 7).

Tab. 7. Overall evaluation of atmosphere of all classes „Community Sports Coach"

Answers	n	%
Very bad	0	0,0
Bad	0	0,0
Medium	3	6,9
Good	24	54,5
Very good	17	38,6
Total	44	100

n – number of examination, % - percentage

Discussion

The authorities and leaders of large urban agglomerations around the world are looking for constructive solutions aimed at countering the wave of aggression and drug abuse among young people (Coalter et al. 2000). In the context of social sciences at the level of intervention of the local community may try to cooperate with each institution. Intervention itself should be particular open to dialogue with the recipients, because over time they should feel jointly responsible for events not only on the field, but also in the estate and not only during the run course, but also before or after.

From studies conducted in other countries, the authors emphasize the achievement of phase identification with the idea, which may be the beginning of change among the „neighborhood communities" (Griffin, 2000; Voorhees et al. 2005). Some American authors suggest even a reduction of pathological behavior by 22 percent (Schinke et al. 1997).

On the one hand, I feel that the program "Community Sports Coach" has still a lot of organizational shortcomings and deficiencies in the substantive preparation of coaches, particularly when confronted with difficult situations, so it is not really appropriate to compare it to projects implemented in other countries. On the other hand, it is too early

to compare it with the „Orliki" program, as compared to beginning fields of government program, the city's offer is far more complex and substantially more mature. The data that were monitored in relation to the project of the city of Wrocław are already sufficiently large to be able to evaluate the program and identify the strengths and weaknesses of the project. It is not hard to calculate the profit of the city during seven years of the program conducted by dozens of „coaches" working 18 hours a week, and now 15. Of course, it is difficult to overestimate the role of "coach" facing the multiplicity of factors e.g. social intervention, but without a doubt such a program can be an excellent means of "controlled" leisure activities for children and adolescents from urban agglomeration. From the prevention of pathological behavior point of view it may be a very important argument. And yet another important aspect related to the adjustment of the program in the following months. We highlight the need for consistency and fairness in the implementation of the housing estate program. This is essential for achieving a positive change in work for the local community development (Catalano et al. 2000). Without a doubt, the role of the workers in favor of the local community is played also by the employed by the city „Community Sports Coach". Note, however, that after all it is still a new idea, therefore it requires not only professional support, but also interdisciplinary research.

Conclusions

1. The average age of participants in the program „Community Sports Coach" in 2012 was 13.
2. The dominant activity in the class were team games, they occupied about ⅔ of all time of the classes.
3. The coaches evaluated highly their work, the effectiveness of classes in terms of physical activity and maintaining safety in the playground. In any case, a good evaluation prevailed.
4. Weather conditions for classes in the opinion of most of the coaches were favorable, average and very favorable.
5. Support from members of the local community in the opinion of the trainers was medium, and big.
6. General atmosphere of all classes was rated mostly at a good level.

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Marta Koszczyc, Łukasz Koper

University School of Physical Education in Wrocław
Department of Didactics of Physical Education
Akademia Wychowania Fizycznego we Wrocławiu
Katedra Dydaktyki Wychowania Fizycznego

Health activities as the image of the lifestyle lived by people in late adulthood

Czynności zdrowotne, jako obraz stylu życia ludzi późnej dorosłości

Summary
Human life can be inscribed within specific development stages, beginning with the period of infancy until advanced old age. Each stage has its own characteristics of changes connected with regularities, possibilities and needs of a given age group. This means that in each chapter of life men should experience contentment and well-being in the physical, mental and social sphere. Achievement of harmony in these three areas of human existence is possible if man is able to undertake activities pertaining to lifelong caring for health. It also applies to the contemporary seniors.
The research undertaken by the authors is exploratory and was aimed to identify the profile of health activities (in the areas of rational eating, physical activity, avoiding stimulants and prevention). From the ethical point of view, the research was to substantiate the obligation of taking up pro-health activities as part of the actions affirming a decent life of aging people.
The cognitive objective came down to the answers to the following research questions:
1. How do seniors participating in the study live their pro-health lifestyle?
2. Which pro-health activities are undertaken most frequently?
For the purposes of the research, the questionnaire developed by Andrew Steptoe and Jane Wardle entitled "Health and Behaviour Survey Questionnaire" was used. It consisted of 28 questions concerning five classes of behaviour: using stimulants, behaviors supporting health including those connected with taking up physical activity, diet and eating habits, behaviors associated with car driving and medical prevention (Ostrowska, 1999).
The point of departure for this paper was an attempt to characterise the lifestyle of people in late adulthood on the basis of health activities stated by them. The authors of the present study endeavored to determine the type of behaviors the subjects undertake in order to increase their vital potential. In the presented research results it may be noticeable that in no area of their pro-health lifestyle do seniors declare any activities aimed to achieve a healthy lifestyle of a high degree. However, they add importance to activities concerning the quality of eaten products as well as regularly eaten meals. Therefore, the fact that seniors do not equate systematically preformed exercises with health-inducing activities of contemporary people seems to be an alarming issue. Following a pro-health lifestyle by seniors in all its spheres would be advantageous for their existential potential. In the authors' opinion, this is possible, if a contemporary man understands the relationship between effective activities (health activities) and a successful life.

Key words: health activities, lifestyle, people in late adulthood

Streszczenie
Życie ludzkie można wpisać w określone fazy rozwojowe począwszy od okresu niemowlęctwa aż po etap późnej starości. Każda z faz ma swoją specyfikę przemian związanych z prawidłowościami, możliwościami i potrzebami danej grupy wiekowej. Oznacza to, że w każdym rozdziale życia, człowiek powinien doświadczać zadowolenia i dobrostanu w sferze fizycznej, psychicznej i społecznej. Osiągnięcie harmonii w tych trzech obszarach ludzkiej egzystencji jest możliwe, jeśli człowiek będzie umiał podjąć działania w zakresie całożyciowej troski o zdrowie. Dotyczy to również współczesnych seniorów.
Podjęte przez nas badania należały do badań typu eksploracyjnego i zmierzały do rozpoznania profilu czynności zdrowotnych (w obszarach racjonalnego odżywania, aktywności fizycznej, unikania używek oraz profilaktyki lekarskiej). Z etycznego punktu widzenia badania miały uzasadnić powinność podejmowania prozdrowotnych czynności w działaniach afirmujących godne życie starzejącego się człowieka.
Zadanie poznawcze sprowadziło się do odpowiedzi na następujące pytania badawcze:
1. W jaki sposób seniorzy biorący udział w badaniu realizują prozdrowotny styl życia?
2. Które czynności prozdrowotne podejmowane są najczęściej?
W badaniach został wykorzystany kwestionariusz „Zachowania zdrowotne a zdrowie" (Health and Behaviour Survey Questionnaire) stworzony przez Andrew Steptoe i Jane Wardle składający się z 28 pytań dotyczących pięciu klas zachowań: stosowanie używek, zachowania wspierające zdrowie w tym zachowania związane z podejmowaniem aktywności fizycznej, dieta i zwyczaje żywieniowe, zachowania związane z prowadzeniem samochodu oraz profilaktyka lekarska (Ostrowska, 1999).
Punktem wyjścia do powstania niniejszej była pracy próba scharakteryzowania stylu życia ludzi w późnej dorosłości na podstawie deklarowanych przez nich czynności zdrowotnych. Starano się także określić jaki rodzaj zachowań badani podejmują, aby pomnożyć swój potencjał witalny. W przedstawionych wynikach badań możemy dostrzec, że w żadnym z obszarów prozdrowotnego stylu życia seniorzy nie deklarują działań związanych z uzyskaniem wysokiego stopnia prozdrowotności. Nadają oni jednak wysoką rangę działaniom podejmowanym w zakresie jakości zjadanych produktów oraz regularnego spożywania posiłków.
Niepokojący jest zatem fakt, że seniorzy nie utożsamiają systematycznie podejmowanych ćwiczeń z działaniami kreującymi zdrowie współczesnego człowieka. Realizowanie przez seniorów prozdrowotnego stylu życia we wszystkich jego sferach byłoby korzystne dla ich potencjału egzystencjonalnego. Naszym zdaniem jest to możliwe, jeśli współczesny człowiek zrozumie zależność pomiędzy skutecznym działaniem (czynnościami zdrowotnymi) a udanym życiem.

Słowa kluczowe: czynności zdrowotne, styl życia, ludzie późnej dorosłości

Introduction

Human life may be inscribed within specific development stages, beginning with infancy until advanced old age. Each phase has its own unique character of changes connected with regularities, possibilities and needs of a given age group. This means that in each chapter of life, men should experience contentment, satisfaction and well-being in the physical, mental and social sphere. Reaching harmony in these three domains of human existence is possible, on the condition that men are able to undertake activities with a view to lifelong caring for health. It also refers to contemporary seniors.

In the 70s the theory of health fields by Marc Lalonde was introduced. It acknowledged the fact that a lifestyle determines human health in 50% (Lalonde, 1974). WHO defines a lifestyle, as "a way of life based on mutual relationship between conditions of life in a broad sense and individual behavior patterns determined by socio-cultural factors and individual characteristics" (Misiuna, 1994).

By making lifestyle the main predictor of human health, Marc Lalonde at the same time verified the cognitive value of the biomedical model of health in which, as we know, the co-variate of subjectivity in health activities is excluded. From the anthropological point of view, this model was considered as reductionist for it ignored the human dimension in terms of personality and dignity. Revision of thinking about determinants of health forced far-reaching political and economic changes of democratically developed societies consisting in extending the areas of civil self-government and inducing a sense of joint responsibility for individual and common interest. A new ideological model of civic and self-governing societies recommended assuming joint responsibility for personal health, yet political and educational entities were to undertake common programs promoting a healthy lifestyle. Thus, attention was paid to the importance of conscious and individual activities of the subject, who may learn health, who can promote, protect it and participate in the healing process. Activities performed by adults should therefore lead to rationalization of pro-health activities in accordance with predominating theories, and enable practical acquisition of healthy lifestyle principles into the behaviours of the participants; (learning health activities through performance of activities with their alternating intellectualization).

Reflections on the notion of health behaviors

In the present study, the authors use the notion of "health activities" substituting it with a commonly used expression "health behaviors". In this manner the authors are emphasizing the relationship between this notion and physical anthropology of man as a person, thus as a subject who is intrinsic, autocratic and self-aware to take up activities of cultural contents, in accordance with a value pattern and its ideological model accepted by the social group. The "behavioral" definition of men excludes this authorization (subjectivity as such) and shows an "individual" as a reactive substance, that is *behaving* depending on the rewards given and penalties imposed (Pawłucki, 2009).

A human lifestyle is described however, as the area of behaviors undertaken by men, therefore we have found that it is vital to define this notion in the present work.

The phrase "health behaviors" causes many interpretative problems, both to practitioners as well as scholars, as its conceptualization provides direct empirical meaning.

In Polish academic writing a review of various perspectives of health behaviors has been presented by Krzysztof Puchalski. This author has defined health behaviors as "behaviors (or types of behaviors) selected by the observer and /or subject of activities, which on the basis of a certain system of knowledge (e.g. popular beliefs, a given scientific concept, social ideology etc.) remain in the significant, defined in the average option, relationship with health, expressed within the meaning established in this system of knowledge" (Puchalski, 1990). In this definition a cause and effect relationship has

been shown between the pro-health choices and self-awareness and conceptualization of the notion of health. If health and illness are treated as separate states (man is either healthy or ill and there are no indirect states) then they remain beyond control of an individual, which means that health, in this manner of perceiving is brought down to the rules of biological function of an individual, based on innate possibilities (biomedical model), only. Health activities, however are limited to seeing a doctor acting as a "bio-engineer" whose task is solely to repair a damaged body. The patient is not treated holistically and a man with a dysfunction has "no say in his/her situation".

In a holistic and functional model, health is a changing source, whereas an illness is a deficit of such immunological source, the potential of which depends on a conscious activity of a subject and a man is both a subject (decides about changes in relation to him/her-self) as well as a social person connected relationally with society and nature (Sęk et al. 1992). Health activities will be undertaken with the intention to maintain and increase the vital potential. The above relationship has been confirmed by the research carried out and published in 2002 by American Cancer Society. The obtained results showed that, every third death caused by cancer may be prevented by changing one's diet, taking up physical activity, protecting against UV radiation (Łuszczyńska, 2004).

A type of definitions relating to the awareness of the subject is represented by David S. Gochman. According to this author, the area of health behaviors covers such personal attributes as beliefs, expectations, motivations, observations and other cognitive elements, personal characteristics, including emotional states and qualities, patterns of one's behavior, action and habits, connected with maintaining, regaining and improving health (Gochman, 1988).

Another issue emphasized in the theoretical perspective of behaviors was the relationship between health behaviors and health from the point of view of their effects. An example may be the definition given by Andrzej Gniazdowski to whom health behaviors taken up by men induce certain positive or negative results in the field of health. The author sets apart two groups (Gniazdowski, 1990):

- behaviors in favor of health – e.g. taking up physical activity, rational eating, avoiding stimulants, maintaining the hygiene of the body and environment, coping with stress;
- anti-health behaviors - contributing to occurrence of and sustaining disorders, depressed mood e.g. using stimulants and drug abuse.

Health activities in seniors vs. value of health

The factor that is most motivating in order to take up specific health activities is the value that is attributed to health (Heszen-Niejodek, Życińska, 2001). Evaluation of health plays also an intermediary role between cognitive processes and readiness for activities supporting health. If in the deliberations about health activities of the contemporary seniors we assume that their basis is the existential value of health, this will mean that an adult does not refer health only to theoretical aspects, but takes up specific activities on the plane of human existence. For the purposes of the present study the following definition of value proposed by Jan Szczepański has been accepted, according to which value is any material or ideal object, idea or institution, actual or imaginary object, in relation

to which individuals or communities adopt a stance of respect, attribute a significant role in life to it and aspiration for achievement of it is considered compulsory to them (Szczepański, 1970). The above point of view treats values as *phenomena* which belong to the world of culture, becoming apparent in situations connected with activities of a social person (Znaniecki, 1912). Health as a value is the concept developed throughout the cultural development, referring to various forms of social awareness and considered equivalent with the mental and physical equilibrium state of men in social environment (Kowalski, Gaweł, 2007). By assigning high values to health we give meaning to life and make choices of specific health behaviors both in terms of oneself as well as other people.

The lifestyle lived seniors participating in the survey.

The research undertaken by the authors was explorative and aimed to identify the profile of health activities (in the areas of rational eating, physical activity, avoiding stimulants and prevention). From the ethical point of view, the research was to substantiate the obligation to take up pro-health activities in actions affirming a decent life of aging men.

The cognitive task came down to the answers to the following research questions:

1. How do seniors participating in the survey live a pro-healthy lifestyle?
2. Which pro-health activities are undertaken most frequently?

Methods

For the purposes of the research "Health and Behaviour Survey Questionnaire" developed by Andrew Steptoe and Jane Wardle was used. It consisted of 28 questions concerning five classes of behaviors: using stimulants, health–supporting behaviors including behaviors connected with physical activity, diet and eating habits, behaviors connected with driving and (medical) prevention (Ostrowska, 1999).

Types of statistical analysis.

1. Descriptive statistics enabled us to present results in the form of arithmetic means.
2. The authors applied data clustering using k-means performed with the use of STATISTICA software. This is a method of classifying objects according to several criteria at the same time (method of multidimensional classification). Owing to its use and having one non-diversified group of objects (e.g. subjects), investigated in terms of a certain number of traits, K-clusters with biggest similarities are obtained, and at the same time they differ from the objects constituting other clusters. In each cluster a different number of persons can be found.

Results

Beneficiaries of "Babie lato" programme participated in the research. Persons constituting an experimental group were selected in an informed manner and expressed their voluntary consent to participate in the project. All seniors participating in this study are inhabitants of Wrocław.

100 persons including 86 women and 14 men took part in the study. Mean age was 60,5 years (Fig.1).

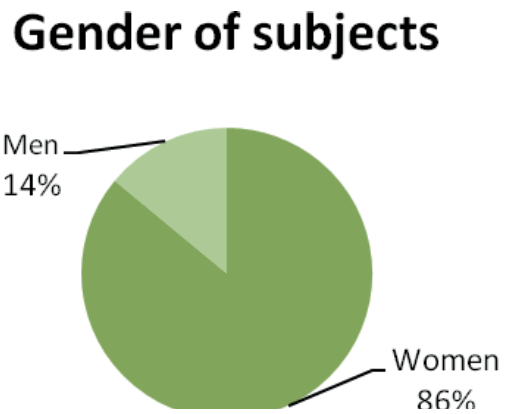


Fig. 1. Division of subjects in terms of gender

From among the whole group of respondents 63% declared that they were married (wife, husband). Divorced persons, widowers or widows accounted for a group of 13%, whereas 11% seniors defined their marital status as single (Fig.2).

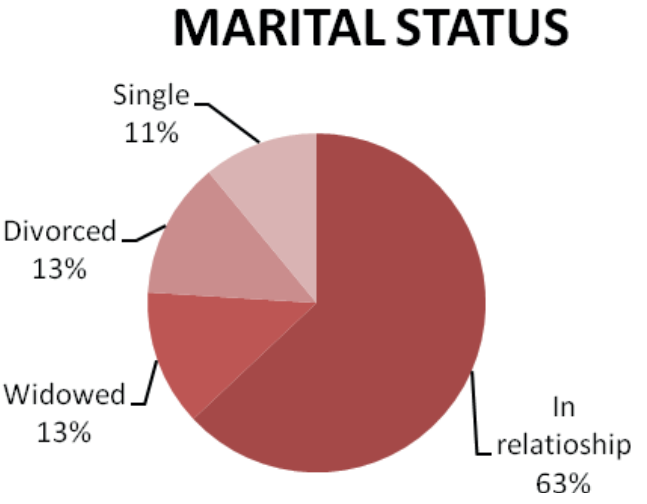


Fig. 2. Division of subjects by marital status.

87% of respondents stated that they have children whereas 31% were still living with them. A household with a spouse was maintained by 59% seniors, 10% were living alone (Fig.3)

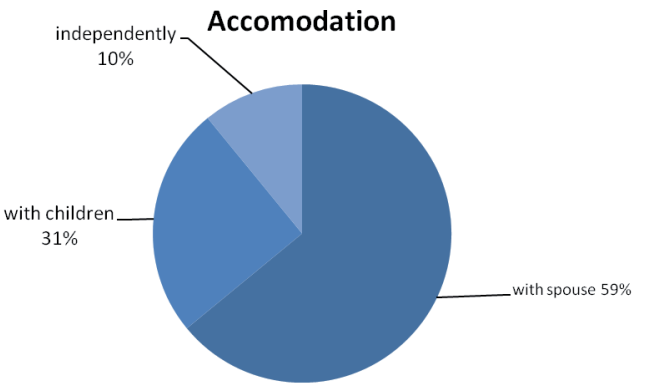


Fig. 3. Division of subjects according to family status.

The research revealed that the highest percentage of subjects worked as teachers (13%). Another professional group was represented by economists (10%). The other seniors worked as both white collar workers (lawyer, clerk, HR specialist, food technologist), and blue collar workers (tailor, car mechanic, installation electrician).

Gender and age of respondents did not diversify obtained research results in terms of statistics. Perhaps, it was conditioned by a definitely lower number of men in the group included in the survey. A more thorough analysis of obtained results revealed, however, a difference within the profile of pro-health activities undertaken by men and women.

We would like to begin presentation of our research results with the image of the health activity profile.

The task of the elderly participating in the study was to answer the questions from the questionnaire. After having gathered the questionnaire material we proceeded to check answers given by respondents based on rating scale sets prepared in advance and to assign a specific number of points to the answers. For each answer the subject might have received from 0 (minimum value) to 4 points (maximum value) depending on the extent to which the behaviors displayed by him/her were considered compliant with contemporarily applicable guidelines concerning pro-health activities and thus activities that are advantageous for health. The number of answers referring to questions on each sphere of health activities included in the research was varied. Therefore it was necessary to calculate mean value from the obtained points for each sphere. This mean value was an indicator of the extent of healthy lifestyle in the behaviour of a respondent in a given sphere. This indicator varied between 0 and 4 points. For the purposes of the research it has been assumed that:

- mean value within the range from 0 to 1 point – indicates a low level of health lifestyle activities in a given sphere,
- mean value within the range from 1 to 3 points – indicates a medium level of health lifestyle,
- mean value within the range from 3 to 4 points – indicates a high level of health lifestyle.

Subsequently, mean indicators of health lifestyle referring to each analysed sphere of activity for the entire group of respondents were calculated, thus presenting the profile of health activities representing at the same time the lifestyle among seniors (Fig.4).

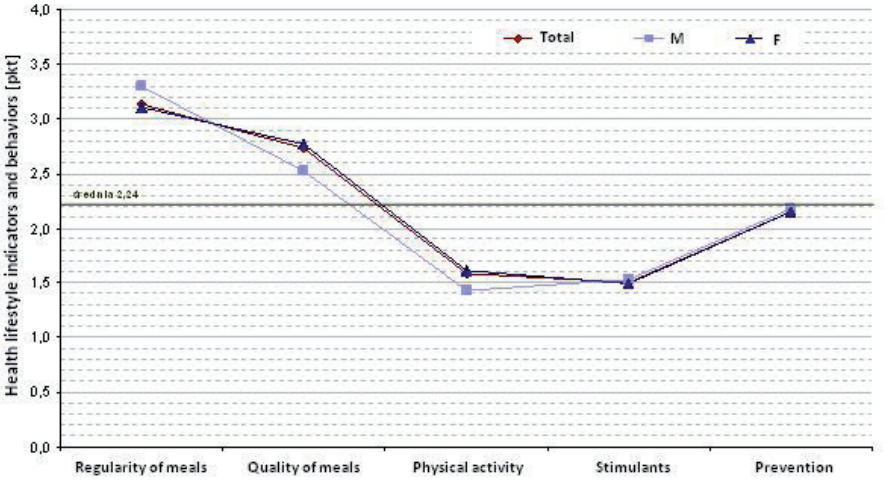


Fig. 4. Profile of health activities in seniors.

On the basis of obtained results we may expect, that senior lifestyle is at a satisfactory level, for mean value of health lifestyle indicator is equal to 2,24 (Fig.4). It should be emphasized however, that in two out of five spheres, respondents obtained a low grade for their health lifestyle (physical activity and stimulants – significantly below the mean value).

Seniors use best the possibilities of maintaining health by implementing the principles of rational eating in everyday life. A more thorough analysis of obtained results allows us to claim that respondents care about the quantity of eaten meals and their quality (Fig.5). The confirmation of the above statement is relevant declaration made by 45% respondents eating from 4 to 5 meals a day, whereas every second subject has 3 meals every day.

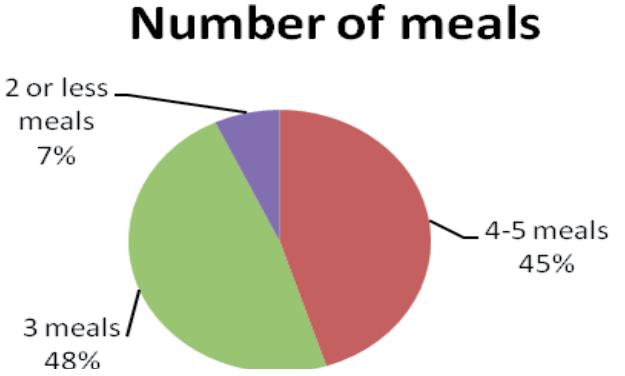


Fig. 5. Number of meals eaten by seniors during the day.

Quality of meals eaten by respondents (in the light of contemporary guidelines –food pyramid) appears to be satisfactory. 73% seniors state conscious avoidance of products containing animal fats and cholesterol. They try to avoid products containing a high level of fat, such as: fatty meat, and animal fats (lard) (Fig.6). It should be emphasized that about half of the respondents (47%) claim that they eat a meal containing meat at least once a day (beef, pork, poultry, cold meat) (Fig.7). In addition, the subjects try to include fiber-rich food, such as brown bread, oatmeal, fruit and vegetables (76%) in their diet (Fig.6). Unfortunately, every third subject declared that they would eagerly have two snacks in between the meals. Considering the fact, that 45% seniors have from 4 to 5 meals during a day, two snacks in addition may condition the occurrence of obesity.

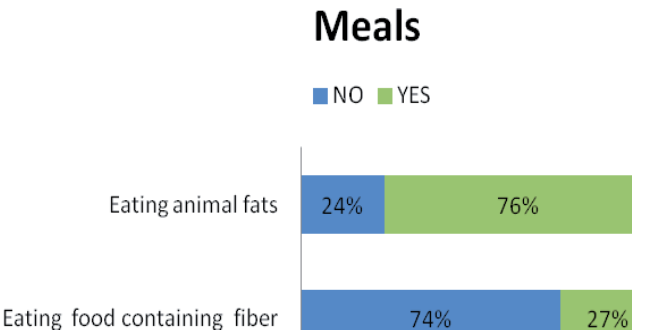


Fig. 6. Percentage of answers concerning quality of food.

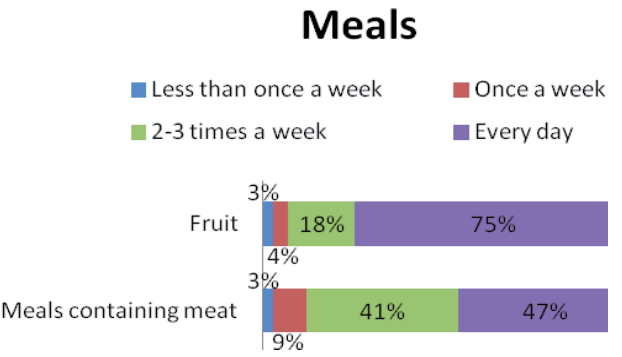


Fig. 7. Percentage of answers concerning the type of eaten food.

Another area describing human health are preventive activities. The results revealed that preventive measures taken up by seniors are slightly below the average level (pro-health indicator - 2,15). More than 60% subjects gave a negative answer to the question: Do you take your blood pressure regularly? This seems to be a worrying phenomenon that the blood pressure remains in close relationship with diseases referred to as "diseases of the civilization" (obesity, diabetes, cardiovascular disease).

It should be mentioned that awareness of regular laboratory tests (blood and urine - 85% respondents) and dental check-ups (83% respondents) is at a high level in seniors (Fig.8).

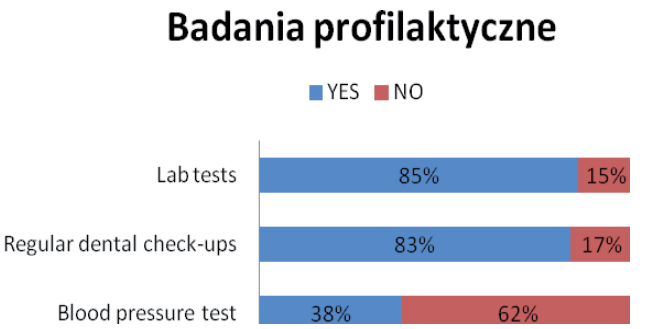


Fig. 8. Percentage of answers concerning prevention

As for regular tests aimed to diagnose cervical and breast cancer, the results are unsatisfactory. Only 37% women perform cytological cervical smear once a year. Another group was represented by women who did the smear once every 2-3 years. Similar results were obtained for regular breast self-exam. More than half respondents declared that they perform breast self-examination once a year despite the fact that 74% know how to do it (Fig.9). As for men, 9 out of 14 declare that they know how to examine their testicles, whereas 7 respondents perform such examination once a year, only.

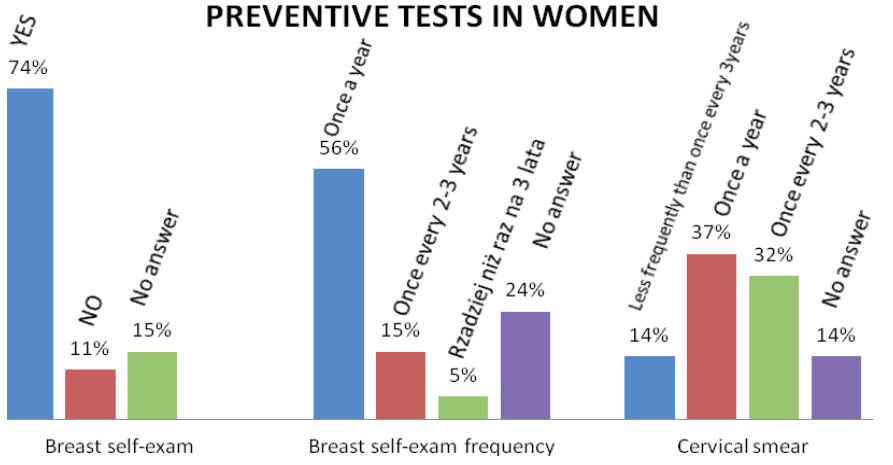


Fig. 9. Percentage of answers concerning regular preventive tests among women

In the group of adult subjects the status of health lifestyle in their behaviors connected with avoidance of stimulants is definitely below the mean value (Fig.4). This situation may be conditioned by the fact that 89% respondents declare drinking coffee less frequently than 5 times (cups) a day. A definitely opposite (positive) picture was obtained in terms of smoking cigarettes. About half of adults (49%) stated that they tried to smoke cigarettes and 24% smoked in the past. 16% never tried to smoke cigarettes.

A similarly unfavorable picture of health activities is observed in the area of regularly undertaken physical activity. Despite the fact that those respondents declared undertaking physical activity during the last two weeks (82%), only 23% exercised 6 times and more (Fig.10).

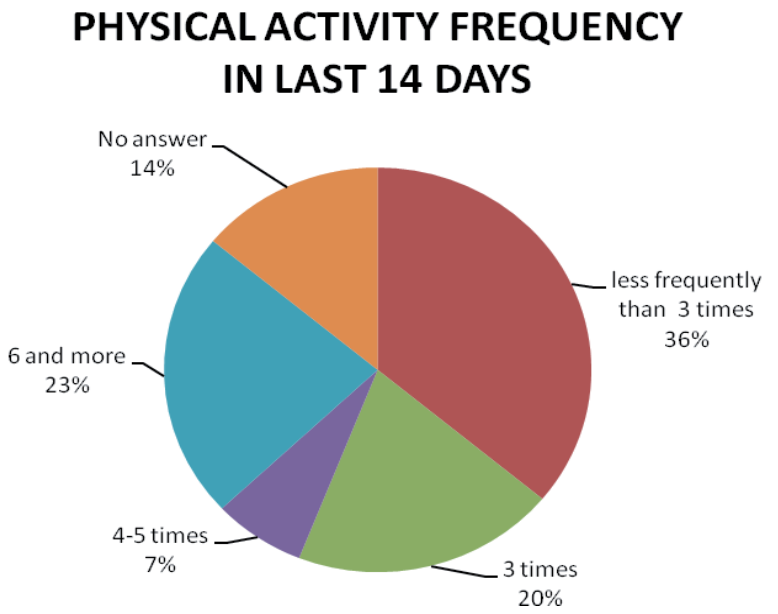


Fig. 10. Percentage of answers concerning physical activity.

As for the forms of exercise the following sports predominated: physical exercises (30%), cycling (18%) and walking (11%). According to WHO an average man should regularly undertake physical activity 3 times a week for 30 minutes at a heart rate 130 beats per minute. Walking everyday on foot the same distance seems to be even less favorable for 47% respondents claim that they walk on foot the distance of less than 2 km a day (Fig.11). The norm recommended by WHO is 10 000 steps daily which equals on average 5 km of walking. This is an indispensable strain to maintain the function of the vascular, respiratory system, as well as the muscular and skeletal system. This type of conduct should be considered as a disregard for fulfillment of the biological need for exercise. This may be caused by the fact that in the period of aging reluctance to get involved in physical exercise occurs in the body. It is connected with on-going involutional changes in the locomotor system. Moreover, a stereotype that old people are frail and decrepit predominates in Polish society.



Fig. 11. Percentage of answers concerning the walking distance

Seniors participating in the survey present a high level of health activities in the field of sleep hygiene. More than half respondents declare that they sleep 6-7 hours daily on average, and 40% exceed 8 hours (Fig.12).

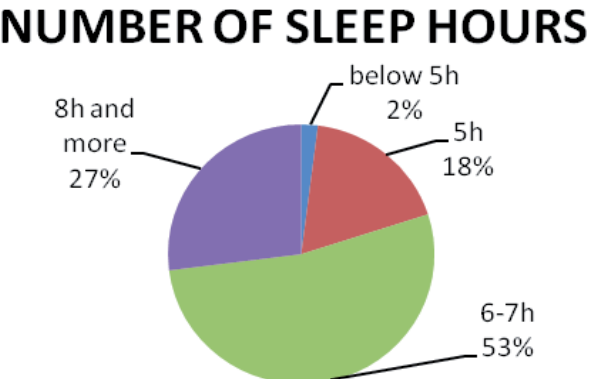


Fig. 12. Percentage of answers concerning the number of hours set aside for sleep.

Presentation of one common lifestyle profile for all subjects, defined on the basis of mean values indicating the level of health lifestyle demonstrated by senior behaviors in every sphere occurred to be insufficient, as individuals who took up pro-health activities more often and those who never (or hardly ever) follow the health lifestyle remained out of sight. Therefore, we attempted to select homogenous groups of individuals who are most similar in terms of undertaken health activities. Owing to the use of analysis of clusters three groups of persons have been selected (Fig.13).

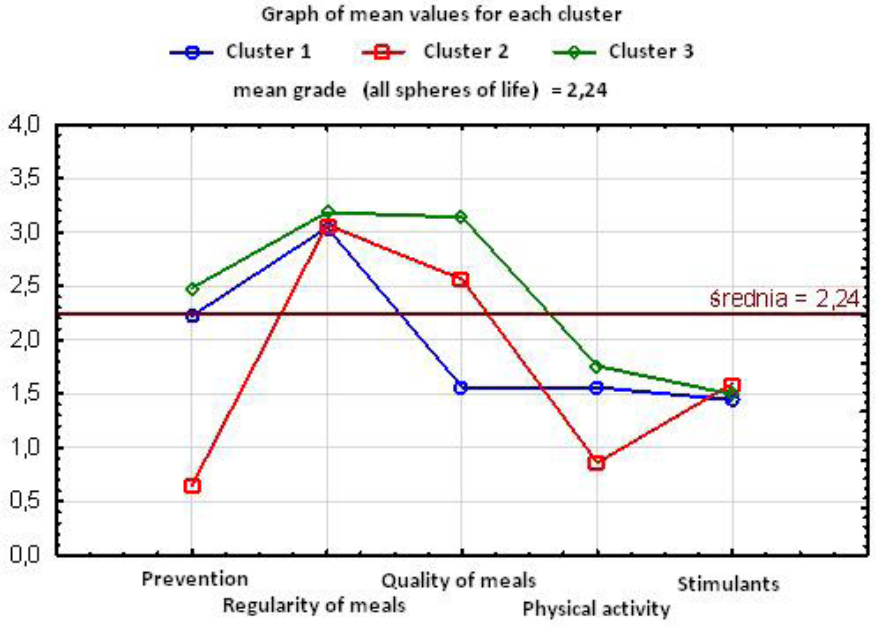


Fig. 13. Mean profiles for three groups of persons obtained as a result of cluster analysis.

When facing the obtained results, it may be said that group 3 (N=65) consists of persons with average frequency of taking up pro-health activities (2,4). In 3 out of 5 spheres of life covered by the study, respondents obtained slightly higher values of the indicator than mean values. In terms of systematic physical activity and avoidance of stimulants, persons from the most pro-healthily functioning group achieved a low level of behaviors.

The hierarchy of five behaviors constituting the lifestyle profile represented by 65 seniors in the group (Cluster 3) has revealed that they by far exceed other persons in terms of the quality of meals, more frequent prevention activities, physical activity and attaching more importance to regular meals (Fig.13).

Group (Cluster 2), the least numerous (N=15) consists of individuals whose lifestyle profile is most diversified and most dangerous to their health. This is confirmed by the lowest value of health lifestyle indicator out of all clusters (1,74) proving anti-health lifestyle. In this group, seniors less frequently undergo medical check-ups (0,64) and they avoid any physical activity most frequently (0,86). In terms of regularity of meals and avoiding stimulants they behave like respondents from groups 1 and 3. The only exception are activities connected with regularity of meals. Thus we may assume that their caring for health consists mainly in the quality of food and regularity of meals.

The first group (cluster 1) of respondents (N=20) consists of individuals, whose health activity profile is least diversified in terms of the quality of meals (1,56), undertaken physical activity (1,55) and avoiding stimulants (1,44). The level of activities undertaken

by this group with regard to health is lower than average (1,9). Similarly to groups 2 and 3, they seem to be the best in terms of regularity of meals and their quality. This group, however, shows more concern for the quality of meals than group 2. In the hierarchy of behaviors constituting their lifestyle, prevention activities and systematic physical activity predominate (Fig.13).

Discussion and Conclusions

The point of departure for this paper was an attempt to characterise the lifestyle of people in late adulthood on the basis of health activities declared by them. We attempted also to determine the type of behaviors undertaken by the subjects in order to increase their vital potential. In the results presented in this paper we may notice that in no area of healthy lifestyle seniors declare any activities pertaining to achievement of high-degree healthy lifestyle. However, they add importance to activities taken up in terms of the quality of eaten products as well as regularly eaten meals.

It should be emphasized, however, that due to the combination of: the habit of having snacks in between meals, decreased metabolism (involutional changes) and extremely low physical activity, seniors are prone to obesity and consequently to "diseases of the civilization".

Achievement of the level of health lifestyle indicator close to average value in the area of prevention may suggest that seniors appreciate the importance of early diagnosis of diseases. Unfortunately, the most neglected activities in terms of prevention are regularly performed cervical smears, breast and testicle self-exams.

In two out of five pro-health spheres (stimulants and physical activity) the respondents achieved the rate below the mean value, whereas the lowest value of the health lifestyle indicator may be observed in terms of physical activity. Therefore it seems a worrying issue that seniors do not equate systematically preformed exercises with health –inducing activities of a contemporary man.

Living a healthy lifestyle by seniors in all its spheres would be favorable for their existential potential. In our opinion, this is possible, if a contemporary man understands the relationship between effective action (health activities) and a successful life.

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Jolanta Ustymowicz-Farbiszewska, Adam Kurianiuk, Joanna Fiłon, Paulina Szczerbo, Ewelina Bartnicka, Jan Karczewski

Department of Hygiene and Epidemiology, Medical University of Bialystok
Zakład Higieny i Epidemiologii Uniwersytetu Medycznego w Białymstoku

Analysis of selected health behaviors of students from Teacher`s College of Revalidation, Rehabilitation and Physical Education in Białystok

Analiza wybranych zachowań zdrowotnych studentów Nauczycielskiego Kolegium Rewalidacji, Resocjalizacji i Wychowania Fizycznego w Białymstoku

Summary
The aim of this study was to analyze the selected anti- and pro-health behaviors among students of Teacher`s College of Revalidation, Rehabilitation and Physical Education in Białystok. The survey, conducted in May 2012, included a group of 100 students (53 females and 54 males). The research tool was an anonymous survey (original material) consisting of three parts: the first was related to demographics, second to pro-health behaviors (35 questions) and third to non-health behaviors (37 questions). Questions in the survey were multiple choice questions. The data was presented in tables with numbers and percentages. The analysis showed a high percentage of anti-health behavior among students - more than half of the respondents of both sexes drink alcohol, smoke cigarettes and is in contact with drugs (17% of women and 54% men). The studied group eats irregularly and snacks between meals (usually sweets or fast-foods). A significant proportion of women (28%) compared to men (4%) did not perform physical exercises and more than 50% of students of both sexes reported sleep disturbances.

Key words: health behaviors, students.

Streszczenie
Celem pracy była analiza wybranych zachowań anty- i pro-zdrowotnych studentów Nauczycielskiego Kolegium Rewalidacji, Resocjalizacji i Wychowania Fizycznego w Białymstoku. Badaniami ankietowymi w maju 2012 roku objęto grupę 100 studentów (53kobiety – średnia wieku-23,4 i 54 mężczyzn- średnia wieku-22,8). Narzędziem badawczym była anonimowa ankieta (materiał pierwotny) składająca się z 3 części: pierwsza dotyczyła danych demograficznych, druga zachowań prozdrowotnych (35 pytań) trzecia zachowań antyzdrowotnych (37 pytań). Pytania w ankiecie były pytaniami jednokrotnego wyboru. Uzyskane dane przedstawiono w tabelach za pomocą wartości liczbowych i procentowych. Przeprowadzona analiza wykazała wysoki odsetek zachowań antyzdrowotnych studentów – ponad połowa badanych obu płci pije alkohol, pali papierosy, ma kontakt z narkotykami (17 % kobiet i 54% mężczyzn). Badana grupa odżywia się nieregularnie, dojada między posiłkami i są to najczęściej słodycze lub produkty typu „fast-food''. Znaczny odsetek kobiet (28%) w stosunku do mężczyzn (4%) nie wykonuje ćwiczeń fizycznych a ponad 50% studentów obu płci zgłasza zaburzenia snu.

Słowa kluczowe: zachowania zdrowotne, studenci.

Introduction

The term 'health behavior" is a term difficult to interpret, it shapes from early childhood under the influence of various factors and role models at home, kindergarten, school, community and media. Of particular importance is the modeling of behavior by a person significant to the child. Critical to the development of health-related behavior is the period of adolescence, in which acquired early health behaviors perpetuate, while a number of risky behaviors appear. The changes that are taking place in adolescence decide whether young people make it into their adult life with resources or health risk factors of oneself and of other people. Health education in childhood and adolescence should assist in the development of healthy behaviors and prevent non-healthy behavior (Woynarowska, 2010).

There are two groups of behavior when assessing the effects of health behaviors. Positive-behavior conducive to health, increase its potential in restoration and protection against threats. These include: rational nutrition, adequate physical activity, coping with stress, physiological amount of sleep. Negative behaviors are those that pose a risk to health, causing direct or distant damage to health. These include: drug use, poor nutrition, physical inactivity, smoking and drinking alcohol.

The study of health behavior is now seen as an important method to measure the health status of the population. It forms the basis for planning and evaluation of health education, prevention programs and health promotion projects. Currently, it can be stated that, the issue of health behavior and health behavior change, especially from negative to positive, is one of the leading factors in the epidemiological studies. It was proven, that lifestyle is a true factor for the occurrence of many diseases (Rasińska, 2012; Boguszewski, 2010).

One of the health behaviors is rational human nutrition. Children and youth are groups of the population most vulnerable to the effects of poor nutrition. Feeding has a particularly strong influence on the development of the young organism, determining the child's health, his ability to learn, physical activity and mental or emotional behavior. Students, who do not regularly consume meals, feel weak, complain of headaches, usually have worse academic performance and poorer physical performance more often than others. The basis for nutrition should be products with high amount of complex carbohydrates (source of energy, fiber, B-group of vitamins, iron, magnesium, zinc), vegetables and fruits (source of minerals and vitamins) fish, eggs and meat products (alternative to the legumes), milk and dairy products. Students are a group of people who are particularly subject to the risks of irrational nutrition, due to irregular lifestyle and the difficulty of preparing meals (Łasszek et al. 2011; Szponar, Krzyszycha, 2009).

Physical activity is a multitude of behaviors dependent upon many different factors. Crucial role in shaping attitudes in this area plays school, as well as, the family. Regular physical activity has many health-promoting effects: lowering blood pressure, improving heart and lung function, affecting the immune system, lowering cholesterol levels. Studies have also shown a significant impact on the mental health problems such as: abnormal sleeping, anxiety, depression and chronic fatigue syndrome. It is caused by physical activity when the nervous system stimulate the production of substances having the calming effect. Sitting for hours (tuition, use of computers) deprives young people from using their own poorly developed muscles (Kasperczyk, 2000).

Various forms of activity, in which we impart during the day, often decide course of the process of regeneration, namely the dreaming. Leisure sleep is essential for the proper functioning of all organs and human cells. Sleep deprivation affects the occurrence of various kinds of health problems, such as diseases of the cardiovascular system, diabetes, depression, even obesity. Education of children and young people in this area is needed because studies show that most of the students spent too little time sleeping. Daytime sleepiness of students seems to be a phenomenon encountered commonly. Disorders of the quality and length of sleep can lead to problems with concentration, indirectly, to poorer academic performance and in the long term future to the development of civilization diseases (Kasperczyk et al. 2012, Meyer-Szary et al. 2008, Knutson et al. 2007).

Nowadays, alcohol is widely available and is perceived as a normal part in the growing up process. People who start using alcohol early are at higher risk of developing serious problems associated with alcohol later in adulthood. In one`s youth, alcohol is particularly dangerous because the shaping of the central nervous system is more susceptible to the toxic effects of alcohol. The consequences of early resorting to alcohol might be disorders in physical, mental and social development, as well as pathophysiological changes in the organs revealing much later: damage to the heart muscle, liver and pancreas. Young people turn to alcohol in order to escape from the problems of everyday life, gain self-confidence, to gain acceptance of a peer group, to express their need for rebellion. The World Health Organization claims that alcohol is being ranked as having the 3rd place among the health risks of various diseases (Stefańska et al. 2010).

The health effects of smoking show up mostly among adults. The prevalence of smoking increases with age, which is particularly evident in adolescents. Smokers are often influenced by their peers and they can not refuse an invitation to smoke another cigarette. Anti-smoking activities should be specifically aimed at school and academic students. There is strong urge to create among these groups fashion for non-smoking. Childhood and adolescence are periods of life where the impact of health education is the most effective (Kułak, 2011; Skop-Lewnadowska, Jaworska, 2011).

Since the early 90s of the twentieth century in Poland, an increase in the prevalence of drug use among young people is being recorded. Age of first contact with narcotic substances is getting lower and this applies to children as young as the middle school. Studies show that the first contact with a drugs is due to curiosity, but it should also be noted that every addiction has its origins in the form of an experiment. Drugs and alcohol are also part of student`s life. In order to achieve better results in learning, students often use amphetamines and for more fun, ecstasy with alcohol. Young people, instead of learning how to cope with the problems of life, are looking for an escape from the problems, using measures to suppress unpleasant experiences and unmet needs (Kułak et al. 2011; Woynarowska, Mazur, 2007).

Stress is present in everyone's life and is a natural part of life. It`s effects can be motivating (causes acting more quickly and more efficiently) or demotivating (creates a feeling of helplessness). Prevailing view describes stress as an unpleasant condition, young people should cope with difficult situations to be able to deal with them more effectively in the future. If this process takes too long, it begins to have a chronic condition

that can manifest in a variety of ways such as: insomnia, depression, abdominal pain and headache, loss of appetite. During studies, stressful situations are not difficult to come by, they include: examinations, lack of acceptance in a peer group, distance from the house or poor financial situation (Kasperczyk et al. 2012, Meyer-Szary et al. 2008).

Aim of the study

Analysis of selected anti- and pro-health behaviors among students of Teacher`s College of Revalidation, Rehabilitation and Physical Education in Białystok.

Materials and methods

The survey conducted in May 2012, included a group of 100 students (53 females - the average of age - 23,4 and 54 males- with the average age at - 22,8) from Teacher`s College of Revalidation, Rehabilitation and Physical Education Białystok. The research tool was an anonymous survey (original material) consisting of three parts: the first included student`s demographic data (age, sex, place of residence) and the questions of body weight and height. The second was related to health behaviors (35 questions) and the third to anti-health behaviors (37 questions). Questions in the survey were multiple choice questions. The data is presented in tables with numbers and percentages.

Results

Tab. 1. Students heating habits.

Trait	Females		Males	
	n = 53	%	n = 53	%
Number of meals				
< 3 meals	4	8	5	9
3 meals	10	19	11	19
4 meals	14	26	15	26
>4 meals	5	9	9	16
Irregular eating	20	38	17	30
Snacking between meals				
yes	38	72	36	63
no	15	28	21	37
Most popular snacks				
sweets	18	47	13	36
salty snacks	7	18	9	15
fruit, vegetables	13	34	14	39
Eating „fast food” products				
yes	36	68	42	74
no	17	32	15	26

Own eating habits evaluation				
eating properly	22	42	36	63
eating improperly (want to change)	27	51	15	26
eating improperly (do not want to change)	4	7	6	11
Frequency of eating vegetables				
1 /week	3	6	5	9
2 /week	12	23	17	30
3-4 /week	25	47	24	42
daily	13	24	11	19
Frequency of eating fruits				
1 /week	3	6	6	10
2 /week	19	36	22	39
3-4 /week	0	0	20	35
daily	31	58	9	16
Frequency of eating dairy products				
1 /week	6	11	8	14
2 /week	20	38	16	28
3-4 /week	17	32	21	37
daily	10	19	12	21
Daily consumption of milk				
yes	32	60	30	53
no	21	40	27	47
Quantity of drinked milk every day				
1 glass	22	41	13	23
2 glasses	6	11	8	14
>2 glasses	4	8	9	16
Frequency of eating fish				
1 /week	32	60	15	26
2 /week	20	38	35	62
3-4 /week	0	0	6	10
daily	1	2	1	2
Most often eaten kind of meat				
beef	4	8	15	26
pork	42	79	28	59
poultry	6	11	16	25
do not eat meat	1	2	0	0
Most often eaten kind of bread				
wholemeal	17	32	14	25
white	32	60	35	61
dietary	3	6	5	9
do not eat bread	1	2	3	5

The data presented in the table shows that most of the students are eating irregularly (38% women and 17% men). The optimum amount of more than four meals per day is eaten by only 9% of women and 16% men. The students admit to snacking between meals - 38% of women and 36% men. Most consumed products between meals, in the group of women, were sweets (47%) and among men, fruits and vegetables (39%). Students of both sexes also declared that they would willingly eat crisps and snacks between meals (on average around 15%). The largest group of respondents consumed fruits and vegetables 3-4 times a week. Only 60% of women and 53% of men admit to drinking milk every day. The majority states that they drink one glass per day (41% of women and 23% men). Dairy products such as yogurt, kefir, cheese are consumed 2-4 times a week an average by 33% of the respondents. Over 60% of women eat fish once a week, men declare eating fish 2-3 times a week (62%). Daily consumption of fish declared only 2% of students of both sexes. Men are more likely than women to consume chicken meat and beef while pork is more likely to be consumed by women (79%). A very small percent of women admitted that they do not eat meat, in the group of men there was no such declaration. Eating fast-food type products declared as much as 68% of women and 74% of men. Surveyed students of both sexes prefer consumption of white bread (around 60%). To the presence of dark bread in their diet admitted only 32% of women and 25% of men. A very small percentage of respondents of both sexes admitted to diet bread in their current menu (approximately 7%), and about 3% reported that bread is not present in their meals. Most of the surveyed female students admitted to not eating properly and wanting to change own eating habits (51%), while 7% of respondents did not want to change their eating habits. Among men, 63% believe that they eat properly and only 11% incorrectly but do not want to change their eating habits. Most of the students of both sexes (70%) were of normal weight. Underweight related mainly to the group of women (8%) and nearly three times more surveyed men than women were overweight. Obesity is more common in women than in men (6 and 4%).

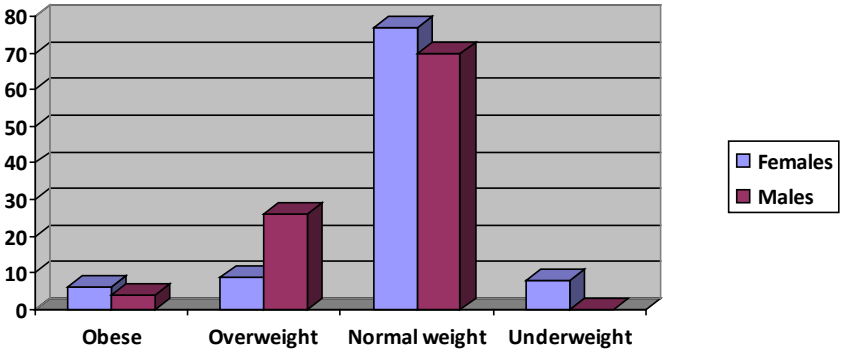


Fig. 1. Students` BMI.

Tab. 2. Selected behaviors of students.

Trait	Females		Males	
	n = 53	%	n = 53	%
Frequency of physical exercises				
1 /week	9	17	11	19
2 – 3 /week	19	36	16	28
daily	10	19	28	49
do not exercise	15	28	2	4
Form of physical activity				
team games	4	7	18	32
swimming	5	9	5	9
running	4	7	4	8
aerobics	5	9	0	0
cycling	14	26	17	30
walking	21	42	13	23
Smoking				
yes	18	34	21	37
no	35	46	36	63
Started smoking at the age				
<13 years	0	0	6	10
14 – 16 years	4	7	5	9
>17 years	14	27	10	18
Drinking alcohol				
yes	40	75	48	84
No	13	25	9	16
Frequency of drinking alcohol				
occasionally	31	58	8	14
1 /week	6	11	18	32
2 – 3 /week	16	31	31	54
Type of alcohol				
beer	22	41	38	67
wine	18	34	3	5
wodka	0	0	7	12
Most common causes of drinking				
loneliness/lack of company	17	32	8	14
stressful situations	7	13	11	19
parties	29	55	38	67

Drugs usage				
yes	9	17	31	54
no	44	83	26	46
Sleeping disorders				
yes	24	45	36	63
no	29	55	21	37

The data presented in the table shows that the majority of surveyed male students perform daily physical exercise (49%), and about 28% 2-3 times a week. More than 29% of women admit that they do not perform any physical activity and physical exercise, 36% of female students admitted to exercising 2-3 times a week. The most common form of preferred activity among women were walking (30%), cycling (26%), and among men team sports, cycling, swimming and running. The smoking habit is prevalent in about 35% of the students of both sexes, most of them (about 22%) started smoking later than 17 years of age. More than 84% of male students declared drinking alcohol three times a week, mostly beer. Among female students, the largest group consists of people who consume alcohol occasionally (58%) and they prefer both beer and wine. The most common reason for resorting to alcohol in the studied group was to participate in parties and events, feeling lonely and lacking companionship. The vast majority of female students (83%) admitted that they had never been in contact with drugs, there was approximately 46% of such answers in the group of male students. The place, where students had the opportunity to purchase drugs, was disco or school. Problems with sleep disorders was reported the majority of male students (63%) and 45% of female students.

Disscussion

Health behavior of young people concerns all kinds of activities to maintain and improve health. The relationship between the state of health and well-established habits from the family home were proven. Any disorders in this regard should be corrected at an early stage of life, as they may lead to disturbances in the physiological and psychological development of human being in the future. The group particularly vulnerable to the consequences of inadequate health behaviors, such as eating habits, are students who leave family houses and form their own, often not healthy, habits. Based on the results of research conducted in Polish academic centers, it can be stated that the most common deficiencies in student nutrition included improper diet, a small number of meals per day, insufficient supply of nutrients (Kopeć et al. 2013; Rasińska, 2012; Łaszek et al. 2011; Krzyszych, Szponar, 2009; Malara et al. 2006).

The studied group of students of both sexes ate irregularly, snacked between meals and the most commonly consumed products were sweets and salty snacks. Irregular meals can result not only in a certain nutrient deficiencies, but also pose a risk of reduction in energy expenditure of the body and consequently weight gain. Lack of regular meals causes hunger and desire to eat sweet or fatty products. Studies conducted among the students of the University of Warmia and Mazury in Olsztyn, and Ghet University in Belgium found that students mostly consume 3-4 meals a day. Similar results were obtained by other authors, analyzing the eating habits of both school children and students.(Stefańska et al. 2010; Skibniewska et al. 2009; Lisicki, 2004)

Almost all respondents of both sexes pledged to eating fruit, daily nearly 60% of women and more than 35% of men 2-3 times a week. Respondents also ate vegetables, they were present in the diet of more than 50% of students of both sexes 3-4 times a week. According to research conducted by Stefańska et al. among students of the University of Physical Education and Tourism in Supraśl and Medical University of Bialystok, the experimental group also declared the presence of fruits and vegetables in their diet 2-3 times a week. (Rasińska, 2012; Krzyszycha, Szponar, 2009) Vegetables and fruits are considered to be low-energy products of high nutritional value, have regulating and protective functions. According to the analysis of consumption of milk and dairy products, respondents of both sexes consume these products 2-3 times a week, and over 60% said that they drink milk every day in the amount of 1-2 glasses. Similar results, concerning the consumption of milk and dairy products among the students, were obtained by other authors (Kopeć et al. 2013; Krzyszycha, Szponar, 2009). Milk and dairy are among the most valuable products, they contain a large amount of easily assimilable protein, as well as other valuable nutrients such as calcium, B-group vitamins, fat-soluble vitamins. Drinking the right amount of milk since the earliest years of life is a prerequisite for effective prevention of osteoporosis in later age. Older youth and students should consume milk and dairy products with the least amount of fat.

The analysis showed that about 60% of female students consumed fish once a week, surveyed male students consumed fish more often, 2-3 times a week. A similar frequency of fish consumption reported Stefańska et al. in their study, who analyzed the diet of students of the Medical University of Bialystok, Krzyszycha and Szponar noted in their study much rarer occurrence among the surveyed students. Female students preferred pork in their diet more often than their male counterparts (respectively 79% and 49%), poultry was present much less in the student`s diets. Meat was often replaced by fast-foods in the diets of the students. More than 70% of students of both sexes admitted to the consumption of these products. Similar results were obtained by other authors, stating that more than half of college students declared, that they eat this kind of food (Rasińska, 2012; Malara et al. 2006) although they are aware of its dangers. The vast majority of the students of both sexes eat white bread (over 60%), and only about 30% wholemeal bread, which is a source of fiber. Too low supply of this nutrient in the diet can result in gastrointestinal motility disorders and the possibility of malignant transformation of cells of the intestinal mucosa. (Kopeć et al. 2013; Stefańska et al. 2010)

A healthy lifestyle consist of physical activity and avoidance of any kind of drugs. Physical activity is a modeling factor in the most morphological and functional states of the organism. Physical activity plays important role in reducing the risk of many diseases such as type 2 diabetes, coronary heart disease, hypertension, metabolic disorders and cancers. It is important and effective way to maintain normal body weight, reduce overweight and obesity. More than 28% of the study group of female students did not perform any physical activity, and 49% of male students admitted to practicing every day. The preferred form of exercise among female students are cycling and walking, team games are preferred by male students. Studies by other authors confirm the low physical activity of students. (Łaszek et al. 2011; Stefańska et al. 2010; Malara et al. 2006; Duda, 2005; Ostrowska , Szewczyński, 2002) The most dangerous and widely used stimulants

are nicotine, alcohol and drugs. More than 35% of the students admits to smoking. Tobacco smoke contains about 4,000 chemicals, of which 40 are carcinogenic and mutagenic to humans. Harmful compounds from tobacco smoke enter the bloodstream, contributing to the incidence of many diseases such as cancers of the oral cavity, pharynx, larynx and lungs, asthma, strokes and high blood pressure. The prevalence of smoking among students was studied by other researchers examining health behaviors (Kułak et al. 2011, Stefańska et al. 2010). Alcohol is a psychoactive substance, causing relaxing and euphoric effect which is the main reason to be consumed by humans. A high percentage of students of both sexes admit to readily consuming alcohol (over 75% of women and 85% men). Female students reach for alcohol occasionally (58%), mostly it is beer and wine. Male students drink 2-3 times a week (54%), typically beer (67%). Studies, by other authors indicate, that alcohol is often consumed by a large proportion of young people, about 91% of students of both genders reache for alcohol in Bialystok, approximately 92% in Gdańsk and approximately 80% in Łódź. (Kułak, 2011; Stefańska et al. 2010; Chodkiewicz, 2006) The common reason for resorting to alcohol is participating in social activities, feeling lonely and occurrence of stressful situations. The analyzed group of students of both sexes admit that drugs are present in their lives, the place of their use is mostly college and disco (17% of women and 54% men). Other studies indicate that even secondary youth reaches for drugs and psychoactive substances (Woynarowska, Mazur, 2007). Drugs have an effect on behavior, mood and emotional state, for example the effects of heroin are feelings of mild euphoria, cocaine - excessive burst of energy and increased self-esteem. Drug addiction, in addition to the negative health effects, involves social risk. In the case of young people, it may reveal itself as problems with studying, risk of uncontrolled and violent criminal behavior in relation to their peers and family. Surveyed students of both sexes declared the presence of sleep disorders (45% of women and 63% men). This problem also occurs among students of other universities. (Kasperczyk et al. 2012) Adequate quantity and quality of sleep is crucial for maintaining physical and mental fitness. During sleep, body rests and restores, particularly the brain cells that are constantly stimulated by impulses sent through all the senses.(Meyer-Szary et al. 2008)

Health behaviors are considered nowadays as activities that are aimed at enhancing health and are complementary factor of proper medical care. The results indicate the need for health education and health promotion among students in order to prevent the occurrence of civilization diseases in the context of changes in their lifestyle.

Conclusions

The analysis showed a high percentage of anti-health behaviors among students. The studied group eats irregularly, snacks between meals - usually sweets or fast-foods. A significant proportion of women (28%) compared to men (4%) did not perform physical exercise. The consequence of this behavior are overweight and obesity, which occur in 15% of female students and 30% of male students. Another factor of concern is the presence of psychoactive substances (excluding alcohol and nicotine) in the lifestyles of students. Over 50% of students of both sexes reported sleep disturbances.

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Urszula Pasiut

University School of Physical Education in Cracow
Department of Biomedical Science
Section of Biological Regeneration and Corrective Procedures
Akademia Wychowania Fizycznego w Krakowie
Instytut Nauk Biomedycznych,
Zakład Odnowy Biologicznej i Korekcji Wad Postawy

Nicotine stimulant as a negative for health factor in the light of the characteristics and indicators of obesity and fat distribution in the body of young adults

Używka nikotynowa jako czynnik negatywny dla zdrowia w świetle analizy cech i wskaźników otłuszczenia i dystrybucji tłuszczu w ustroju u młodych osób dorosłych

Summary
Anthropometric study and survey included a random sample of young men and women studying at the largest public universities of Cracow (UJ, EU, UP, UR, AGH, PK). The research was carried out as part of the study, concerning the level of obesity and fat distribution in the light of socio - economic status and lifestyle of students. In order to identify the occurrence of health risks among young people resulting from the habit of smoking cigarettes, the impact of smoking on selected somatic characteristics and indicators of adiposity and fat distribution (BM, BMI, SF,% FAT, FM, FFM, WC, WHR, WTR, CI, ESS, TSS, TER) was analyzed.
In order to show the relationship, normalized differences of features and somatic indicators between categories singled out in terms of prevalence of smoking habit were analyzed.
The effects of nicotine on the level of analyzed biological characteristics is not uniform. No differentiating influence of nicotine on the extend of body fat in subjects was proved. In men increased fatness is characteristic of those who stopped smoking cigarettes. However, the relationships of nicotine with the type of fat distribution are clear and point to a tendency of body fat redistribution in the direction of greater accumulation in abdominal area in people who smoke in large quantities.

Key word: Woman, Man, nicotine, somatic traits, fat tissue, health

Streszczenie
Badaniami antropometrycznymi i ankietowymi objęto próbę losową młodych kobiet i mężczyzn studiujących w największych publicznych uczelniach Krakowa (UJ, UE, UP, UR, AGH, PK). Badania zrealizowano w ramach badań własnych, dotyczących poziomu otłuszczenia i dystrybucji tłuszczu w świetle statusu społeczno – ekonomicznego i stylu życia młodzieży akademickiej.
Celem rozpoznania występowania ryzyka utraty zdrowia u osób młodych wynikającego z nawyku palenia papierosów, podjęto analizę wpływu palenia

tytoniu na wybrane cechy somatyczne i wskaźniki otłuszczenia oraz dystrybucji tkanki tłuszczowej (BM, BMI, SF, %FAT, FM, FFM, WC, WHR, WTR, CI, ESS, TSS, TER).
Dla wykazania powiązań, analizowano znormalizowane różnice cech i wskaźników somatycznych między wyodrębnionymi kategoriami występowania zwyczaju palenia papierosów.
Wpływ używki nikotynowej na poziom analizowanych cech biologicznych, nie jest jednorodny. Wykazano, brak wpływu różnicującego nikotyny na stopień otłuszczenia ciała u badanych. Chociaż u mężczyzn większe otłuszczenie cechuje tych, którzy przestali palić papierosy. Natomiast związki nikotyny z rodzajem dystrybucji tłuszczu są wyraźne i wskazują na tendencję do występowania typu rozmieszczenia tkanki tłuszczowej w kierunku większej kumulacji tłuszczu w okolicy brzusznej u osób palących papierosy w dużej ilości.

Słowa kluczowe: kobiety, mężczyźni, nikotyna, cechy somatyczne, otłuszczenie ciała, zdrowie.

Introduction

The lifestyle, which is an integral part of the socio-cultural sphere constitute the significant factor responsible for the high statistics of non-transmittable diseases of the societies living in modern civilization. The attitude towards drugs such as nicotine and alcohol is an element associated with lifestyle. The occurrence of drugs, in particular nicotine is a specific element in the context of assessment of the health quality characteristic of the adopted lifestyle. Nicotine has negative effects on health (U.S Department of Health and Human Services, 2004). In addition to the addictive influence of nicotine, chemicals contained in tobacco smoke, inhaled while smoking lead to intoxication of the organism and tobacco-related diseases. The epidemiology of smoking-related diseases enumerates the following: cancer, and cancer concerning areas such as lung , oral cavity, plus it induces non-malignant respiratory diseases, cardiovascular diseases, and stroke. Cigarette smoking is the part of lifestyle which is particularly socially undesirable, taking into consideration the difficult situation of the people who do not smoke, but are equally at risk of tobacco-related diseases due to forced passive exposure to tobacco smoke (Europejski Raport Zdrowia, 2012).

Many reports of specific effects of nicotine on the metabolism of adipose tissue can be found in literature. However, the results of studies on the relationship of obesity with the use of nicotine are not uniform. On one hand, nicotine correlates with greater body fatness, and on the other hand, the results reveal a lower BMI among smokers (Lahti-Koski et al. 2002, Akbartabartoori et al. 2005, Kim et al. 2012, Mackay et al. 2013).

The aim of the study is to identify the occurrence of health risks resulting from smoking cigarettes. Tracing the impact of smoking on the selected somatic features and body fat tissue distribution in young people will give an idea of the possible future health consequences resulting from the lifestyle they adopted.

Matherials and methods

The material analyzed in the work comprises anthropometric data and the data of random sample of young men and women studying at the largest state Cracow's universities (Jagiellonian University - UJ, Cracow University of Economics – EU, Pedagogical University - UP Agricultural University - UR, University of Science and Technology-AGH, Cracow University of Technology – PK. The research was carried out as part of the studies, concerning the level of obesity and fat distribution in the view of socio-economic status and lifestyle of students. Measurements were carried out in November 2004, after obtaining the written consent of directors of particular institutions, to implement the research in physical education classes). The study included the students of the second full-time year, chosen in two stage lottery, with a minimum of one hundred men and a hundred women from each university. The study included individuals whose physical activity (taken now or in the recent past) didn't display signs of competitive sports, due to the (Pasiut, 2012) effects of exercise training, concerning people practicing different kinds of sports.

The study sample representing Cracow's subpopulation of students was divided by gender, and the structure of the sample was shown in Table 1. The group which is the subject of the study comprise a homogenous sample in terms of age (average age 20.84 SD = 2.02) and social status of male and female students of Cracow's universities.

In order to assess the level of somatic characteristics and redistribution of body fat, the appropriate test set of anthropometric measurements was chosen, and the measurements were carried out according to the methodology presented in the literature generally available on the topic (Gołąb, Chrzanowska, 2007). Anthropometric measurements included body mass - BM in kilograms, longitudinal features-size characteristics (body height - BH - cm), trunk circumference (waist circumference - WC and hip - HC) and limbs (arm circumference - AC and thighs - TC), as well as measurements of the thickness of skin-fat folds measured according to standard in six areas of the body in the trunk and extremities by using the Harpenden foldmeter with the load of 10g/mm2 of contact surface with an accuracy of 0.1 mm. The following features were measured: - Skin-fat fold above the arm bicep – BIC, Skin-fat fold above the triceps - TRC - subscapular skin-fat fold – SSC, skin-fat fold over the iliac crest – SIC, abdominal skin-fat fold – ABD, calf skin-fat fold - CLF.

On the basis of direct anthropometric measurements; body mass index - BMI, and the total thickness of three skinfolds - SF (mm) – (under scapula, on the abdomen and above the triceps) were calculated as the measure of obesity. The percentage of fat in the total body weight (% FAT), fat tissue mass FM (Fat Mass-kg), and fat-free body mass FFM (Fat Free Mass - kg), were calculated. Moreover, measures commonly used to assess the type of fat distribution were calculated: WHR - (Waist to Hip Ratio), Waist-to-thigh ratio - WTR (Waist to Thigh Ratio), - The rate of conicity of the body - CI (Conicity Index) – (the ratio of waist circumference (m) to the product of an empirical index of 0.109 and root of weight (kg)/body height (m). What's more, the following features were measured: the sum of the thickness of three skinfolds on the body TSS (below the shoulder, over the iliac crest and on the abdomen), the extremities ESS (above biceps, triceps and calf) and TER, which is ratio of the total thickness of the three skin-fat folds on the trunk TSS to the total thickness of three skinfolds on the extremities ESS.

Simultaneously to the studies, anthropometric surveys were conducted. The questionnaire includes questions concerning socio-economic status and questions related to the lifestyle of students. The participation in the study was voluntary and the survey was anonymous (29 August Act of 1997 on Data Protection - Dz.U.1997, item 883).

The data on socio-economic status determine: the place of residence, level of education and parents' occupation, family status, and the economic and living conditions. The data concerning lifestyle include leisure time activities and taking any physical activity, while the data on diet determines the amount and kind of meals, their quality and abundance, regularity, of time and place of eating meals and special diets. And finally, the data concerning drugs define the attitude towards drinking alcohol and smoking cigarettes.

The subject of this paper is the relationship of nicotine with selected somatic features and indicators of obesity and fat distribution in the body. The attitude of the respondents towards the nicotine stimulant is described on the basis of the answers given to the questions in the questionnaire. The respondents were defined as smokers and non-smokers and former smokers. The group of smokers was diversified in terms of the number of cigarettes smoked. According to the degree of prevalence of cigarette smoking habit four categories were extracted: everyday more than 20 pieces, each day about 10 pieces, ex-smokers, and non-smokers.

Methods of results analysis: The dependent variables tested in this study comprise constitute somatic features and the indicators describing the type of body fat and fat distribution (BM, BMI,% FAT, FM, FFM, SF, WHR, WTR, CI, ESS, TSS, TER) which were analyzed with regard to the independent variable explaining the prevalence of tobacco smoking (20 cigarettes per day, 10 cigarettes per day, former smokers, non-smoking).

A statistical study of the collected material was carried out in several stages (Sokal, Rohlf, 1995). Thus, descriptive statistics such as mean and median were used to evaluate central tendencies, and the standard deviation (SD) as the measure of dispersion. The compatibility between the data distribution and normal distribution was checked. For variables the distribution of which deviates significantly from a Gaussian curve, a logarithmic transformation was performed in order to increase the data fit to a normal distribution. In order to assess the compatibility of the distribution of variables with normal distribution Shapiro-Wilk test was applied.

After the calculation of descriptive statistics , in order to demonstrate the relationship between the analyzed biological characteristics and cigarette smoking, standardized differences between separated categories in terms of the prevalence of tobacco smoking were analyzed. The results of analyzes are shown graphically in the form of morphological profiles for men and women, and are given in Figures which also indicated statistically significant differences between groups. Moreover, numerical characteristics are given in the Table 3.

In the case of variables with distributions deviating from normal, analyzes were made on the transformed values.

Quantitative variables were normalized according to the formula: $Xn_i = \frac{\overline{X} - X_i}{SD_x}$

Where: Xn_i – normalized value of the variable X for i-case, $\overline{X}$ - the average value of X to the cases which are the basis of the normalization SDx - the standard deviation of X calculated for cases which are the basis of the normalization.

All the calculations were carried out separately for both sexes and while performing any analysis, p = 0.05 was assumed as critical significance level.

Description of study results

The group which is being the subject of the study comprise the homogeneous sample in terms of age (average age 20,84 SD = 2,02) and status of male and female students in their second year of full time studies at the greatest public universities in Cracow. The structure of the sample is shown in Table 1.

Tab. 1. The structure of the sample of students.

	UJ	UE	UP	UR	AGH	PK	
Women	140	107	128	114	113	117	719
Men	101	121	108	110	132	123	695
	241	228	236	224	245	240	1414

Table 2 shows the percentage distribution of answers in each category of declared cigarettes smoking in separate groups of sexes as well as it also contains the values of the test and the level of significance of differences occurring, which was examined by c^2 test describing the statistically significant level of differences between sexes.

Tab. 2. Percentage distribution of the habit of cigarette smoking tested in the sample of male and female students.

Cathegory		Women N %	Men N %	
Cigarettes smoking	20 a day 10 a day Ex smokers Doesn't smoke	15 2,13 149 21,16 50 7,10 490 69,61	44 6,33 150 21,58 73 10,51 428 61,58	F = 22,69 D f = 3, p= 0,0001

The vast majority, which is 74,41% of a total number of respondents do not use tobacco, including 69.61% of women and 61.58% of men who have never smoked cigarettes, and 7.10% of women and 10.51% of men who stopped smoking during studies. Over 21% of women and men smoke 10 cigarettes a day, while 2.13% of women and three times more men which is 6.33% smoke 20 cigarettes a day.

It should also be noticed that men and women in the sample of Cracow's students, differ in a statistically significant way in terms of prevalence of nicotine drugs in their lifestyle. Women are more likely to lead healthy lifestyle and often do not smoke cigarettes (76.70%). However, men in comparison with women are more likely to lead unhealthy lifestyle, as they smoke three times more cigarettes a day than women, which is about 20 units per day. 72.09% of men do not smoke cigarettes at all (Tab.2).

In order to show relationship between the level of body fat and body fat distribution in the body, and cigarette smoking, standardized differences between the characteristics

and indicators between particular categories of smoking habit prevalence were analyzed, which is illustrated in the morphological profiles for men and women (Figures). Numerical characteristics of the analyzed biological features are given in Table 3. The results of analyzes concerning the effects of nicotine on the level of analyzed biological characteristics are not uniform.

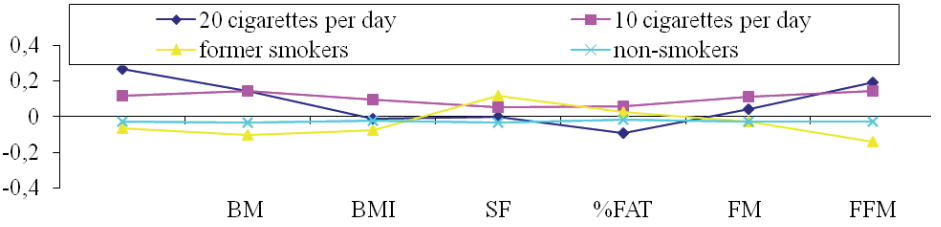


Fig. 1. Morphological profiles of characteristics and indicators of obesity in women in particular categories of cigarette smoking

No significant, differentiating influence of using nicotine on the fatness traits especially in women (Fig.1) was reported.

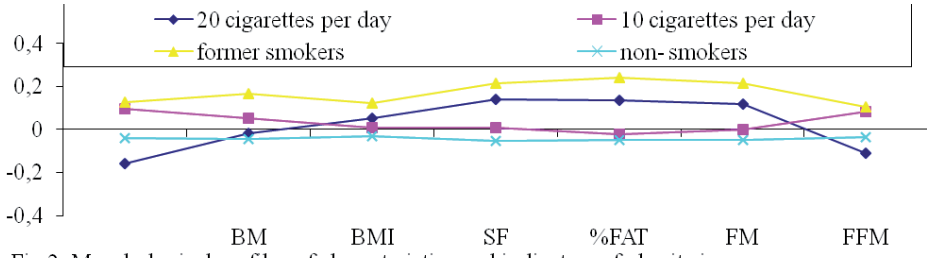


Fig.2. Morphological profiles of characteristics and indicators of obesity in men in particular categories of cigarette smoking

Despite the fact that in men (Fig.2), there was no statistical significance between groups, the fraction of "former smokers" clearly deviates towards the highest mass and body fat indicators. In men, there was also noticed a positive indicators deviation of obesity SF,% FAT, FM within the fractions smoking 20 cigarettes per day, the average of which are slightly lower than the values characterizing men who stopped smoking cigarettes.

Analyses prove that the use of nicotine stimulants affects the direction in which the body fat is being distributed in young adults (female- Fig.3, male- Fig.4). Cigarette smoking in an amount of about 20 units per day is associated with a greater accumulation of body fat in the abdominal region in women and men.

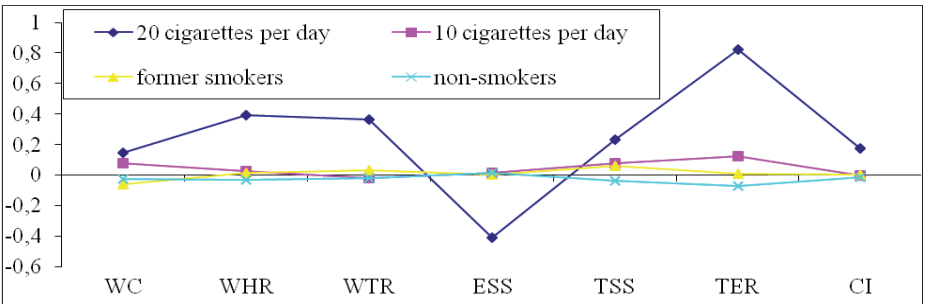


Fig.3. Morphological profiles of charasteristics and indicators of fat distribution in women of different categories of cigarette smoking

Women fraction (Fig.3) smoking 20 cigarettes a day, compared to other groups, clearly deviates in the direction of the greatest values of all analyzed indicators (WHR, WTR, WC, CI, TSS, TER), apart from the ESS indicator measuring the peripheral obesity, which is the sum of the thickness of the skin-fat folds on the limbs, which is the lowest in the sample. However, statistically significant differences were found only in relation to TER indicators.

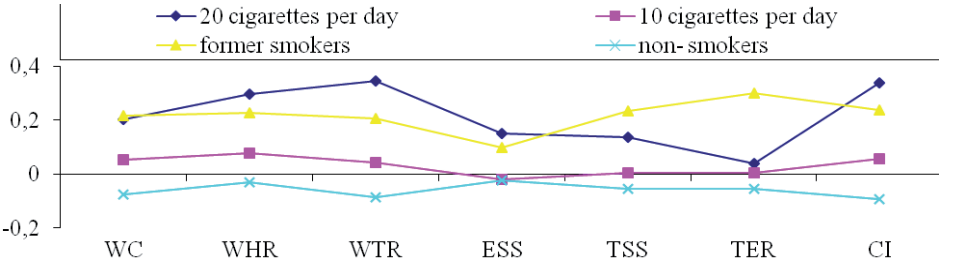


Fig.4. Morphological profiles of characteristics and indicators of fat distribution in men of different categories of cigarette smoking

In the group of men (Fig.4), the effect of nicotine significantly differentiates respondents and reveals the lowest values of all the indicators in male smokers. Students smoking about 20 cigarettes a day have a significantly higher waist circumference (WC), waist - hip ratio (WHR), waist - thigh (WTR) and body conicity index (CI). At the same time the fraction of ex-smokers has a larger thickness of skin-fat folds on the trunk (TSS), and a higher TER ratio (the ratio of the sum of skin-fat folds on the trunk to the total thickness of the skin-fat folds on the limbs), however, the analyses did not show statistical significance of these differences.

In conclusion, the analysis showed no differentiating influence of nicotine on the degree of obesity in respondents. However, increased fatness was reported among the men who stopped smoking cigarettes. Moreover, the relationship of nicotine with the type of fat distribution are clear and point to a tendency of fat distribution in the direction of greater accumulation of abdominal fat in people who smoke in large quantities.

Discussion

Presented in this paper the results of studies illustrate the biological condition of the population of young men and women studying in Cracow. In the course of study the diagnosis of nicotine addiction coexistence with excess body fat and abdominal fat distribution in the context of the adverse health effects of these affiliations was set.

Clinical observations of the connections between abdominal fat with metabolic dysfunctions and atherosclerosis, resulted in the perception of it as particularly dangerous to health (Tatoń, 1996). In numerous studies appear slightly different definitions due to the fact that the metabolic syndrome is compound, and etiologic and pathogenic factors have variable nature (Tatoń, Bernas, 2008). Among factors, the type of abdominal obesity, is an element present in every diagnostic approach. Depending on the definition, however, the detection of it is based on the different classification criteria (Snijder et al. 2003, Kinalska et al. 2006, Sieradzki, 2006).

Due to the risk of negative health effects Tatoń and Bernas (2008) propose suitable rigorous cut-off points: applying the criterion WHR for women of 0.85 and for men of 0.90, and 80 cm in waist for women and 94 cm for men. With regard to this information, it is worth mentioning that the average values characterizing the respondents (Tab.3) did not exceed the limit of standard values settled for each indicator. This result is not surprising while taking into consideration the fact that the group of respondents consists of young people. It is well known that, the level of obesity and fat redistribution increase with age as well as change from infantile to the adult model. Moreover, we can observe determined by gender and age shift in the model of accumulation of fat from fat peripheral (extremities) in the central abdominal.

Increased body fatness combined with cigarette smoking and alcohol consumption in terms of health effects, resulting from the combination of these factors is considered in a particular way and identified as risk factors for arteriosclerosis. Abdominal obesity is by Taton (1996) referred to as the third important internal factor, and cigarette smoking is the third most important external factor contributing to arteriosclerosis.

The relationship between body fat distribution, and cigarette smoking are endocrinology based and concern corticoids, including changes in the level of androgens, estrogens, glucocorticoids and growth hormone. Nicotine induces several metabolic disorders by stimulating the sympathetic nervous system. In smokers higher cortisol level is observed (Czyżewska, 2000). Nicotine-induced transformation of the residual particles impaired lipoprotein stimulates the growth of the concentration of cholesterol, which contributes to hypertriglyceridemia, hyperinsulinemia, and the platelet aggregation and arteriosclerosis (Tatoń, 1996).

Our study shown the differential effects of cigarette smoking. Men who smoked in the past, are distinguished by a higher body weight and more body fat. Although, those smoking 20 cigarettes per day, compared to ex-smokers, are less obese, the mean fat indices (SF,% FAT, FM) also deviate positively at the absence of the statistical significance of observed differences. In the group of women, there is no clear differentiation of the general level of overall body fat, which may be due to a small number of women in the fraction of the chain smokers who smoke 20 cigarettes a day. No significant differences in relation to body mass and body fat, between the analyzed groups of smokers and non-smokers, may result from the young age of the respondents, and thus, in a relatively short period of smoking, which was observed also in the studies made by Saarni et al. (2004).

In scientific literature, we can find results of studies in which young age of non-smoking men affects the lower, average body mass index BMI. However, women in this age group, both smokers and non-smokers have similar BMI, which is lower than the average BMI of former smokers (Akbartabartoori et al. 2005). In our study, no significant differences in the BMI among women and men were found, and its average value calculated for each of the four categories is within the norm.

The results obtained in the study, are confirmed in the studies of other authors (Lahti-Koski et al. 2002, Bamia et al. 2004, Kim et al. 2012, Mackay et al. 2013), revealing a pattern in which higher body fatness is identified more often in ex-smokers and chain smokers who smoke large numbers of cigarettes.

The demonstrated trend that cigarettes quitting is associated with increased body fatness, which decreases with time (Lahti-Koski et al. 2002), is not surprising. The differentiation of the effects of cigarette smoking is based on physiological energy cost of utilization of nicotine, which accounts for about 10% of the total energy balance, which may be associated with lower obesity and body mass, as well as reduced apetite (Palaniappan et al. 2001). On the other hand, the increase in body weight and increasing amount of visceral adipose tissue under the influence of smoking is associated with a reduced level of growth hormone, which inter alia, stimulates the use of fat, especially during starvation (Czyżewska, 2000).

The relationship of nicotine use with body fatness reported in literature, are not uniform. The observed diversity is dependent on age, sex, number of cigarettes smoked and other elements of lifestyle (Ramos de Marins et al. 2001, Visscher et al. 2002, Bamia et al. 2004, Akbartabartoori et al. 2005, Kim et al. 2012, Mackay et al. 2013).

Particularly dangerous in terms of negative health effects, abdominal obesity was in this study estimated on the basis of commonly used for this purpose indicators of different types of fat distribution. In terms of the size of the analyzed indicators of fat distribution, the medium characterizing different categories of male and female students do not exceed the emission limits established for each indicator (Snijder et al. 2003, Kinalska et al. 2006, Sieradzki 2006, Tatoń, Bernas 2008). However, it is worth mentioning that this study revealed the risk of abdominal obesity. The fact that people smoke 20 cigarettes a day is an important result characterized by higher values of the indicators of central fat distribution type. The size of waist circumference (WC), waist-to-hip ratio (WHR), waist-to-thigh (WTR) in men and in women and WHR indicator and TER fat distribution are statistically higher. In addition, men who quitted cigarettes, were identified with the effect of giving up of the addiction in the form of increased subcutaneous fat (TSS ratios are larger and TER), which according to what different studies report is the temporary effect.

The study revealed the clear relationship of nicotine with the type of fat distribution, which point to a tendency of fat redistribution in the direction of greater accumulation of abdominal fat in people who smoke cigarettes in large quantities. Thus, taking into account affiliations of the type of fat distribution with tobacco addiction, in relation to negative health effects, then within the sample studied, health risk affects almost one-quarter of the population of women and men who smoke havily 10 or more cigarettes a day.

Quite a similar relationship of smoking with increased abdominal adiposity, defined by means of WHR, WTR and waist circumference, was mentioned in the research of: Lahti-Koski et al. (2002), Bamia et al. (2004), Akbartabartoori and others (2005) Kim and others (2012), Mackay and others (2013). With regard to the distribution of fat, Akbartabartoori and others (2005) in their study found a number of discrepancies in relation to age and sex. In the comparable category of age among young people, different effects in the size of waist circumference were noticed: non-smoking men have a greater waist circumference, and the larger values of waist circumference in women of the same age, are characteristic of ex-smokers. The rate of fat distribution WHR is higher in non-smoking men and female smokers. The explanation for the discrepancy in the results of existing studies authors search in variability of hip circumference. Both male and female smokers have the smallest hip circumference, which is explained by authors as a result of the reduction in muscle mass, which occurred as an outcome of smoking cigarettes (Akbartabartoori et al. 2005).

A brief review of the reports shows that the variability in body weight and body fat tissue in relation to nicotine stimulant is complex, and the results of their co-existence are ambiguous and point at the same time to association with simultaneous lifestyle elements. Smoking often correlates with drinking of alcohol and the occurrence of other unhealthy behaviors in lifestyle, such as improper diet and low physical activity during leisure time (Ramos de Marins et al. 2001, Visscher et al. 2002, Bamia et al. 2004).

Moreover, the data analysis made in this study showed that men and women in the sample of Cracow's students, differ in a statistically significant way in their lifestyles in terms of prevalence of drugs. Women more likely tend to lead a healthy lifestyle and do not smoke cigarettes. Thus, three times more men than women smoke cigarettes. Cigarettes are not used by two-thirds of women and ten percent fewer men. In addition, within the group of students we can observe some positive trends towards a better quality of lifestyle: women usually do not smoke cigarettes, and men try to stop smoking.

However, as it was presented in our study, 6 % of smoking men addicted to cigarettes, and three times fewer women are at risk of health deterioration due to the excessive use of nicotine stimulants. Thus, if we take into account the problem of nicotine addiction in conjunction with excessive obesity, particularly abdominal with reference to health effects, then in the sample of our study the risk of damaging health concerns almost one-quarter of the population of young men and women.

Summary and conclusions

Presented in this paper study results illustrate health potential of the population of young men and women studying in Cracow. The study comprise the diagnosis in terms of nicotine addiction coexistence with excess body fat and abdominal type of fat distribution in the context of the adverse health effects of these links. The risk of health loss affects almost one-quarter of young men and women who were diagnosed with central type of fat distribution in relation to cigarette smoking.

Nicotine addiction among people who smoke a lot of cigarettes, shows the modifying impact of the distribution of body fat towards the abdominal accumulation. Men who stopped smoking cigarettes, disclose the effect of termination of addiction in the form of increased subcutaneous fat, which according to what literature reports, is the transitional effect.

The information provided by the research is important for the health prophylaxis:

Among the elements of lifestyle, the habit of smoking cigarettes is definitely a negative environmental factor in terms of its bad effects revealing at young age of smokers.

Nicotine abuse correlates with visceral model of body fat deposition even in young people's bodies.

Nicotine at young age reveals the destructive effects on health involving changes in metabolism that are manifested in the diversity of anthropological indicators.

Smokers should be aware of the costs of health deterioration as a result of nicotine addiction and the necessity to stop smoking and go to rehab due to numerous health consequences such as the reduced quality of life and capacity of physical exertion, as well as a number of diseases including abdominal obesity and cardiovascular diseases, which are merely postponed in time.

The people who have stopped smoking cigarettes should have the awareness of the mechanism (effect) of nicotine withdrawal and on one hand should control the energy consumption obtained from the food, and on the other hand not resign from nicotine rehab due to increasing body weight and fat cover of the body, moreover, they should obtain the emotional support from the loved ones or specialist help.

Anthropological indicators of fat distribution may be treated as good external identifiers of health risks in the area of lifestyle (environmental).

The differences observed in biological characteristics between groups, reflect the diversity in the potential of health, identified in the area of lifestyle factors such as smoking habit.

Tab. 3. Numerical characteristics of the analyzed biological features in men and women of different categories of cigarette smoking

		Women				Men			
		20 cigarettes per day N= 15	10 cigarettes per day N = 149	Former smokers N = 50	Non-smokers N =490	20 cigarettes per day N = 44	10 cigarettes per day N= 150	Former smo-kers N = 73	Non-smokers N = 428
BM (kg)	X	59,07	59,06	57,04	57,63	72,97	73,70	74,90	72,67
	Me	59,00	58,00	56,00	56,60	69,20	71,80	73,60	71,30
	SD	10,040	9,390	7,720	7,770	11,880	10,080	10,660	10,350
	p	P = 0,304				P = 0,291			
BMI	X	21,16	21,44	20,98	21,13	22,97	22,85	23,17	22,73
	Me	21,76	21,20	20,45	20,84	22,54	22,38	22,84	22,28
	SD	2,740	3,080	2,560	2,440	2,910	2,740	2,880	2,870
	p	P = 0,593				P = 0,650			
SF mm	X	37,69	38,39	39,17	37,34	35,59	33,63	36,74	32,74
	Me	39,40	35,30	36,00	34,60	29,70	28,65	31,90	28,60
	SD	12,390	13,290	14,540	11,680	17,010	14,850	14,720	14,540
	p	P = 0,762				P = 0,074			
% FM	X	17,27	17,80	17,68	17,53	15,80	15,09	16,28	14,97
	Me	18,60	17,40	17,79	17,18	14,39	14,29	15,74	14,24
	SD	4,170	3,650	3,690	3,470	5,080	4,440	4,510	4,490
	P	P = 0,847				P = 0,107			
FM (kg)	X	10,54	10,78	10,29	10,28	12,01	11,43	12,49	11,19
	Me	11,02	10,28	9,79	9,74	10,52	10,45	11,42	9,93
	SD	3,890	3,970	3,660	3,220	6,000	4,870	4,760	4,840
	p	P = 0,657				P = 0,127			
FFM (kg)	X	48,53	48,28	46,75	47,34	60,96	62,27	62,41	61,47
	Me	47,98	47,82	46,25	46,85	58,97	61,45	61,29	61,29
	SD	6,390	5,870	4,600	5,170	6,690	6,530	7,320	6,790
	p	P = 0,203				P = 0,395			

WC (cm)	X	71,97	71,49	70,59	70,83	84,14	82,85	84,27	81,74
	Me	71,50	70,30	69,10	70,00	81,00	81,35	84,00	80,20
	SD	7,609	7,185	6,740	6,425	10,479	8,597	7,801	8,471
	p	P = 0,678				P = 0,032			
WHR	X	0,75	0,74	0,73	0,73	0,85	0,84	0,84	0,83
	Me	0,75	0,74	0,72	0,73	0,84	0,83	0,84	0,82
	SD	0,050	0,050	0,040	0,050	0,060	0,050	0,050	0,050
	p	P = 0,425				P = 0,049			
WTR	X	1,28	1,25	1,26	1,25	1,47	1,44	1,45	1,43
	Me	1,26	1,25	1,25	1,25	1,45	1,43	1,43	1,42
	SD	0,080	0,100	0,070	0,080	0,100	0,080	0,090	0,090
	p	P = 0,530				P = 0,008			
CI	X	1,11	1,10	1,10	1,10	1,21	1,19	1,20	1,18
	Me	1,11	1,11	1,09	1,10	1,21	1,18	1,20	1,17
	SD	0,050	0,060	0,060	0,050	0,080	0,070	0,060	0,070
	p	P = 0,907				P = 0,003			
TSS	X	45,63	43,12	42,87	41,22	43,32	40,45	45,35	39,19
	Me	46,70	37,60	40,90	37,80	35,00	33,65	39,80	32,75
	SD	17,450	17,550	18,410	15,480	25,650	21,530	21,650	20,610
	p	P = 0,539				P = 0,062			
ESS	X	24,43	27,67	27,57	27,64	20,51	19,34	20,16	19,32
	Me	24,40	26,70	26,45	26,30	18,70	17,75	19,00	17,65
	SD	7,340	8,740	6,890	7,330	9,210	6,590	6,040	6,760
	p	P = 0,241				P = 0,486			
TER	X	1,87	1,58	1,53	1,50	2,06	2,04	2,23	2,00
	Me	1,82	1,47	1,52	1,43	1,98	1,93	2,02	1,84
	SD	0,450	0,460	0,360	0,390	0,650	0,580	0,780	0,620
	p	P = 0,028				P = 0,264			

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Urszula Pasiut

University School of Physical Education in Cracow
Derpartment of Biomedical Science
Section of Biological Regeneration and Corrective Procedures
Akademia Wychowania Fizycznego w Krakowie
Instytut Nauk Biomedycznych,
Zakład Odnowy Biologicznej i Korekcji Wad Postawy

The relationships of alcohol stimulant with selected somatic features and indicators of obesity and fat tissues distribution in the body, in relation to the health risk in young adults

Związki używki alkoholowej z wybranymi cechami somatycznymi i wskaźnikami otłuszczenia oraz dystrybucji tkanki tłuszczowej w ustroju w odniesieniu do ryzyka utraty zdrowia u młodych osób dorosłych

Summary
Anthropometric study and survey included a random sample of young (average age 20.84 SD = 2.02) men (N = 695) and women (N = 719) studying at the largest public universities of Cracow (UJ, EU, UP, UR, AGH, PK). The research was carried out as part of the study, concerning the level of obesity and fat distribution in the light of socio - economic status and lifestyle of students.
The aim of this paper is to investigate the associations of alcohol consumption with selected somatic features and indicators of obesity and fat distribution in the body of young women and men, In order to identify the occurrence of health risks among young people resulting from the habit of drinking alcohol.
In order to point to the effects of drinking alcohol at the level of selected biological characteristics (BM, BMI, SF,% FAT, FM, FFM, WC, WHR, WTR , CI, ESS, TSS, TER) normalized differences of somatic traits and indicators between categories selected fractions of declared alcohol drinking such as "often and a lot," "sometimes, and moderately", "do not drink" were analyzed, which is illustrated in the form of morphological profiles for men and women
The analyzes indicate that alcohol consumption affects with the different strength of impact, both the level of obesity and fat distribution in the body system of studied women and men. Drinking alcohol often and in large quantities differentiates surveyed women and men in opposite directions. In male subjects, frequent alcohol use in large quantities involves significantly more body fat and body fat distribution in the body in the direction of greater accumulation of fat in the abdominal region. However, the consumption of alcohol in women frequently and in large amounts is associated with the lowest indicators of body fat as well as lower values of fat distribution indicators. Moreover, the result obtained with reference to TER ratio which is greater in women drinkers often and much, shows the tendency among these women of greater accumulation of fat in the abdominal region, equally as it happens among men.
Presented in this paper results constitute the basis for a health diagnosis of the respondents in terms of overweight and obesity, including abdominal type with reference to the declared alcohol consumption.

The consumption of alcohol has been identified as a significant risk factor for health deterioration especially with reference to men, resulting from the occurrence of greater fat occurrence, in particular abdominal.
Particularly dangerous because of the negative health effects, is abdominal obesity which comprise a health risk in 2% of young women and nearly 7% of young men, as it correlates with frequent alcohol consumption and in large quantities.
Key words: Woman, Man, alcohol, somatic traits, fat tissue, health

Streszczenie
Badaniami antropometrycznymi i ankietowymi objęto próbę losową młodych (średni wiek badanych 20,84 SD = 2,02) kobiet (N = 719) i mężczyzn (N = 695) studiujących w największych publicznych uczelniach Krakowa (UJ, UE, UP, UR, AGH, PK). Badania zrealizowano w ramach badań własnych, dotyczących poziomu otłuszczenia i dystrybucji tłuszczu w świetle statusu społeczno – ekonomicznego i stylu życia młodzieży akademickiej.
Celem opracowania było prześledzenie związków konsumpcji alkoholu z wybranymi cechami somatycznymi i wskaźnikami otłuszczenia oraz dystrybucji tłuszczu w ustroju u badanych młodych kobiet i mężczyzn w odniesieniu do ryzyka utraty zdrowia wynikającego ze współwystępowania tych czynników.
Dla wykazania wpływu picia alkoholu na poziom wybranych cech biologicznych (BM, BMI, SF, %FAT, FM, FFM, WC, WHR, WTR, CI, ESS, TSS, TER) analizie poddano znormalizowane różnice między wyodrębnionymi frakcjami deklarowanego picia alkoholu („Często i dużo", „Czasem i umiarkowanie", „Nie piją"), które zobrazowano w postaci profili morfologicznych dla kobiet i mężczyzn
Konsumpcja alkoholu wpływa w sposób niejednorodny, zarówno na stopień otłuszczenia ciała jak i na kierunek dystrybucji tłuszczu w ustroju badanych młodych kobiet i mężczyzn. Picie alkoholu często i w dużych ilościach różnicuje badane kobiety i mężczyzn w przeciwnych kierunkach.
U badanych mężczyzn, z częstym piciem alkoholu w dużych ilościach, wiąże się istotnie większe otłuszczenie ciała oraz rozmieszczenie tkanki tłuszczowej w ustroju w kierunku większej kumulacji tłuszczu w okolicy brzusznej. Natomiast u kobiet konsumpcja alkoholu często i w dużych ilościach, wiąże się z najniższymi wartościami wskaźników otłuszczenia ciała, a także mniejszymi wartościami wskaźników dystrybucji tłuszczu. Chociaż wskaźnik TER jest większy u kobiet pijących alkohol często i dużo, co wskazuje na tendencję u tych kobiet do występowania większej kumulacji tłuszczu w okolicy brzusznej, podobnie jak u mężczyzn.
Przedstawione w niniejszym opracowaniu wyniki badań, stanowią podstawę dla dokonania diagnozy zdrowotnej badanych, w zakresie ryzyka występowania nadwagi i otyłości w tym typu brzusznego w odniesieniu do deklarowanej konsumpcji alkoholu.
Konsumpcję alkoholu zidentyfikowano jako istotny czynnik ryzyka utraty zdrowia zwłaszcza w odniesieniu do płci męskiej. Wynika on z powiązań nadużywania alkoholu z występowaniem większego otłuszczenia zwłaszcza typu brzusznego. Szczególnie niebezpieczna, ze względu na negatywne skutki zdrowotne otyłość brzuszna stanowi ryzyko utraty zdrowia dla 2% młodych kobiet i prawie 7% młodych mężczyzn, bowiem koreluje z piciem alkoholu często i w dużych ilościach.
Słowa kluczowe: kobiety, mężczyźni, alkohol, cechy somatyczne, otłuszczenie ciała, zdrowie

Introduction

Alcohol is a product that takes a specific place in the socio-cultural sphere. On the one hand, it is a product of culture and its consumption is the element of lifestyle of communities, and on the other hand it is the cause of many diseases and social harm. The specific influence of alcohol addiction and mental effects of insobriety due to excessive consumption causes social and economic disruptions. Alcohol is a risk factor for many diseases, including cardiovascular disease, gastrointestinal cancers, and contributes to immune and reproductive health disorders as well as to incidents of deaths. However, there have been reports of positive effects of consuming alcohol in small amounts, resulting from the protective influence of alcohol towards cardiovascular disease (NIAAA 2000). The report "Alcohol in Europe: A public health perspective. Report for the European Commission – Summary" (p. 127) alcohol is perceived as a third cause of deaths and malfunction in Europe, while obesity is ranked on the fourth place (Anderson, Baumberg, 2006).

In literature much information can be found on the links between alcohol consumption and obesity and a greater accumulation of fat in the abdominal area (Lahti-Koski et al. 2002, Laitinen et al. 2004, Suter, 2005, Carels et al. 2008, Luo et al. 2012). The relationship between body fat and alcohol drinking in the context of adverse health effects resulting from the combination of these factors is dealt by Tatoń (1996), in a particular way and identified as risk factors for arteriosclerosis. Abdominal obesity is defined by the author as the third most important internal factor, and excessive alcohol consumption is the fourth most important external risk factor of arteriosclerosis. Abdominal obesity is considered as particularly dangerous because of the negative health effects resulting from the links between obesity, especially visceral with metabolic abnormalities and arteriosclerosis.

In the light of information on negative health effects resulting from the coexistence of obesity, especially abdominal and alcohol abuse, the attempt of assessing risks of health damage in young adults was taken, as it is clear from the opinion of experts (Tatoń, Bernas, 2008) that metabolic disorders can occur in young age.

The aim of this paper is to investigate the associations of alcohol consumption with selected somatic features and indicators of obesity and fat distribution in the body of young women and men.

Materials and test methods

The material analyzed in the work comprises anthropometric and survey data of random sample of young men and women studying at large state Cracow's universities (Jagiellonian University - UJ, Cracow University of Economics – UE, Pedagogical University - UP Agricultural University - UR, University of Science and Technology-AGH , Cracow University of Technology - PK). The study included the students of the second full-time year, chosen in two stage lottery, with a minimum of one hundred men and a hundred women from each university. In the first stage of lottery, one faculty was selected from each of the six selected universities. In the second stage, a group of randomly selected male and female students within each of the departments. The research was carried out as part of the studies, concerning the level of obesity and fat distribution in the view

of socio-economic status and lifestyle of students. Measurements were carried out in November 2004, after obtaining the written consent of directors of particular institutions, to implement the research in physical education classes. The study included individuals whose physical activity (taken now or in the recent past) didn't display signs of competitive sports, due to the effects of exercise training, concerning people practicing different kinds of sports (Pasiut, 2012).

The study sample representing Cracow's subpopulation of students was divided by gender, and the structure of the sample was shown in Figure 1. The population which is the subject of the study comprise a homogenous sample in terms of age (average age 20.84 SD = 2.02) and social status of male and female students of state university.

The appropriate to the test, the set of anthropometric measurements was selected, and the test was performed in accordance with the methodology described in the literature (Gołąb, Chrzanowska, 2007). Anthropometric measurements included size, width and circumference of the trunk and limbs factors and skin-fat folds:

- The height of the body - BH (cm) - measured (Basis-vertex), in standing, upright position by means of antropometre, from the base measurement (Basic) to the vertex, with the adjustment of the head in the horizontal Frankfurt plane, with a precision of 1 mm;
- Body mass - BM (kg), measured on the medical scale in gymnastic outfit, but without shoes, with the precision of 100g;
- Waist circumference- WC (cm), measured perpendicular to the long axis of the body waist at the narrowest point between the lower edge of the ribs and the upper edge of the top of the iliac crest bone, with a precision of 1 mm;
- Hips circumference - HC (cm), measured by means of centimeter tape arranged perpendicular to the long axis of the body at the level of larger femoral secretaries, with a precision of 1 mm;
- Thigh circumference - TC (cm), measured by using centimeter tape arranged perpendicular to the long axis of the thigh below the gluteal fold, with equal load distribution in both lower limbs, with a precision of 1 mm;
- Arm circumference - AC (cm), measured at rest, by means of centimeter tape arranged perpendicular to the long axis of the arm in the middle of its length, with an accuracy of 1mm;

The features of body fat recognized as measurements of the thickness of fat- skin folds (mm), measured on the trunk and limbs by the use of Harpenden foldmeter with the load of 10g/mm2 of contact surface with an accuracy of 0.1 mm:

- Skin-fat fold above the arm bicep - BIC - biceps measured as longitudinal fold in half of the arm length;
- Skin-fat fold above the triceps - TRC - triceps measured as longitudinal fold on the back part in the middle of the arm length;
- Subscapular skin-fat fold - SSC - subscapular measured as slanting fold under the lower angle of the scapular bone;
- Skin-fat fold over the iliac crest - SIC - suprailiac measured as slanting fold above the iliac crest in the lateral line of the body;
- Abdominal skin-fat fold - ABD - abdominal fold measured as transversal fold about

5cm lateral and 1cm down from the navel
- Calf skin-fat fold - CLF - calf measured as longitudinal fold below popliteal.

On the basis of direct measurements of somatic features, anthropometric indicators of the degree of obesity and fat distribution pattern were calculated. As measure of body fat: body mass index - BMI, and the total thickness of three skinfolds - SF (mm) – under scapula, on the abdomen and above the triceps were calculated.

Due to the aim of the study and the method of data collection, the body composition was estimated on the basis of mathematical equations, predicting the contribution of individual tissues. The percentage of fat in the total body weight (% FAT) was calculated on the basis of mathematical equation describing the percentage of fat in total body weight.

Fat tissue mass FM (Fat Mass-kg), which is the amount of fat contained in the body in kilograms and fat-free mass FFM (Fat Free Mass - kg), was calculated by means of mathematical equation based on the estimated body fat percentage.

In order to assess the type of body fat distribution, the indicators of fat distribution based on the measurement of thickness of skinfolds and their sum, as well as indicators constructed on the basis of measurements of waist, hips, thighs circumference were used:
- TSS (Trunk Skinfolds Sum) - which is the sum of three skinfolds thickness of the body fat (mm): the shoulder, over the crest of the hip and abdomen (SSC + SIC + ABD), describing the level of central adiposity (body);
- ESS (Extremity Skinfolds Sum) - which is the sum of three skinfolds thickness of fat on the extremities (mm) above the bicep and tricep and calf (BIC + TRC + CLF) - describing the level of peripheral fat;
- TER (Trunk Extremity Ratio) - the ratio of the sum of three skin- fat folds thickness of the body (mm) TSS (Trunk Skinfolds Sum) to the sum of three skin-fat folds thickness of on the extremities (mm) EES (Extremity Skinfolds Sum). This indicator differentiates the type of fat distribution in the body. High values of this index describe the type of central fat tissue distribution;
- WHR - (Waist to Hip Ratio) is the ratio of waist circumference (cm) to hip circumference (cm). It allows for the assessment of the type of body fat distribution. Waist-to-hip ratio enables to make a classification of the type of fat distribution on androidal type, associated with the accumulation of body fat mainly in the abdominal area - including visceral tissue, or gynoidal type, resulting from the deposition of fat in the buttocks-hip area;
- Waist-to-thigh ratio - WTR (Waist to Thigh Ratio) - the ratio of waist-to-thigh;
- The rate of conicity of the body - CI (Conicity Index) - the ratio of waist circumference (m) to the and the product of an empirical index of 0.109 and root of weight (kg)/ body height (m).

Simultaneously to the studies, anthropometric surveys were conducted. The participation in the study was voluntary and the survey was anonymous (29 August Act of 1997 on Data Protection - Dz.U.1997, item 883). The questionnaire contained questions listed thematically into five groups of data: data on social and economic status, data on lifestyle and data concerning obesity among the closest family members. The data on lifestyle included questions about leisure activities including physical activity, diet, as well as the prevalence of stimulants such as nicotine and alcohol.

The aim of this thesis is to show the relationship of alcohol consumption with selected somatic features and indicators of obesity and fat distribution in the body.

The attitude of the respondents towards alcohol is described on the basis of the answers given to the questions in the questionnaire. The appropriate ranking points, given in brackets were assigned to the responses. Respondents were asked about the frequency of alcohol consumption: daily (0), regularly during the weekend (1), about three times per month (2), about once a month and less (3), occasionally in the year (4), and never (5) . The type of the most frequently used alcohol included: strong vodka (0), other rich in high percentage of alcohol (1), beer (2) cheap wine (3), high-quality wine (4), none (5).

The overall prevalence of alcohol consumption was specified by the sum of points allocated to particular categories of answers given to questions about the habit of drinking alcohol. Based on the percentile distribution of the total score, three categories were specified: up to the 25 percentile - a fraction of drinkers "often and in large quantities", from 25 to 75 percentile "sometimes and in moderation", while above 75 percentile of the total distribution of the scores, the category of "non-drinkers" was extracted.

The methods of results' analysis: Tested in this work dependent variables comprise the somatic features and indicators describing the type of body fat and fat distribution, while the independent variables analyzed, comprise the elements describing the socio-economic status and lifestyle of male and female students of the Cracow's universities.

A statistical study of the collected material was carried out in several stages (Sokal, Rohlf, 1995). At first, for each variable descriptive statistics were calculated. For the evaluation of central tendencies, mean and median were used. However, the dispersion was described by means of the standard deviation (SD). Moreover, the frequencies adopted by different categories were calculated.

In order to point to the effects of drinking alcohol at the level of selected biological characteristics, standardized differences between selected fractions of declared alcohol drinking such as "often and a lot", "sometimes, and moderately", "do not drink" were analyzed, which is illustrated in the form of morphological profiles for men and women

Quantitative variables were normalized according to the formula: $Xn_i = \frac{\overline{X} - X_i}{SD_x}$

Where: Xn_i – normalized value of the variable X for i-case, $\overline{X}$ - the average value of X to the cases which are the basis of the normalization SDx - the standard deviation of X calculated for cases which are the basis of the normalization.

The use of normalization facilitates the interpretation of the results, since after the normalization, the unit describing the variables is reduced to the SD base standardization. Thanks to this, we can combine with each other and collectively analyze characteristics acquiring very diverted values, as well as the measurements expressed in different units (e.g. mm and kg). Normalized values with a "positive" mark give evidence of greater value than the average of the base normalization, but with a "negative" mark of values below the average base standardization.

For variables, the distribution of which is significantly different from a Gaussian curve, a logarithmic transformation of data was performed in order to increase the data

fit to a normal distribution. In order to assess the compatibility of the distribution of variables with the normal distribution Shapiro-Wilk test was used.

In order to combine ordinal or nominal data, contingency tables and analysis of attendance: c^2 or G^2 (Likelihood ratio) were applied. Moreover, inductive statistics techniques were used to determine possible differences in the values of the features that exist between groups. In the case of quantitative variables, while comparing the two groups used t-Student's test was used. In the case of variables with distributions deviating from normal, analyzes were made on the transformed values (BM, SF, FM, FFM, ESS, TSS, TER, WC).

While performing any analysis, $p = 0.05$ was assumed as critical significance level.

All calculations were carried out separately for male and female sex. The results of the analyzes for the characteristics of the sample, are given in Table 2 and illustrated graphically in morphological profiles in the Figures, in groups divided into separate categories.

Description of test results

The material presented in this thesis refers to the results of the study performed on the sample group of students selected from a population in terms of the test sample material. The structure of the tested sample indicating the type of institution is illustrated in Figure 1. The population studied in this paper comprise a sociologically selected sample; of male and female students of a second year of full-time studies at the largest public universities in Cracow; homogeneous in terms of age (X=20,84; SD=2,02) and status.

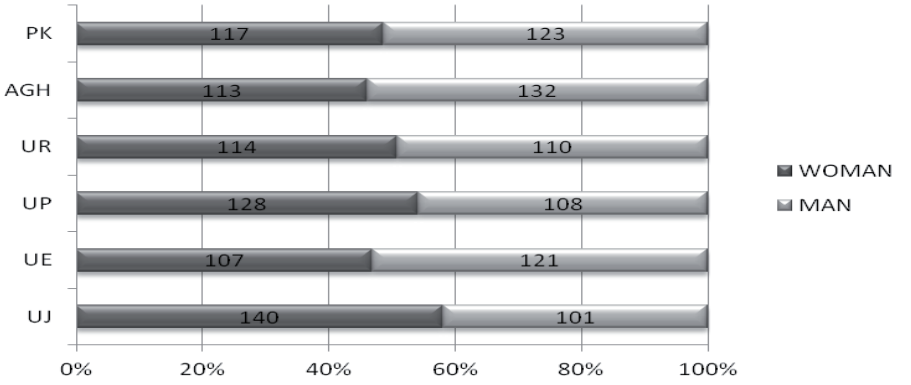


Fig. 1. The structure of the tested sample indicating the type of institution.

In the entire sample, women (N = 719) constitute 50.85% and men (N = 695) 49.15% (Fig. 1).

In terms of the prevalence of alcoholic stimulants in lifestyle, the tested sample chosen from the population of men and women studying in Cracow is diversified, which was examined by using c^2 test, specifying statistically significant level of differences between sexes (Table 1).

Tab. 1. Percentage distribution of declared alkohol consumption tested in the sample of male and female students.

	cathegory	Women N %	Men N %	p
Alkohol consumption	Often and a lot Sometimes and moderately Do not drink	14 1,95 517 71,90 188 26,15	48 6,91 561 80,72 86 12,37	F = 58,02 Df = 2, p= 0,0001

In the tested sample of young people dominated lifestyle (76.24%) in which alcohol consumption was moderate (71.90% of women and 80.72% of men). Nearly one in five students in the sample did not drink alcohol (19.38%), but four people in one hundred admitted that they drink alcohol frequently and in large amounts (4.38%). Thus, significantly greater number of women (26.15%) than men (12.37%) do not drink alcohol, however, two women in hundred (1.95%) and more than three times as many men (6.91%) report drinking alcohol often in large amounts (Table 1).

In order to point to the effects of drinking alcohol at the level of selected biological characteristics, standardized differences between selected fractions of declared alcohol drinking such as "often and a lot," "sometimes, and moderately", "do not drink" were analyzed, which is illustrated in the form of morphological profiles for men (Fig. 4,5) and women (Fig. 2,3). Besides, the numerical characteristics, are given in Table 2, in which also the significance of differences between groups was also estimated. First of all, it must be emphasized at the very beginning that the average size (X, Me), describing the men and women of different fractions does not exceed the limits of standards set for individual characteristics and indicators analyzed in this work (Pasiut 2012).

The influence of alcohol consumption on the size of the biological features analyzed in the test sample of Cracow's male and female students reveals the opposite trends in terms of the direction of diversity and the level of the significance of differences among the sex groups.

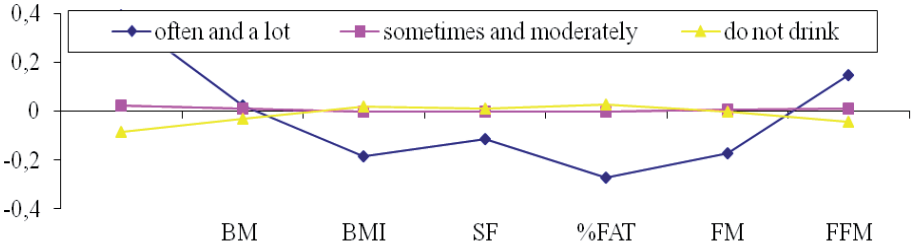


Fig. 2 Morphological profiles somatic traits and body composition in female of different categories of the declared alcohol consumption

Women who drink alcohol frequently and in large quantities, compared to female students in the group who do not drink alcohol or drink alcohol moderately, are significantly less fatty (Fig.2). However, these differences do not show statistical significance, as well as differences between groups of these indicators of fat distribution are not significant.

In the fraction of women who drink alcohol frequently and in large quantities the lowest average values of indicators of distribution (Fig.3) were noticed. The TER indicator is the exception as it has the greatest value in comparison with the remaining factions.

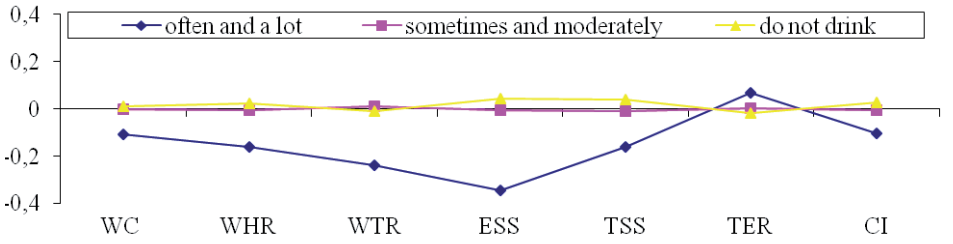


Fig.3 Morphological profiles of fat distribution indicators in female of different categories of the declared alcohol consumption

On the contrary, in the group of men, clear and statistically significant differences in the incidence of higher values of all the analyzed characteristics and indicators of obesity (Fig.4) appeared within the fraction that drink alcohol frequently and in large quantities. The sample of male students who declared abstention from alcohol is characterized by the lowest values of these indicators. The performed analyzes showed statistical significance of differences occurring between groups, within such features as the sum of three skinfolds (SF), the percentage of fat tissue in the total body weight (% FAT) and body fat mass in kilograms (FM).

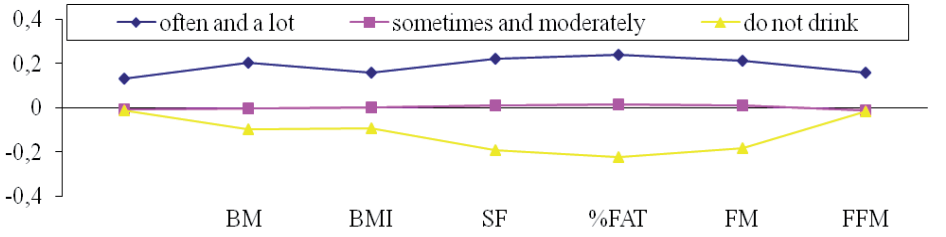


Fig. 4 Morphological profiles somatic traits and body composition in male of different categories of the declared alcohol consumption

Men drinking alcohol frequently and in large quantities, are also characterized by higher rates of fat distribution (Fig. 5), particularly in relation to the values occurring in people declaring abstention from alcohol. The statistical significance of the differences was shown in the case of indicators: waist-to-thigh (WTR), the total thickness of the skinfolds on the extremities (ESS) and the total thickness of the skinfolds on the trunk (TSS).

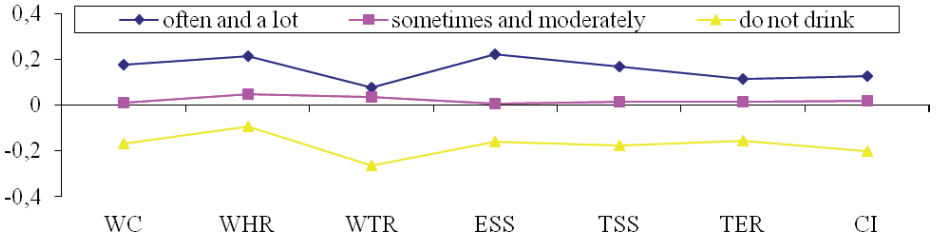


Fig. 5 Morphological profiles of fat distribution indicators in male of different categories of the declared alcohol consumption

To sum up, the analyzes indicate that alcohol consumption affects with the different strength of impact, both the level of obesity and fat distribution in the body system of studied women and men. Drinking alcohol often and in large quantities differentiates surveyed women and men in opposite directions.

Despite the fact that the differences among women are not statistically significant, average normalized differences in the analyzed indicators deviate towards the lowest values among drinking alcohol frequently and in large quantities, with the exception of TER, which in this group has the highest value.

In the group of men, the fraction of those drinking alcohol often in large quantities deviates towards the most significant values of indicators of both the level and type of fat distribution towards the center, with the lowest values of these characteristics in men declaring abstinence.

Discussion

Due to many clinical observations of correlation between obesity, especially of abdominal kind with metabolic dysfunctions and arteriosclerosis (Tatoń, Bernas, 2008), abdominal obesity is considered to be particularly dangerous because of the negative health effects. At the same time the consumption of alcohol has been recognized as factor contributing to the development of obesity, due to a positive correlation between alcohol consumption and higher values of the indicators in the central fat distribution (Suter et al. 1997, Lahti-Koski et al. 2002, Laitinen et al. 2004, Suter 2005, Luo et al. 2012).

Much information on the negative metabolic effects alcohol produces can be found in literature. Consumed alcohol causes an increase in the level of liver enzymes γ-glutamyl transferase (GGT) activity, which fosters hypoglycemia, severity of synthesis of fatty acids and triglycerides in adipocytes, which play significant role in the formation of obesity (Tatoń, 1996, Puukka et al. 2006) and thus, explain the increased risk alcohol-dependent increase of body fat. Oxidation of the ethyl alcohol is associated with disregulation of oxidation-reduction balance in hepatocytes. The induced by alcohol model of metabolism MEOS (microsomal ethanol oxidazing system) results in an increased amount of the reduced form of NAD-NADH, which fosters lipogenesis, which may occure shortly after consuming a small amounts of alcohol per day (Suter, 2000, Oneta et al. 2002, Suter, 2005). Alcohol displays suppressive effect with reference to the oxidation of lipids, which consequently leads to the deposition of non-oxidized fat in the abdominal fat tissue. Moreover, abusing

alcohol leads to dyslipidemia, increased insulin resistance and impaired glucose tolerance as well as to the endocrine changes. Alcohol stimulates adrenergic system to the release of hypothalamic hormone ACTH (Tatoń, 1996). Regular alcohol consumption increases the release of glucocorticoids and secretion of adrenocorticotropic hormone (ACTH). Alcohol-induced stimulation of glucocorticoid and the secretion of cortisol, accompany the central fat distribution (Suter, 2005).

The results of studies on the prevalence of the links between body fatness and alcohol use are not uniform. The information concerning the influence of alcohol in the direction of increased accumulation of fat tissue in the body stay in contrast with the observations of reduced body weight and body fat as well as with the incidence of malnutrition in patients who consume alcohol frequently in large quantities (Suter et al. 1992, Suter et al. 1997, Levine et al. 2000, Suter, 2000).

Also this study showed heterogeneous nature of the impact of alcohol consumption in the tested women and men, revealing contrasting trends of influence that affect the sexes. In the group of men, frequent use of alcohol in large quantities leads to significantly greater fatness and body fat distribution in the body in the direction of greater accumulation of fat in the abdominal region. However, the frequent and in large amounts consumption of alcohol in women is associated with the lowest indicators of body fat as well as lower values of fat distribution indicators. However, the result obtained in relation to TER, which is higher among women who drink alcohol often and in large amounts points to the tendency of higher accumulation of fat in their abdominal region, equally as it happens among men.

Literature, concerning associations of alcohol consumption with the occurrence of overweight and obesity suggests that conditions are multi-faceted and related to gender, age, eating habits, and other lifestyle elements.

The study revealed the influence of alcohol on the eating habits. The risk of weight gain resulting from the increase in appetite while consuming alcohol, must also be taken into consideration. It has been proven that the consumption of alcohol 30 minutes before a meal results in higher energy use, faster eating of meals, and choosing meals with a higher content of animal fat. However, co-occurrence of higher BMI with frequent alcohol and meat products consumption, were significant only for men (Suter, 2005, Carels et al. 2008).

The habit of simultaneous consumption of alcohol while eating meals promotes diet rich in fat, which at the same time correlates with a reduced feeling of satiety and eating larger food portions (Tremblay, St. Pierre, 1996, Doucet, Tremblay, 1997). It was also revealed that the simultaneous consumption of alcohol and meals promotes metabolization of carbohydrates working on the other hand suppressively against protein and fat (Suter et al .1992, Doucet, Tremblay, 1997, Suter, 2005).

However, other studies revealed the impact of physical activity, which plays an important role: within the group of people who were physically active during leisure time and drunk alcohol no significant overweight was reported (Tremblay, St. Pierre, 1996, Doucet, Tremblay 1997, Carels et al. 2008).

Thus, it can be assumed that the discrepancies between the results obtained in different studies may be caused by a different lifestyle of the respondents which allows to suppose that lifestyle factors in relation with alcohol consumption, modify fat metabolism.

Alcohol is a source of large amounts of energy, metabolically favored in relation to other energy substrates (Suter et al. 1992, Doucet, Tremblay 1997). One gram of alcohol comprise 7 calories of energy, of which 17% is absorbed by thermo genesis, while one gram of fat provides 9 calories and one gram of carbohydrates 4 calories (Suter, 2005). Thus, alcohol abuse can easily lead to excess of energy.

There is also much evidence indicating the presence of certain energy costs concerned with alcohol consumption. In the experiment (Levine et al. 2000), alcohol abusers had increased resting metabolic rate, which fell within a few days after stopping drinking, which according to the authors can be explained by the increase in BMI among these people.

As shown in our study, at risk of health damage due to excessive alcohol consumption is almost 7% of men and three times fewer women. Men and women in the test sample of students from Cracow, in terms of their lifestyle, differ in a statistically significant way in the consumption of alcohol. Women more often lead healthy lifestyles and do not drink alcohol. However, men were three times more likely than women to drink alcohol in large quantities. Among those included in the survey, one fourth of women and a half fewer men do not drink alcohol.

Summary and conclussions

Presented in this paper results constitute the basis for a health diagnosis of the respondents in terms of overweight and obesity, including abdominal type with reference to the declared alcohol consumption.

The consumption of alcohol has been identified as a significant risk factor for health deterioration especially with reference to men, resulting from the occurrence of greater fat occurrence, in particular abdominal.

In male subjects, frequent alcohol use in large quantities involves significantly more body fat and body fat distribution in the body in the direction of greater accumulation of fat in the abdominal region. However, the consumption of alcohol in women frequently and in large amounts is associated with the lowest indicators of body fat as well as lower values of fat distribution indicators. Moreover, the result obtained with reference to TER ratio which is greater in women drinkers often and much, shows the tendency among these women of greater accumulation of fat in the abdominal region, equally as it happens among men.

Heterogeneous nature of the impact of alcohol consumption, revealing contrasting trends in sex groups, probably stems from the differences in lifestyle, which comprise is different inter-correlation between various elements contained.

Particularly dangerous because of the negative health effects, is abdominal obesity which comprise a health risk in 2% of young women and nearly 7% of young men, as it correlates with frequent alcohol consumption and in large quantities.

Indicators of obesity and fat distribution indicators can be considered as a good lifestyle identifiers of the people tested for health risks associated with excessive alcohol consumption.

Tab. 2. Statistical characteristics of somatic traits male and female in fractions selected according to declared alcohol consumption (often and a lot, sometimes and moderately, not drinking).

somatic traits / alcohol		FEMALE			MALE		
		often N= 14	sometimes N = 517	not drinking N = 188	often N = 48	sometimes N= 561	not drinking N = 86
BM (kg)	X	58,08	57,97	57,64	75,26	73,12	72,13
	Me	58,90	57,00	56,20	73,30	71,60	72,00
	SD	5,787	8,387	7,847	11,238	10,478	9,568
	p	p = 0,891			p = 0,267		
BMI	X	20,70	21,18	21,23	23,27	22,82	22,55
	Me	21,26	20,82	21,14	22,98	22,40	21,63
	SD	1,798	2,643	2,519	3,158	2,815	2,849
	p	p = 0,758			p = 0,373		
SF (mm)	X	36,32	37,72	37,85	36,78	33,69	30,68
	Me	33,25	35,00	34,95	32,10	29,10	26,95
	SD	11,013	12,306	12,207	15,056	14,709	15,085
	p	p = 0,913			p = 0,010		
% FM	X	16,63	17,59	17,68	16,26	15,25	14,17
	Me	17,02	17,21	17,43	15,74	14,46	13,21
	SD	3,165	3,492	3,669	4,025	4,499	4,839
	P	p = 0,558			p = 0,028		
FM (kg)	X	9,79	10,40	10,39	12,49	11,48	10,52
	Me	9,86	9,89	9,65	12,07	10,23	9,41
	SD	2,669	3,500	3,301	4,526	4,927	5,053
	p	p = 0,860			p = 0,015		
FFM (kg)	X	48,29	47,56	47,26	62,77	61,63	61,61
	Me	48,56	47,18	46,65	61,09	61,09	62,26
	SD	3,610	5,415	5,212	8,035	6,760	6,227
	p	p = 0,633			p = 0,606		
WC (cm)	X	70,28	70,98	71,06	83,93	82,49	80,94
	Me	70,00	70,00	70,70	82,25	81,10	79,00
	SD	3,786	6,704	6,722	8,547	8,597	8,572
	p	p = 0,949			p = 0,107		
WHR	X	0,73	0,73	0,73	0,84	0,83	0,83
	Me	0,72	0,73	0,73	0,84	0,83	0,82
	SD	0,022	0,045	0,049	0,049	0,052	0,052
	p	p = 0,0784			p = 0,220		
WTR	X	1,23	1,25	1,25	1,44	1,44	1,41
	Me	1,24	1,25	1,25	1,43	1,43	1,38
	SD	0,068	0,080	0,093	0,091	0,089	0,090
	p	p = 0,651			p = 0,032		

CI	X	1,10	1,10	1,10	1,19	1,18	1,17
	Me	1,09	1,10	1,09	1,19	1,17	1,15
	SD	0,028	0,055	0,061	0,066	0,066	0,071
	p	p = 0,850			p = 0,102		
TSS	X	39,28	41,69	42,52	43,97	40,64	36,58
	Me	37,80	37,80	38,45	38,40	34,10	28,75
	SD	13,142	15,997	16,983	20,359	21,269	21,862
	p	p = 0,823			p = 0,019		
ESS	X	24,94	27,50	27,89	21,01	19,53	18,38
	Me	25,25	26,40	26,75	19,15	18,20	16,50
	SD	5,267	7,721	7,359	6,711	6,760	7,231
	p	p = 0,344			p = 0,026		
TER	X	1,55	1,53	1,52	2,11	2,05	1,94
	Me	1,52	1,45	1,42	1,84	1,89	1,83
	SD	0,270	0,415	0,418	0,853	0,624	0,570
	p	p = 0,509			p = 0,528		

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Małgorzata Lesińska-Sawicka[1], Elżbieta Bernaciak[1], Małgorzata Łepecka[2]

[1]Pomeranian University in Slupsk, Institute of Health Sciences
[1]Akademia Pomorska w Słupsku Instytut Nauk o Zdrowiu
[2]Regional Hospital in Koszalin
[2]Szpital Wojewódzki w Koszalinie

Alcohol in pregnancy - a sign of risk culture
Alkohol w ciąży - przejaw kultury ryzyka

Summary
The child in the uterus of the mother is developing and grows very dynamically, therefore is more susceptible to adverse reactions of healing, chemical substances than the adult man.
Portraying the consequence of drinking alcohol by expectant mothers is a purpose of the work and the need to take action against this phenomenon.
The kind and the scale of defects and disorders drinking alcohol causes which during pregnancy depend on the period of pregnancy, in which the foetus was in contact with a teratogens. Absorbing harmful substances for the foetus being deliberate, deliberate or unaware negligence it is determined as prenatal maltreating and should firmly be exhibited in order to heighten the fact in the society harmful their influences on the child. Consequences of the influence of alcohol eaten by pregnant women are a multilevel problem, concern the individual, the family and the society, are connected with a need to provide the child with the specialist medical care then pedagogic, of organising centres and the assistance of families and finding place in the society for the child with FAS but next obtaining the acceptance of surroundings for often of the different appearance and keeping the child with the fetal alcohol syndrome.

Key words: alcohol, FAS, prevention

Streszczenie
Dziecko w łonie matki rozwija się i rośnie bardzo dynamicznie, w związku z tym jest bardziej podatne na niepożądane działanie substancji leczniczych, chemicznych niż dorosły człowiek.
Celem pracy jest ukazanie konsekwencji picia alkoholu przez kobiety ciężarne oraz konieczność podejmowania działań przeciwko temu zjawisku.
Rodzaj oraz skala defektów i zaburzeń, jakie powoduje spożywanie alkoholu w czasie ciąży zależą od okresu ciąży, w którym płód miał kontakt z teratogenem. Przyjmowanie substancji szkodliwych dla płodu będące świadomym, rozmyślnym bądź nieświadomym zaniedbaniem określane jest jako maltretowanie prenatalne i powinno być mocno eksponowane aby spotęgować w społeczeństwie fakt szkodliwego ich oddziaływania na dziecko.
Konsekwencje wpływu alkoholu spożywanego przez kobiety w ciąży są problemem wielopłaszczyznowym, dotyczą jednostki, rodziny i społeczeństwa, wiążą się z koniecznością objęcia dziecka specjalistyczną opieką medyczną potem pedagogiczną, zorganizowania środków i pomocy rodzinom oraz znalezienia miejsce w społeczeństwie dla dziecka z FAS a następnie pozyskania akceptacji otoczenia dla często odmiennego wyglądu i zachowania dziecka z płodowym zespołem alkoholowym.

Słowa kluczowe: alkohol, FAS, zapobieganie

Introduction

Modernity, with sentence Anthony Giddens, it culture of the risk (Giddens, 2001). The fact that the threat is omnipresent is a feature of the modern society and constitutes the element of the organization of the social life. With one of taken action both on the level of individuals, as well as the community there is an aspiration to the elimination of the risk which is an effect of the social development. The economic development and the production are authors of many new threats and the development of the learning is contributing to identify both defining another occurrences and factors being able to threaten people (Taranowicz, 2010).

High rate of speed of the life, high requirements put in the private life and professional as well as tensions accompanying it and the emotional lability cause, that people more and more often become helpless, frustrated, are having difficulty in approval of oneself and surrounding reality. Drinking for different ways mitigating manifestations of the omnipresent stress in it also causes it, which in the popular view applied in small amounts he isn't triggering negative consequences for the health and the life of the man and straight out is loosening and distance towards the life is facilitating.

A motherhood is a period in the life of the woman requiring the adequate preparation which should begin along with the coming into existence of the thought, of it with appearance of desire for becoming a mother. It consists not only on the psychological attitude towards the procreation or choosing an optimum time for the conception, for beginning the prevention of defects of nervous system but also on ceasing be for restriction of the use of substances what can however be a great problem for a mother-to-be.

The child in the womb of the mother is developing and grows very dynamically, therefore is more susceptible to adverse reactions of healing, chemical substances than the adult man.

The bearing fully is letting alcohol in to bloodstream of child and after 40-60 minutes his level in the blood of the foetus is the same like in the blood of the mother. The developing child intrauterine doesn't have a liver still fully made out therefore longer is exposed to the toxic effect of alcohol (Solomon, 2008). Numerous consequences of eating alcohol by expectant mothers are well-known from the Team of the Alcoholic Foetus (of Vats - Fetal Alcohol Syndrome) starting, through his less expressive FAE change (Fetal Alcohol Effect), natal defects associated with alcohol (ARBD - Alcohol Related Birth Defects), neurodevelopmental disorders associated with alcohol (Arnd - Alcohol Related Neurodevelopmental Disorder) (Hankin, 2002), increase in the risk of the appearance of cryptorchidism at foeti of the male sex (Damgaard et al. 2007) and within the uterine of dying of the foetus (Kesmodel et al. 2002). The degree of the influence of alcohol on the foetus is still controversial and for existing of the safe dose of alcohol, with which it is possible to eat the lack of evidence pregnant without the consequence of the appearance of an inborn defects at the child (American Academy of Pediatrics Committee he Substance Abuse, Committee he Children with Disabilities, 1993) although not there is an ambiguous ban on eating the ethanol by pregnant women, e.g. in all countries Great Britain (Royal College of Obstetricians and Gynaecologists, 2006).

Purpose of the work

Portraying the consequence of drinking alcohol by expectant mothers is a purpose of the work and the need to take action against this phenomenon.

Discussion

The kind and the scale of defects and disorders drinking alcohol causes which during pregnancy depend on the period of pregnancy, in which the foetus was in contact with a teratogen. They generally recognize, that (Hryniewicz, 2007a):

- in the first term, when the stage of the formation of essential organs and organs of the child is ending, drinking alcohol can lead brain, heart, kidneys, eyes, ears to damage and cause long-lasting deformations of the face of the child,
- in the Lent term much is weakening alcohol development of the brain, is injuring muscles and the skin, as well as glands and bones among others,
- in the Trinity term of pregnancy drunk alcohol is disturbing
- development of the brain and lungs, a development is delaying scales of the foetus, and also to cause the premature childbirth perhaps.

Apart from the toxic effect of the ethanol the deficiency of zinc which essential is accompanying the dipsomania is also causing the fetal alcohol syndrome at children. Zinc is an element of current enzyme in the bearing and the liver which alcohol is metabolizing and in this way his permeation prevents to the blood of the foetus. At expectant mothers with a low concentration of zinc in serum, the transport of alcohol through the bearing is surrendering considerable, over seventh for increasing. Date the fetal alcohol syndrome for the first time was described in the USA by two American K.L. doctors of Jones and D.W. Smitha in 1973. He determines the team of disorders monitored at children which mothers ate alcohol in the time is heavy.

Jones and his partners defined three main categories of irregularities met at children with the fetal alcohol syndrome (Ase, 1997):

- slowing down the development physical, expressed through the length and the body weight and the size of the head, in the period before - and postnatal;
- impairment of intellectual and public functioning and disturbing the motor coordination;
- team of closely determined small anomalies of the face along with more changeable structural abnormalities of limbs and the heart.

Into the similar manner anomaly by the mother a French paediatrician included consumptions health, being a result of alcohol in the period of pregnancy Lemoine Paul. He paid special attention on (Załuska, 2009):

- low natal weight;
- psychomotor disturbance (oversensitivity, oversensitivity, excitability, slurred speech, remarks, school problems);
- peculiar appearance of the face (low forehead, small sunken and a turned-up nose, upper lip smoothed out, mandible moved back, deformed ears);
- inborn defects (cleft palate, heart defects and of viscuses, microcephaly).

In our times the fetal alcohol syndrome is being diagnosed based on four criteria (Hryniewicz, 2007b):

- substantiated eating alcohol by the mother;
- of the growth inhibition, the body weight and the size of the head in the period before - or/and post-natal (the height or/and the weight below 10 of percentile);
- malformation of the central nervous system, manifesting itself with disorders of physical functions (birth defects of the skull or the brain), intellectual (delaying the development, the mental handicap) and social (dysfunctionary behaviours);
- the riot of characteristic features of the face, that is the brachygnathia, short palpebral slits (effect of opened eyes), hypertelorism, short-sightedness, squint, thin upper lip, short, a turned-up nose, low-set ears, extended and flattened blade of the face around made shallow with nasal small gutter and deformation of the structure of limbs and defects in the viscera.

Meeting all four criteria is conditioning recognizing the full-blown fetal alcohol syndrome. When identified changes are poorer, both under the quality, as well as quantitative account, we are talking about damage to the foetus caused by alcohol be about after alcoholic disorders of the nervous system (Hryniewicz, 2007b).

Defects being characteristic of children with the fetal alcohol syndrome are pointing explicitly, how very much this disease is a grave disorder. Unfortunately very often it is not-noticed or erroneously recognised. Of reasons it is a lot of, to main to rank a lack of the sufficient knowledge of specialists is included as for appearing, of manifestations and manners of intervention, problem of recognizing distinctive features of the appearance because of their disappearing along with the age of the child.

Meeting all four criteria is conditioning recognizing the full-blown fetal alcohol syndrome. When identified changes are poorer, both under the quality, as well as quantitative account, we are talking about damage to the foetus caused by alcohol be about after alcoholic disorders of the nervous system (Hryniewicz, 2007b).

Children from Vats are growing up but in many spheres aren't reaching maturity. Seemingly they don't differ from other children, because it isn't possible at once to notice damage to the brain caused by alcohol, as well as actually to diagnose correct reasons for the behaviour, of problems he is contending with which.

The effect of alcohol permanently is disadvantaging whole of functioning of the child in the physical, psychological and social sphere in every period of his life. Many children are experiencing the serious behavioural disorder and public functioning which they last the entire life (Jadczak-Szumiło, 2008):

1. from birth to 3 of year of age:
   - sometimes unite abstinence,
   - sleeping disorder,
   - displaying the nervousness oneself with fitful sleep, market with the light sleep or oversensitivity to stimuli,
   - the lack or trouble with the suction, in the process trouble feeding,
   - postnatal impairment of the height,
   - weepiness,
   - oversensitivity to sound and the light,
   - disorder of the development of reactions,
   - allergies and falling ill with frequent infections,

- activity of axis HPA,
- associated with - of disturbing the attachment both with family circumstances, as well as poor equipping the child, e.g. are lacking reflex of the suction, disturbing feeling, changed tone of the crying what can influence behaviours of the carer,

2. pre-school children from 3 to 6 of year of age:
   - the disorder of the development of language: the backwardness of the speech or other problems of the type of the speech defect, the limited vocabulary and the impossibility of remembering notions,
   - the disorder associated with the development sensor: oversensitivity to stimuli and/or unfeeling
   - hyperactivity,
   - trouble feeling distance,
   - consequences of disorders of the attachment, e.g. are lacking of diversifying strangers than one's,
   - of disturbing feeling appetite,
   - the disorder associated with the height and the body weight,
   - trouble with the tolerance of foods,
3. More youthful school age from 7 to 13 of year of age:
   - postnatal impairment of the height - underweight, short height,
   - problems with the adaptation in the peer group,
   - problems with the memory,
   - trouble learning reading and writing,
   - problems with mathematics: with understanding number, space, time, value of money,
   - emotional lability,
   - trouble understanding social situations,
   - weaker learning through experience,
   - trouble with the abstract thinking and understanding notions,
4. adolescence from 13 to 18 of year of age:
   - watching each other disappearance dysmorphia and with time exaggerated increase in the body weight,
   - trouble understanding the context of a situation social,
   - lacking distance,
   - the problem in approval of peers,
   - often secondary behavioural disorder,
   - the disorder of the development of executive functions, so as: planning, decision making, prediction, organization of the own time,
5. maturity:
   - changes in the appearance can be visible but not necessarily,
   - mental retardation,
   - autonomy limited by - of disturbing in executive functions and in the process,
   - the disorder of social relations,
   - they can to appear conflicts with law,
   - problems with the work and the independent maintenance oneself,

- the disorder associated with the identity,
- mental illnesses,
- problems associated with abusing psychedelic substances.

B. Sarnacka is pointing on very relevant problem undoubtedly a non-acceptance of these children is which through the peer group. They aren't ripening equally with peers, what are losing friends by and are staying alone. To lead it perhaps to grave disorders so as: the increase in anxiety, aggressive behaviours, withdrawal, avoiding, shutting itself away in oneself, habitual lying, absconding from the house, interrupt of the school learning, tendency to self-addictions, mental illnesses, depression or self-mutilations (Sarnacka, 2009). Features in the more late lifespan can not be dysmorphia already this way distinct like after being born of child, however what will be accompanied them through the entire life it is OUN damage which manifests itself mainly in the behavioural disorder so as: above the activity, the impulsiveness, the weak ability of the judgement, weak organizational abilities, problems in recognizing principles and following them, problems with the adaptation, with self-control, easiness of falling into depressive states, as well as in problems with the learning, of which a poor memory constitutes the cause, trouble thinking, especially abstract, deficit of the attention, delay developmental, as well as inability of the processing of information. The intellectual level of these children doesn't usually diverge from the norm, however have a serious problem very much with the learning and with functioning at school. On this base teachers often unfairly assess such children assigning the laziness and not-puting to them oneself for the research. They have trouble with an accumulation, with the processing of information, require the hint and the supervision other.

In the more late period they aren't able to hold of work, to establish the relation with other people or to persevere in the constant relationship.

The literature on the subject is announcing, that women largely are conscious for need to cease drinking alcohol being of pregnant threats resulting from the reason for developing oneself inside pubic of child (Alvik et al. 2006), however for them it often comes with the great difficulty. W. Szychta, M. Skoczylas, T. Laudański checked the writing concerning the harmfulness of eating alcohol and the smoking by pregnant women from which it results that a diversified percentage of expectant mothers drinking alcohol amongst chosen populations exists (Szychta et al. 2008).

Findings of the author of this study which with the diagnostic survey in 2009-2010 years tried to answer a question are also confirming it - is planning procreative decisions by Europeans involving ceasing taking substances by them during pregnancy? Women participating in the quoted examination largely, during pregnancy didn't administer substances or psychedelic centres. However a fact is alarming, that 29.8% of respondents, in spite of pregnancy and the need to tie the greater attention to prohealth a lifestyle, the saw alcohol or the coffee, it smoked cigarettes, took drugs or other medicines. The pregnant percentage of expectant mothers eating the ethanol and smoking cigarettes was largest amongst respondents from Netherlands, Belgium, Poland, Ireland and Portugal (Lesińska-Sawicka, 2011).

In spite of the awareness of the society about the harmful influence of alcohol on the developing intrauterine child, media more and more often inform about women to which

they gave birth, being under the influence of alcohol. It shows explicitly that despite everything the knowledge of women about the pregnant harmfulness of alcohol is still insufficient and often confines himself to the fallacious belief that only a large dose harms. Those the belief can cause the lack of the social reaction to fact of drinking the drink of alcohol by the woman, tolerating such behaviours, underestimating also of effects. So it seems that appropriate action isn't going hand in hand with the declared knowledge.

It is believed that with the fetal alcohol syndrome annually he is born from a few to a dozen or so thousand children. Such a high indicator is a result of the lack of the awareness not only amongst women, but also doctors, that alcohol permanently is damaging the foetus.

He results from data of the State Agency of solving drink problems, that almost two thirds there were no being pregnant women informed by one's doctor of effects of drinking alcohol, and only what fifth heard such a warning. Doctors recommended drinking alcohol of women during pregnancy of the 2% examined. He is a main cause of such a state (Announcement from examinations, 2005):

- weak awareness of the medical environment about the link between alcohol and birth defects of the foetus;
- making an incorrect diagnosis;
- is lacking the appropriate method, of perfect research tool which due diagnosing the fetal alcohol syndrome would enable.

Diagnostics of this disease in Poland only is developing. To this subject family doctors, gynaecologists, obstetricians, a district nurse, as well as psychologists, teachers as well as psychotherapists should have a basic knowledge at their disposal above all, because above all parents and carers of children are turning to it is them for the help with the alcoholic foetal team.

All action, ways and programs of preventing the foetal foetal team above all should aim eliminating or limiting drinking alcohol amongst mother-to-bes by spreading the knowledge among them about the pregnant harmfulness of drinking alcohol.

Eating alcohol by pregnant women is a form so far the most spread of paying attention to the problem World Day of Vats get around worldwide on 9 September. In Poland for the first time he was concerned in 2004. This day is supposed to emphasize the healthier lifestyle and to publicize and to propagate the abstinence amongst pregnant women, as well as to sensitize them to good deeds of them unborn still children. Also making aware the scale of the problem is a purpose of the celebration not only for being pregnant women but also for society as a whole. From the year for the year he is arriving public action taken for persons from FASD, e.g. actions "Pregnancy without alcohol" in 2007ro to, "zero pregnant alcohol" - 2010, "pregnant I am not drinking alcohol" - 2011 (Klecka, 2009).

In Poland they are dealing with issues of the fetal alcohol syndrome among others State Agency of solving drink problems - through the prevention and the education, affiliating the Substitute Parenthood Silesian Branch in Ledziny and the Foundation "give the chance" in Toruń - conducting therapy for families and persons with the alcoholic foetal team and Institute of the Mother and the Child - the research activity and the Centre of the child's health - information activity.

Summation

Absorbing harmful substances for the foetus being deliberate, deliberate or unaware negligence is determined as prenatal maltreating (Soriano, 2002) and should firmly be exhibited in order to heighten the fact in the society harmful their influences on the child.

Consequences of the influence of alcohol eaten by pregnant women are a multilevel problem, concern the individual, the family and the society, are connected with a need to provide the child with the specialist medical care then pedagogic, of organising centres and the assistance of families and finding place in the society for the child from Vats but next obtaining the acceptance of surroundings for often of the different appearance and keeping the child with the fetal alcohol syndrome.

So it is necessary in order to emphasize the non-acceptance strongly for alcohol, even in, pregnant small amounts, to highlight the abstinence and benefits from it swimming for the child, mothers. Into raising the level of the social message about Vats all persons should join in, not only a medical staff, educators the health or teachers. A society as a whole should be sensitized to the problem of drinking alcohol by expectant mothers.

It would be worthwhile thinking above increasing influences on women being pregnant and planning pregnancies and them closest in order to phenomenon of substances, in it also and to eliminate bargain pregnant eating alcohol to the minimum.

The perinatal period seems with good time for women, their partners and families to the fight against addictions and avoiding risky behaviours.

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Marta Szot, Beata Kosińska, Yauheni Tsishchanka

Pope John Paul II State School of Higher Education in Biała Podlaska
Państwowa Szkoła Wyższa im. Papieża Jana Pawła II w Białej Podlaskiej

The Selected Aspects of the Lifestyles of the Students of Pope John Paul II State School of Higher Education in Biała Podlaska

Wybrane elementy stylu życia studentów Państwowej Szkoły Wyższej w Białej Podlaskiej

Summary
The study period is the time when young people shape and strengthen their habits while becoming independent. Unfortunately, numerous studies have shown that the lifestyle of students is not conducive to health. Students generally do not eat on a regular basis, do not eat breakfast and consume large amounts of fast food. Their diet is meat-dominated; they eat far too little fish, insufficient dairy products and whole grain breads. In addition, students consume large amounts of alcohol and take drugs, which is to ensure having good fun while socialising with their peers. The conducted study was designed to evaluate the lifestyle of students of the Pope John Paul II State School of Higher Education in Biała Podlaska in terms of nutrition, physical activity and the use of stimulants. The study involved a total of 117 third-year students of two fields of study: Public Health and Civil Engineering. These fields of study were chosen deliberately in order to compare the lifestyle of paramedic students - future health promoters, and students of an engineering field, whose courses do not include health education. The study was conducted using the diagnostic poll method and found that the respondents spend too little time doing physical activities, do not eat on a regular basis and use stimulants. However, no significant differences between the lifestyles of students of the two analysed fields were found.

Key words: lifestyle, students, nutrition, physical activity, stimulants

Streszczenie
Okres studiów to czas, kiedy młody człowiek usamodzielniając się, kształtuje i umacnia swoje nawyki. Niestety liczne badania dowodzą, że styl życia młodzieży akademickiej nie sprzyja zdrowiu. Studenci zazwyczaj nie odżywiają się regularnie, nie jedzą śniadań oraz spożywają duże ilości żywności typu fast-food. W ich diecie dominuje mięso, a zdecydowanie za mało spożywają oni ryb oraz produktów mlecznych i pełnoziarnistego pieczywa. Ponadto studenci spożywają duże ilości alkoholu, a także zażywają środki odurzające, które mają gwarantować im dobra zabawę podczas spotkań towarzyskich z rówieśnikami. Przeprowadzone badania miały na celu ocenę stylu życia studentów PSW w Białej Podlaskiej pod kątem odżywiania, aktywności fizycznej oraz stosowanych używek. W badaniu uczestniczyło łącznie 117 studentów III roku dwóch kierunków: Zdrowie Publiczne oraz Budownictwo. Celowo zostały wybrane powyższe kierunki, aby móc dokonać porównania stylu życia studentów kierunku paramedycznego-przyszłych promotorów zdrowia z kierunkiem inżynierskim, na którym nie jest prowadzona edukacja zdrowotna. Badania przeprowadzono metodą sondażu diagnostycznego. Po przeprowadzeniu badań ustalono, że respondenci zbyt mało

czasu poświęcają na aktywność fizyczną, nie odżywiają się regularnie, jak również stosują używki. Nie stwierdzono jednak istotnych różnic w stylu życia studentów obu badanych kierunków.

Słowa kluczowe: styl życia, studenci, odżywianie, aktywność fizyczna, używki

Introduction

Undoubtedly, health is the most important value in human life. It is determined by a number of interconnected factors, the most important of which is the way of life (approx. 50% of all effects). According to Andrzej Siciński, a lifestyle is the whole of everyday behaviours characteristic of an individual or a community, such a "way of being" which distinguishes between one individual or community and another (Woynarowska, 2008). Due to the fact that the lifestyle largely determines health, the following terms are often used: 'a health lifestyle', 'a healthy/unhealthy lifestyle' or 'a lifestyle conducive/hazardous to health'. Antonina Ostrowska provides two definitions of a health lifestyle. According to the first of these – a definition formulated by Cockerham – health lifestyles are "collective patterns of health-related behaviour based on choices from options available to people according to their life chances" (Ostrowska,1999). In his definition, Abel adds that apart from behavioural patterns, a health lifestyle also consist in "values and attitudes represented by people", which constitute a response to their living conditions.

Behaviours connected with health can be divided into four categories:

1. Behaviours connected with physical health: physical activity, a balanced diet, body hygiene and care for the cleanliness of the immediate environment, hardening, appropriate duration and quality of sleep;
2. Behaviours connected with psychosocial health: avoidance of and the ability to cope with stress, providing and taking advantage of social support;
3. Prophylactic behaviours: self-care, undergoing preventive health screenings, safe behaviours in everyday and sex lives;
4. Avoiding risk behaviours: limiting alcohol consumption, no smoking, no drug or other psychoactive substances use, reducing consumption of non-prescription drugs (Woynarowska, 2008).

Rational nutrition is a very important part of our lifestyle, which determines one's health. An improper number and distribution of meals throughout the day, which usually results from the lack of time and the accelerating pace of life, is a very frequent nutrition mistake. What is also important is proper composition of meals, which completely fulfils the body's energy needs and provides all nutrients necessary for optimal growth and good health maintenance. Research shows that poor nutrition may be a direct cause or a risk factor for about 30-50 diseases. The most common diseases associated with poor diet are: cardiovascular diseases, diabetes, obesity, cancer (especially the stomach and large intestine cancer), and even osteoporosis (Ostrowska, 1999).

Physical activity is significant in prevention of many diseases. It helps to maintain a healthy weight and has a major impact on reducing the risk of cardiovascular diseases, the cardiovascular diseases, type 2 diabetes, high blood pressure and osteoporosis. According to the WHO, the recommended daily physical activity is a 30-minute endurance training with an intensity of 40-60% of the possible maximum.

Smoking is considered to be one of the most important risk factors for respiratory diseases, cancer, cardiovascular diseases, and also has a negative effect on the fertility of both men and women. The World Health Organization has identified smoking as a leading cause of premature death. Studies show that smoking 20 cigarettes a day reduces lifespan by about five years, while smoking 40 cigarettes per day reduces it by about eight years (Ostrowska, 1999). One ought to remember that cigarette smoke harms not only smokers but also non-smokers around them. Passive smoking can equally lead to many diseases, and therefore, banning smoking in public places and specifying special spaces for that purpose was a good decision. Tobacco smoke has a particularly negative impact on children and young people, in whose case it may lead to an increased incidence of respiratory diseases. In addition, children of smokers may be characterised by decreased mental and physical development, as well as behaviour issues. Also, newborns may be exposed to the negative effects of their mothers smoking during pregnancy, which increases the risk of miscarriage or foetal death and may cause subsequent delays in physical and mental development of the child, as well as low birthweight in newborns (Zadworna-Cieślak, Ogińska-Bulik, 2011).

Similarly to smoking, excessive alcohol consumption is a major cause of premature death among both men and women. It may cause liver cirrhosis and cancer of the liver, the oesophagus, the larynx, the stomach and the oral cavity, and also increases the risk of the cardiovascular disease. Additionally, it greatly contributes to the number of deaths due to accidents, injuries and poisonings. Long-term and regular alcohol consumption can lead to an addiction. Apart from numerous and serious health problems, the negative effects of alcohol addiction involve also other problems which do not influence the addicts solely, but also their surroundings. Alcohol abuse may lead to job loss or family breakdown; therefore, it is not only a medical problem, but also an important social issue.

Material and methods

For the purposes of the research, we used our own survey questionnaire. The survey consisted of 32 questions, the first six of which are a certificate. Other questions related to student physical activity and eating habits, as well as stimulants use. The study was conducted in January 2013. The studies included third-year students of the Public Health (PH) and the Civil Engineering (CE) fields of study at the Pope John Paul II State School of Higher Education in Biała Podlaska. There were 66 students of the Civil Engineering field of study and 51 students of the Public Health field. The research involved a total of 117 students. The statistical chi-square test (χ^2) was used to compare the obtained results.

Results

Although students generally stated that they have enough leisure time (67% of all respondents), more than half of them do not spend it actively. Only 33.3% of the Public Health students actively spend their free time, while 66.7% prefer passive recreation. From among the students of the Civil Engineering field of study, almost half of the respondents - 48.5% - spend their time actively. The value of the $\chi 2$ statistic amounts to 2.7134, which indicates that the way students spend their spare time does not depend on the field of study (Table 1.).

Tab. 1. The manner of spending leisure time

What forms of recreation do you prefer?	In total		Public Health		Civil Engineering	
	n=117	%	n=51	%	n=66	%
active recreation	49	41.9	17	33.3	32	48.5
passive recreation	68	58.1	34	66.7	34	51.5

χ^2= 2.7134

Only 20% of the respondents engage in physical activity on a daily basis (19.6% of the PH students and 21.2% of the CE students). Only about half of the respondents dedicate more than an hour to a single exercise session (41.7% of the PH student and 61.9% of the CE students). Students most often choose to go for a walk or exercise at the gym or a health club; jogging and cycling are equally popular. Every third respondent is aware that by doing physical activity they gain health (31.3% of the PH students and 30.2% of the CE students). The respondents equally often answered that they enjoy practising sport (33.3% of the PH students and 30.2% of the CE students). The remaining students claim that they take physical exercise from force of habit, for personal satisfaction from their own fitness or to sculpt their silhouettes. The most frequently stated reason for avoiding physical exercise is laziness (43.1% of the PH students and 45.5% of the CE students), whereas health problems constitute an obstacle for merely 3% of the respondents.

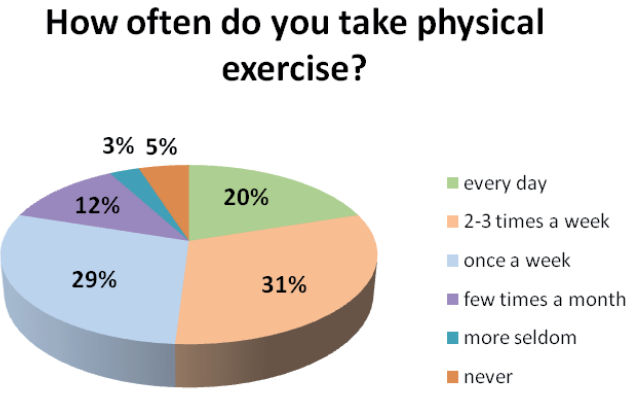


Fig. 1. The frequency of physical activity.

The vast majority of students take physical exercise at least once a week; about 20% of all the respondents (24 people) claim to be taking daily physical exercise; about 31% of the students (36 respondents) exercise twice a week; and 29% of the respondents (34 people) take physical exercise once a week. 17 people (about 15%) stated that they do sport few times a month or less, while about 5% (6 people) admit that they do not take physical exercise at all.

Students were also asked about what kind of physical activity they choose most often. They were allowed to select up to two types of physical activity that they prefer.

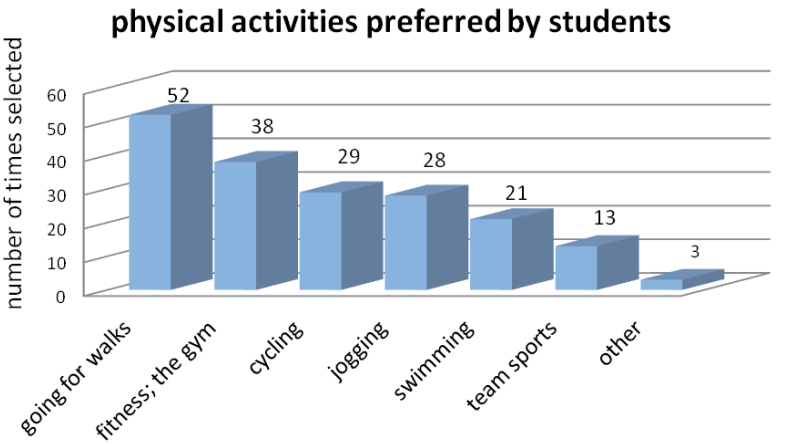


Fig. 2. Physical activities preferred by the students.

From among the listed forms of physical activity, the students most frequently choose walking (selected by 52 students) and gym exercises or fitness/aerobics classes (selected 38 times). Jogging and cycling are also quite popular (selected by 28 and 29 students). Swimming was selected by 21 respondents, while team games are the least popular among the students (selected by 13 students). They were also allowed to specify other forms of physical activity that they undertake. Three people took advantage of this possibility and added: horse riding (2 people) and martial arts (1 person).

In order to assess students' diets, questions regarding eating regular meals and having breakfast were included. The frequency of fruits and vegetables, dairy products and fish consumption was also analysed.

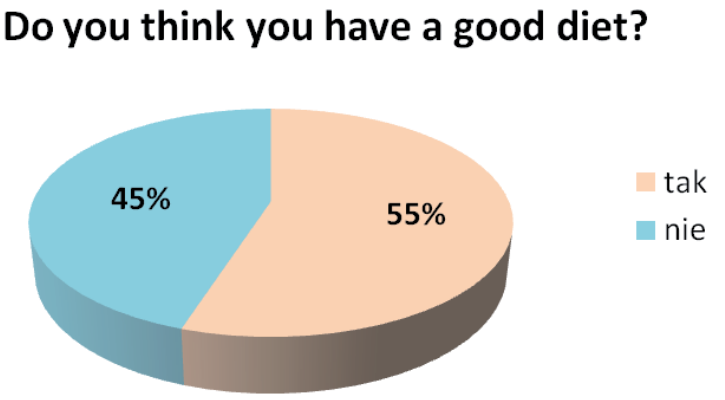


Fig. 3. Students' evaluation of their own diets

More than half of the respondents claim that they eat properly (about 55%) - 58.8% of the Public Health students and 51.5% of the Civil Engineering students. Other students admit that their nutrition models are not rational.

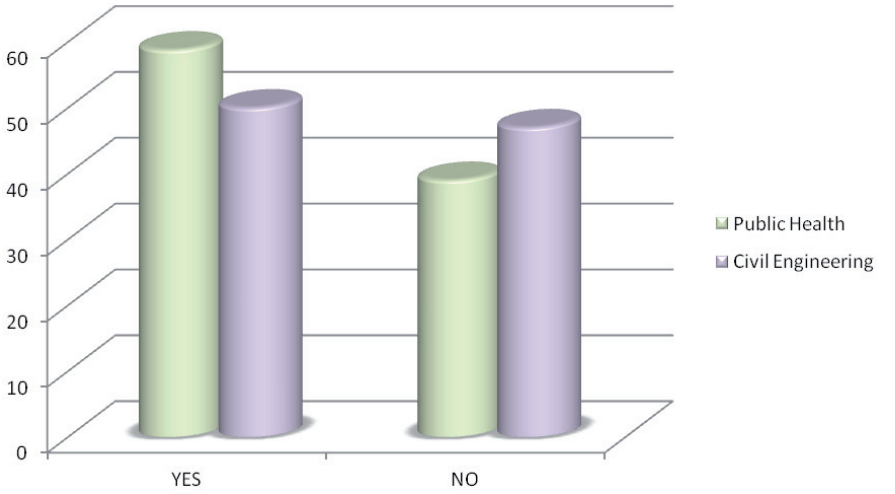


Fig. 4. Student evaluation of their own diets in regard to field of study (in %).

Most of the students consume between 3 and 5 meals a day (66.7% of the PH students and 80.3% of the CE students), but usually they are not regular. Almost half of the respondents think that it is their daily schedule that prevents them from eating regular meals; and 12.1% of the Civil Engineering students (6.8% of all respondents) believe that eating regular meals is not an essential aspect of having a healthy diet. No correlation between the regularity of meals and the field of study at a significance level of 0.05 has been found (Table 2).

Tab. 2. Do you eat meals regularly?

Do you eat meals regularly?	In total		Public Health		Civil Engineering	
	n=117	%	n=51	%	n=66	%
Yes	52	44.4	27	52.9	25	37.9
No, my daily schedule doesn't allow it	57	48.7	24	47.1	33	50.0
No, I don't think it's important	8	6.8	0	0.0	8	12.1

$\chi^2 = 2.6434$

Although slightly more than half (55%) of respondents think that they eat properly, only 47% of them eat breakfast on a daily basis, and 21% say that they do not eat breakfast because they have no appetite in the mornings. The vast majority of respondents admit snacking between meals (72.5% of the PH students and 78.8% of the CE students).

Those who admitted snacking between meals were asked to give the most frequently chosen snacks. They were asked to select up to two answers.

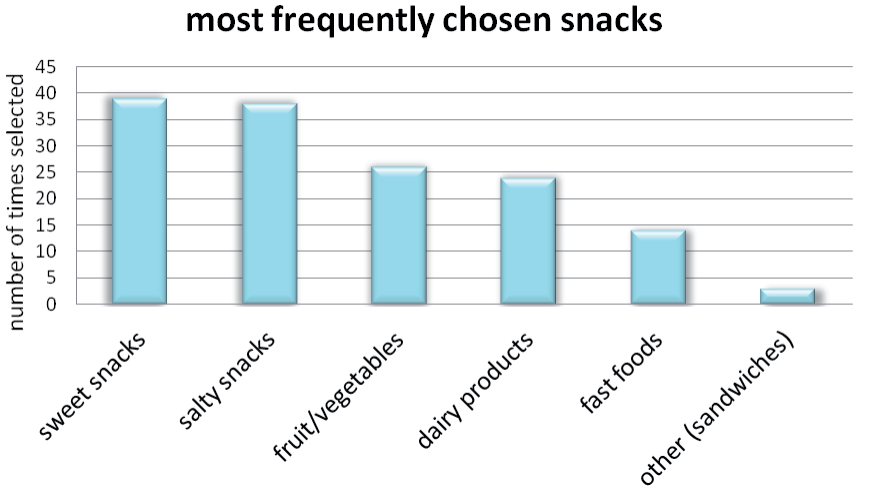


Fig. 5. The most frequently chosen snacks.

Snacks that are most frequently chosen by the students include sweet buns, candy bars and biscuits, as well as salty snacks such as crisps or salty sticks. Second most frequently chosen group of snacks are fruits, vegetables and dairy products. Only 9.7% of the students eat fast foods between meals. Respondents could also give other answers - an option chosen by only three people, who have sandwiches as snacks between meals.

Daily consumption of fruits and vegetables was declared by only 32.5% of the respondents (35.3% of the PH students and 30.3% of the CE students), while majority of the respondents eat fruits and vegetables several times a week. This is not an acceptable amount as the recommendations for fruit and vegetable consumption suggest at least 700g a day. The situation concerning the consumption of milk and dairy products is very similar. They are consumed on daily basis by 31.6% of the respondent (33.3% of the PH students and 30.3% of the CE students), and by 55.6% of the respondents a few times a week. The diet of some individuals does not include dairy products at all. Low fish consumption rate is worrying - as many as 17.1% of the respondents (13.7% of the PH students and 19.7% of the CE students) do not eat fish at all, and a vast majority (61%) consume fish very rarely.

Every fourth respondent admitted to smoking cigarettes, with greater percentage of smokers among the Civil Engineering students - 27.3%, and a lower one among the Public Health students - 17.6% ($\chi^2 = 1.5016$). Students usually smoke about 20 cigarettes a day - 44.4% of the smokers, while 14.8% smoke up to 5 cigarettes a day. Most frequently the students reach for a cigarette in stressful situations (37%) and during social meetings (30%). About 26% of the respondents are habitual smokers. None of them believes that their immediate environment (friends and family) causes them to smoke cigarettes.

Almost all students (94.9%) admitted to drinking alcohol in different amounts. Only 5.1% (9.8% of the PH students, 1.5% of the CE students) are teetotallers. The fact that 16.2% of the respondents drink alcohol every day, and as many as 34.2% (35.3% of the PH students and 33.3% of the CE students) consume alcohol several times a week is disturbing. The most common occasion for students to consume alcohol are discos and meetings with friends (71.2% of the respondents in total), with 18% of the respondents drinking alcohol only on special occasions. Over 10% of the respondents admit to drinking alcohol alone, and the fact that most of them also admit to daily consumption of alcoholic beverages is worrying. Almost half of the respondents (41.3% of the PH students and 50.8% of the CE students) admit that they sometimes get drunk, while 44.1% of the respondents claim that they drink only symbolic amounts. Only few individuals stated that they often get drunk, but there were people who stated that they always drink till they drop. Beer and vodka were found to be the most popular alcohols among the student-respondents.

Drug use is quite popular among the students. As many as 33% of the students have tried drugs. 42.4% of the Civil Engineering students admitted having tried drugs; the percentage is much lower in case of the Public Health students - 21.6%. Currently, 17.6% of the Public Health students and 31.8% of the Civil Engineering students take drugs (Table 3).

Tab. 3. Drug use among students.

Do you take drugs?	**In total**		**Public Health**		**Civil Engineering**	
	n=117	%	n=51	%	n=66	%
Yes	30	25.6	9	17.6	21	31.8
No	87	74.4	42	82.4	45	68.2

χ^2= 3.03017702

As the reasons for trying drugs, the students enumerated mostly curiosity and desire to have fun, and the most popular drug among the respondents is marijuana. The fact that most of the people who tried drugs in the past are still taking them now is alarming.

Discussion

The results show an unsatisfactory picture of the students of the Pope John Paul II State School of Higher Education in Biała Podlaska. The students take physical exercise far too rarely, do not have proper eating habits, and tobacco, alcohol and drugs are surprisingly common among them.

Almost half of the students exercise less than twice a week, while the daily level of physical activity recommended by the WHO is at least a 30-minute endurance training. Reduced levels of physical activity often result from laziness and lack of time. Similar results were obtained in a research conducted by D. Piaszczyk among students of Information Technology and Tourism and Recreation of the same school (Piaszczyk, 2005) - majority of the students dedicated merely 2-3 hours a week to exercise.

Students do not eat on a regular basis, and only 47% eat breakfast every day. Students do not eat enough fruits, vegetables and dairy products. According to the dietary guidelines, these products should be included in daily diet. Only every third respondent follows these recommendations. Low fish consumption rate is also alarming. More than half of them eat fish very rarely, and 17% do not eat them at all. Similar results were obtained in a study conducted by D. Piaszczyk, according to which students consume very little dairy products and fish, and eat large quantities of meat (Piaszczyk, 2005).

Almost every fourth respondent admitted to smoking cigarettes, with more smokers among the Civil Engineering students. However, no relationship between cigarette smoking and the field of study was found. These differences may result from the fact that the Public Health field of study is dominated by female students, whereas the Civil Engineering field is male-dominated. The available literature on the subject indicates that men are more likely to engage in risky behaviours. The defined percentage of smokers was lower than that specified in previous studies - 26% of the respondents were daily smokers (Piaszczyk, 2005) - which may indicate that cigarette smoking is slowly becoming less popular. In both studies, the majority of students smoked about 20 cigarettes a day, and the most common cause of reaching for a cigarette was stress.

Almost all students (95%) drink alcohol - at different occasions and in different quantities. Beer is the most frequent of choices. The fact that some students admit to drinking alcohol every day and to drinking alone, which may quickly lead to addiction, is very disturbing. Similar results were obtained in a study conducted by D. Piaszczyk. At that time, about 91% of the respondents admitted to drinking alcohol.

The obtained research results regarding drug use were very surprising. Every third respondent admitted to having tried drugs. Although the main reason for trying drugs was curiosity, as many as 70% of the people who once reached for drugs continue taking them now.

Although the Civil Engineering students admitted to smoking cigarettes and drug use that those of Public Health, the conducted statistical analysis showed no relationship between these behaviours and the field of study. Similarly, the differences in the frequency of physical activity and dietary habits do not suggest that the Public Health students lead a healthier lifestyle. The lack of a clear correlation may indicate that health education should begin much earlier. The habits and preferences of young people starting their college education are often already developed. Changing health behaviours despite increasing health consciousness is therefore not easy to achieve.

Conclusions

Analysis of the research results leads to the following conclusions:

1. The students spend little time in physical activity, and only a small percentage of them declare their physical activity level to be in line with the WHO recommendations.
2. Although students believe that they have healthy diets, they usually do not eat regularly, do not eat breakfast, and the frequency of fish consumption is much lower than recommended.
3. Almost one in four respondents smoke cigarettes.
4. Nearly all students consume alcohol (mainly beer), and the most common occasions for drinking are meetings with friends.

5. Every third respondent admitted having tried drugs, and one in four to be still taking them.
6. There were no significant differences between the lifestyle of Public Health students and that of Civil Engineering students; although Civil Engineering students more often admitted to smoking cigarettes and taking drugs than those of Public Health.

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Chapter II

Medical and social problems of nourishment and obesity

Medyczne i społeczne problemy żywienia i otyłości

Monika Prendecka[1], Jerzy Rogalski[2], Anna Olszewska[1], Katarzyna Skórzyńska-Dziduszko[1], Krystyna Lupa-Zatwarnicka[1]

[1]Human Physiology Department, Medical University of Lublin
[2]Department of Biochemistry, Maria Curie-Sklodowska University

A potential dietary supplement - properties of purified, extracellular b-glucosidase isolated from fungus phlebia radiata – preliminary study
Potencjalny suplement diety - właściwości oczyszczonej, zewnątrzkomórkowej b-glukozydazy z grzyba phlebia radiata – badania wstępne

Summary
The civilization of the twentieth and twenty-first century brought a real revolution in nutrition and food preparation. Highly industrialized communities opted for food production efficiency, low cost and ease of preparing meals because of, that is what the busy and fast living modern man expect. As a result we eat highly performed, nearly sterile, devoid of nutritional value meal products instead of variety of healthy foods, such as fruits, vegetables, lean meats and fish, not be getting all the micronutrients that body needs.
In this context dietary supplement is a vitamin, mineral, or herb that one takes to improve health or wellness. It is clear that, in such a case, these supplements are generally not intended to cure or treat diseases or medical conditions, but only help to keep the person in good condition or to improve it to some extent. Vitamins, minerals and other biological active substances, also called micronutrients, nourish the body and help to keep it healthy. Therefore, it is obvious that one can get most of micronutrients by eating a variety of foods in a daily diet. Unfortunately, it is quite difficult to achieve, because of the low availability of unprocessed, organic foods. Consequently, the next step of modern man seems to be searching for a substances that can improve the quality of the food we eat or to improve valuable nutrients bioavailability. One of the components that could in the future be used as a biologically active food ingredient is enzyme - b-1,4-glucosidase. In this context, particular attention should be paid fungal glucosidase, because of their broad substrate specificity, very high stability and optimum activity over a wide range of pH and temperature.
The purpose of this work was isolation, purification and characterization fungal b-glucosidase from culture filtrates of Phlebia radiata in preliminary study to determine the possibility of using this type of preparation as a dietary supplement in the future.
Phlebia radiata was found to secrete b-glucosidase when it was grown in liquid culture with wheat bran as the carbon source. Highly purified b-glucosidase (BGS) was obtained by means of the column chromatography on DEAE-Sepharose, and chromatofocussing on Polybuffer Exchanger PBE-94. It was found that b-glucosidase (BGS) was optimally active at 50ºC and pH 5,0.

Key words: Nutrition, supplementation,, b-glucosidase, substrates, deglycosylation, purification, biodegradation

Streszczenie
Cywilizacja dwudziestego i dwudziestego pierwszego wieku przyniosła prawdziwą rewolucję w żywieniu człowieka i przetwarzaniu produktów żywnościowych. Społeczeństwa wysoko uprzemysłowione naciskały na efektywną produkcję żywności, niskie koszty i uzyskanie łatwych w przygotowaniu półproduktów żywnościowych, ponieważ to jest oczekiwaniem współczesnego, zapracowanego i szybko żyjącego człowieka. W efekcie zamiast zróżnicowanego, zdrowego jedzenia takiego jak owoce, warzywa, chude mięso i ryby spożywamy wysoko przetworzone, niemal jałowe, pozbawione wartości odżywczych pokarmy, przez co nie przyswajamy niezbędnych składników pokarmowych.
Dlatego też, w tym kontekście, suplementami diety będą witaminy, minerały, zioła, które przyjmujemy w celu polepszenia naszego zdrowia i samopoczucia. Jasne jest zatem, suplementy nie są substancjami przeznaczonymi do leczenia konkretnych schorzeń ale w celu utrzymania dobrego stanu zdrowia lub jego polepszenia ale jedynie w ograniczonym zakresie. Witaminy, minerały i inne substancje biologicznie czynne odżywiają ciało człowieka i utrzymują je w dobrym zdrowiu. Stąd, oczywistym jest, że powinniśmy przyjmować jak najwięcej tych cennych składników w naszej codziennej diecie. Niestety jest to dość trudne do osiągnięcia z uwagi na niską dostępność do nieprzetworzonych, naturalnych produktów żywnościowych. Zatem kolejnym krokiem współczesnego człowieka powinno stać się poszukiwanie substancji, które mogą poprawić jakość żywności, przez nas spożywanej, lub mogących polepszyć biodostępność cennych składników pokarmowych. Jednym z takich czynników, które mogłyby w przyszłości być użyte jako biologicznie czynne składniki pokarmowe jest enzym - b-1,4-glukozydaza. Szczególna uwaga należy się tutaj grzybowym glukozydazom, z racji ich szerokiej specyficzności substratowej, wysokiego stopnia stabilności oraz szerokiemu zakresowi działania pH i temperatury.
Celem niniejszej pracy były badania wstępne, izolacja, oczyszczanie i charakterystyka grzybowej b-glukozydazy z płynów pohodowlanych Phlebia radiata pod kątem oceny jej przyszłego zastosowania jako suplementu diety.
Stwierdzono, że Phlebia radiata wydziela b-glukozydazę podczas wzrostu na podłożu płynnym zawierającym otręby pszenne jako źródło węgla. Wysoki stopień oczyszczonia b-glukozydazy (BGS) został osiągnięty dzięki zastosowaniu chromatografii kolumnowej na DEAE-Sefarozie i chromatoogniskowaniu z użyciem PBE-94. Otrzymano enzym, którego optimum działania znajdowało się w temperaturze 50ºC i pH 5,0.

Słowa kluczowe: Żywienie, suplementacja, b-glukozydaza, substraty, deglikozylacja, oczyszczanie, biodegradacja

Introduction

b-Glucosidases are heterogenous group of enzymes, widely distributed in nature, from microorganisms to vertebrates, which hydrolyze *O*-glycosidic bonds at the terminal, nonreducing end of complex carbohydrates with retention of anomeric configuration. The retaining mechanism involves acidic catalysis that protonates the substrate and leads to formation of the transition state oxocarbonium ion.

b-Glucosidases can be divided into three groups with respect to their ability to hydrolyze different substrates: enzymes that exhibit high specificity towards aryl-b-D-glucosides, other b-glucosidases preferentially hydrolyse cellobiose and cellooligosaccharides and are also called cellobiases and with broad-specificity, cleaving both types of substrates to the same extent (Decker et al. 2000).

b-Glucosidases have potentially board application. The use of b-glucosidase in the wine industry seems to be very interesting. Moreover b-glucosidase can find application in process of bioconversion of phenolic compounds from cranberries pomace (Zheng, Shetty, 2000). Free fenolics and phenolic acids can be used as natural food ingradients as antioxidants (Bocco et al. 1998), nutraceuticals (Shetty, 1997). Cranberry pomace contains many phenolic compounds which occur in bound forms of fenolic acids conjugated with glucose or other sugars. And this is why enzymatic hydrolysis of phenolic glycosides by for example b-glucosidase appears to be an attractive mean of increasing the free fenolic acids in wine or fruit juice to enrich taste, aroma and potentially increasing nutraceutical value (Shetty, 1997).

Increase in β-glucosidase activity could potentially be regarded as beneficial due to hydrolysis products of plant glucosides, some of which have more antimutagenic, antioxidative, anticarcinogenic and immune stimulatory properties than the respective glucosides. Therefore, its relevance for animal and human health will also depend upon the nature of dietary plant glucosides (Hijová et al. 2012).

The activity of these enzymes with toxicological importance could be altered by the diet, ultimately potentially decreasing the risk of carcinogenesis (Nalini et al. 2004; Manju et al. 2006).

Another possible direction of β-glucosidase use in food supplementation seems to be bioconversion of isoflavones. Isoflavones are non-steroidal phytoestrogenic and antioxidative polyphenolic molecules with the potential to protect against hormone-dependent diseases due to their partial agonist and antagonist estrogen effects (Kano et al. 2006). Izumi et al. (2000) demonstrated that aglycones are absorbed faster and in higher amount than glucosides in human. However, approximately 80–95% of isoflavones in raw and unfermented soybean exist as glucosides conjugates that are less bioactive and non-bioavailable. Interestingly, past studies have demonstrated that β-glucosidase-producing probiotics could biotransform the isoflavone glucosides to biologically potent aglycones (Tsangalis et al. 2002). Past epidemiological studies have shown that soy isoflavones could impart hormone associated therapeutic effects. However, most soy isoflavones are present in the forms of glucosides, which are less bioactive compared with the aglycone counterparts.

Flavonoids are polyphenolic compounds found abundantly in plants, which may play a dietary role in reducing the risk from chronic diseases such as cardiovascular disease and cancer. The flavonoids exist in nature almost exclusively as β-glycosides.

The aglycone forms, daidzein, glycitein and genistein are developed by the hydrolytic action of the enzyme β-glucosidase on the glucosidic isoflavone precursors. Some studies have reported the effects of genistein in preventing and inhibiting prostate cancer, as well as its anticancer effect, similar to tamoxifen the anti-estrogenic drug utilized in breast cancer therapy. Biological activity depends on the presence or absence of the glycoside residue. The position and nature of the sugar residue may increase the uptake of the compound in the small intestine. However, the aglycone is likely to have a greater biological effect than the glycoside, so deglycosylation via a β-glucosidase activity would be an important step in metabolism. Additionally, the enzyme β-glucosidase is required for the hydrolysis of the β-glycosidic bonds of glucosides prior to the production of aglycones (Siok-Koon Yeo, Min-Tze Liong, 2010).

The aim of the study

The purpose of this work was to isolate, purify and characterize the b-glucosidase from culture filtrates of P. radiata in preliminary study to determine the possibility of using this type of preparation as a dietary supplement in the future.

Materials and methods

ORGANISM AND CULTURE CONDITIONS: Inoculum from P. radiata Fr. 79 (ATCC 64658) isolated in the Departament of Microbiology of Helsinki University, Finland, was maintained on 2% (wt/vol) malt agar slants. The mycelial mats were collected and homogenized in a waring blender. After inoculation with 4% (vol/vol) of the homogenates, 100-ml conical flasks, each containing 10 ml of ADMS-LN medium supplemented with 1% wheat bran (Helsingin Mylly Oy, Helsiki, Finland) as a carbon source, were incubated at 28°C.

ENZYME ASSAY.

b-Glucosidase activity was measured in accordance with Wood, T.M., and Bhat, K.M. (1988) using 1% cellobiose as a substrate and liberated glucose content was measured using Lloyd and Whelan method (Lloyd J.B. and Whelan W.J. 1969).

ASSAYS. The protein content in the examined enzyme preparation was determined by means of the Bradford method (Bradford, 1976). The saccharide content in protein molecues was determined as in (Dubois et al. 1956).

CHROMATOGRAPHY AND CHROMATOFOCUSSING. Columns for ion-exchange chromatography packed with DEAE-Sepharose fast flow (1,5 ´ 25 cm equlibrated with 50 mM Tris-HCl buffer, pH 6,5); and chromatofocussing (1 ´ 30 cm; packed with Polybuffer Exchanger PBE-94; eluted in the pH range 3,4-7,4) were attached to the BIO-RAD Econo System.

ESTIMATION OF MOLECULAR MASS. The molecular weight determination was made using gel permeation chromatography on Protein-Pak 300 SW column connected to the Shimadzu HPLC system composed of LC-9A Chomatography pump, the the SPD-M6A diode array detector and the 7125 model sampling valve (Rheodyne, Barkeley, USA) with 100 ml loop. The mobile phase 0.1 M acetate buffer (pH 5.0) was run at the flow rate 0.5 ml/min. The column was calibrated by the linear least square method emploing Quattro Pro software (Borland, USA) on IBM PC using the MS II Gel-filtration Standard Set (Serwa, Heidelberg, Germany).

KINETIC STUDY. The kinetic parameters of the purified b-glucosidase were carried out by the use either salicin, cellobiose or pNPG as supstrates in contrentations 0,05% - 1,3% for salicin and cellobiose and 0,25mM - 3,0mM for pNPG. The kinetic constants (K_m and V_{max}) were calculated on IBM PC computer running the Wilmann 4 (1985; M.S.U., MN) software.

Results

The great source of enzymes that belong to the class of glucose hydrolases are white rot fungi. The enzymes that can be obtained from that organisms have specific features like optimum pH in slightly acidic range, high temperature tolerance and significant stability. Phlebia radiata is efficient producer of extracellular enzymes (including b-glucosidase) that degrade complex macromolecules like e.g. cellooligosaccharides (Rogalski, J., et al., 1991).

The first step of the study was to examine the dynamics of b-glucosidase secretion during 14 days of growth on the media containing 1% of wheat bran as the carbon source.

Fig. 1 represents changes in b-glucosidase activities during 14 days of cultivation on the media containing 1% wheat bran as a carbon source. Maximal level of activity was observed in fifth day of cultivation.

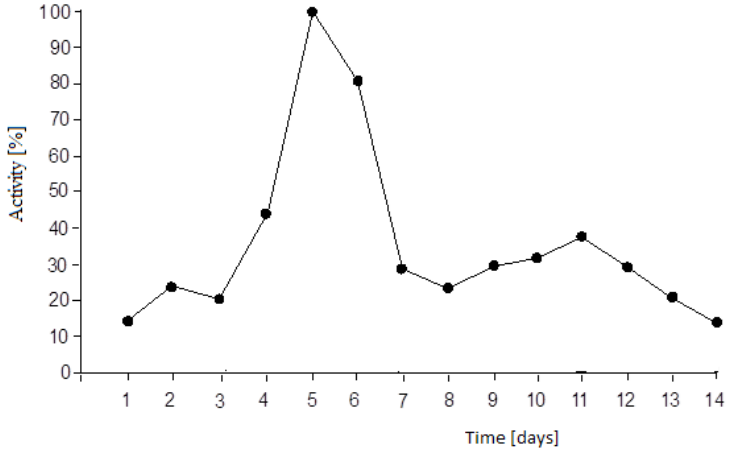


Fig. 1. Changes of b-glucosidase activity during growth on ADMS-LN medium supplemented with 1% wheat bran.

The next step was to determine the optimum of temperature and pH for best activities of b-glucosidase. For this purpose, the activity of the enzyme was examined in the range of temperature between 4 - 70ºC and pH 3,5 □ 6,5. It was estimated that maximum activity of b-glucosidase was in pH 5,0 (Fig. 2. A) and in temperature 50 ºC (Fig. 2. B).

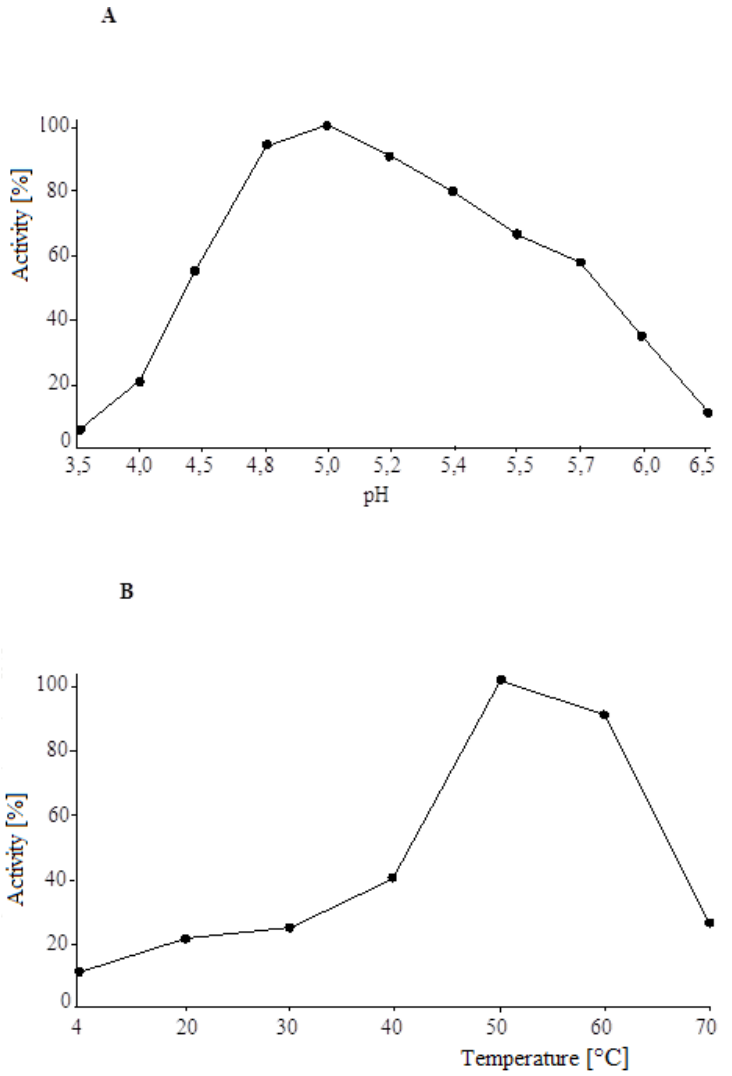


Fig. 2. The effect of pH (A) and temperature (B) on the activity of b-glucosidase from Phlebia radiata during growth on ADMS-LN medium supplemented with 1% wheat bran.

Purification of b-glucosidase involved the following steps: ion-exchange chromatography on DEAE-Sepharose fast flow and chromatofocussing on PBE 94. The results representative purification are shown in table 1 and figures 3-4. After the ion exchange chromatography on DEAE-Sepharose, several protein fractions were observed but only one contained b-glucosidase activity corresponding to the peak fraction eluted in 0,23 – 0,30 M NaCl (Fig. 3). After this step the specific activity was 4292,17 mU/mg. This step resulted in nearly 10-fold purification with the recovery of 89% (table 1).

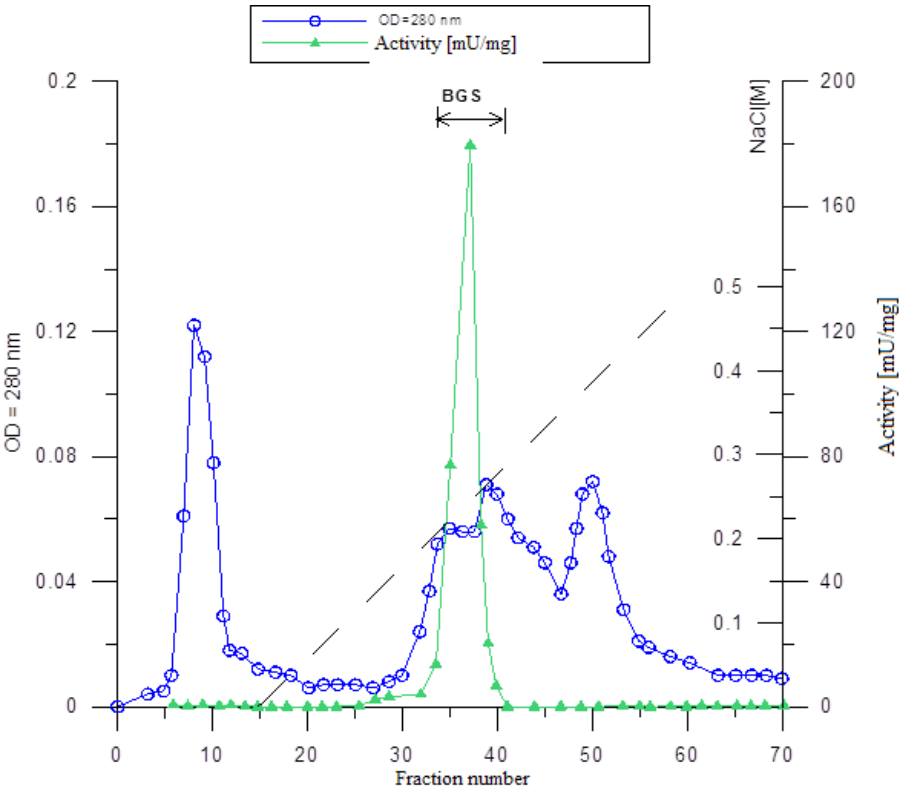


Fig. 3. The ion-exchange chromatography on DEAE-Sepharose (fast flow) of crude b-glucosidase from P. radiata post culture liquid with 1% wheat bran as the carbon source.

The main active fraction was pooled and further fractionated by chromatofocussing on Polybuffer exchanger PBE-94. The chromatographic pattern is depicted on figure 4. b-Glucosidase activity was concentrated in one narrow peak. The isoelectric point was estimated to be 4,98. The purified of b-glucosidase showed a high level of specific activity (about 39273,61 mU/mg protein).

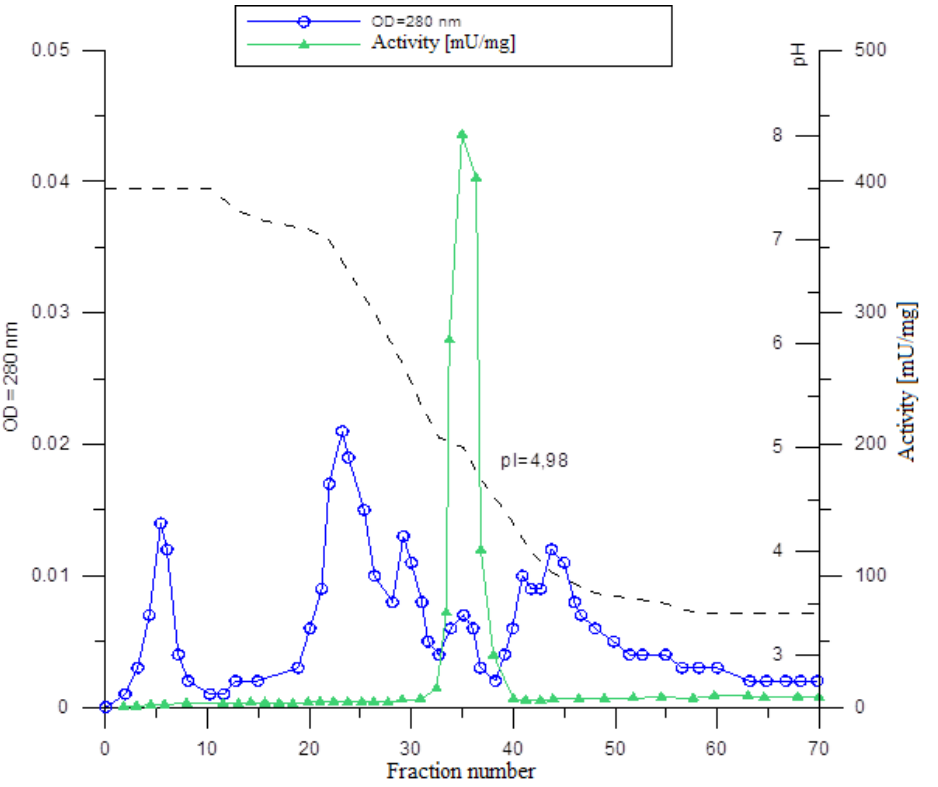


Fig. 4. Chromatofocussing pattern for the preparation of DEAE-Sepharose b-glucosidase on PBE-94.

Tab. 1. Purification of P. radiata b-glucosidase from after culture liquid containing 1% wheat bran as the only carbon source.

Preparation	Total protein [mg]	Specific activity [mU/mg]	Purification [-fold]	Yield [%]
Supernatant 21000 □ g	43,17	460,04	1,00	100,00
DEAE-Sepharose	4,15	4292,17	9,33	89,73
PBE94 pI = 4,98	0,36	39273,61	85,37	71,69

Homogenity of the b-glucosidase fraction was examined by size-exclusion high-performance liquid chromatography where the final purified enzymatic preparations appears as a single chromarographic peak.

The method of Dubois (1956) made it possible to determine the carbohydrate content in purified form of b-glucosidase. The enzyme contain the carbohydrate in its structure 15,22%. That indicates b-glucosidase from P. radiata is a glicoproteine.

The last point was to determine the kinetic constants of purified enzyme. The kinetic constants ware estimated for three substrates: salicine, cellobiose and low molecular weight, syntetic substrate – p-nitrophenyloglucopyranoside (pNPG). Obtained results indicate that b-glucosidase from P. radiata has high substrate specificity for cellobiose (K_m = 0,43 mM) and for syntetic substrate pNPG (K_m = 0,54 mM) (table 2).

Tab. 2. Physico-chemical and kinetic data of purified b-glucosidase from P. radiata.

β-glucosidase	Molecular weight [kDa]	Isoelectric point [pH]	Carbohydrate content [%]
BGS	45,9	4,98 ± 0,14	15,22 ± 4,28

β-gluco-sidase	salicin		cellobiose		pNPG	
	K_m [mM]	V_{max} [μM/ min*mg]	K_m [mM]	V_{max} [μM/ min*mg]	K_m [mM]	V_{max} [μM/ min*mg]
BGS	25,01±1,53	0,08±0,02	0,43±0,02	0,24±0,01	0,54±0,02	13,11±0,08

Discussion

Maximal level of b-glucosidases activity was observed in fifth day of cultivation on the media containing 1% wheat bran as the only carbon source. That results are not surprising from note that wheat bran contain complex hemicelluloses with residues of acethyl, arabinosyl, 4-O-glucuronyl and fenolic acids attached to main chain.

In next step the optimum pH and temperature was estimated. As it is shown at fig. 2 (A, B) optimal pH and temperature for b-glucosidase activity are 5,0 and 50°C. That data correspond with that obtained for other fungal glucosidases. Analogous results were obtained for b-glucosidase from Trichoderma reesei and Phlebia radiata during cultivating on the cellulose containing media (Rogalski et al. 1991), or b-glucosidase from Chalara paradoxa (Lucas et al. 2000). pH 4,5 for optimal b-glucosidase activity is common for enzymes isolated from Aspergillus niger (Wotanabe et al. 1992) or Aureobasidium pullans (Saha et al. 1994).

b-Glucosidases from Phlebia radiata have identical optimal temperature for their activity as described for Trichoderma reesei, Phlebia radiata (Rogalski et al.1991) or Aspergillus oryzae (Riou et al. 1998), but there are some differences like for example b-glucosidase isolated from Chalara paradoxa optimal temperature is 45°C (Lucas et al. 2000). Purified b-glucosidase was chromatofocussed on the column packed with PBE 94, and isoelectric point (pI = 4,98) was determined by this way. The purified enzyme was acidic protein. Different described before b-glucosidase has an isoelectric point in acidic pH like glucosidases isolated from Aspergillus japanicus (pI = 4,7) or Aspergillus niger (pI = 4,1) (Decker et al. 2000).

By the use of high performance, size exclusion chromatography on the Protein-Pack™ column the molecular mass of obtained b-glucosidase from Phlebia radiata was determined. The molecular mass of the purified protein was 45,9 kDa that is characteristic for extracellular enzymes.

The content of the carbohydrate component was determined by the usage of Duboise method and obtained the value 15,22%. This indicates that b-glucosidase from P. radiata is a glycoprotein which is characteristic of secretory proteins.

Determination of kinetic constants allowed to state that purified glucosidase is an enzyme with high substrate specificity towards cellobiose (K_m= 0,43 mM) and synthetic substrate pNPG (K_m= 0,54 mM). Similar values were obtained for glucosidase from Chalara paradoxa (raw starch digesting fungus), respectively K_m= 0,58 mM and K_m= 0,52 mM (Lucas et al. 2000).

The results in this paper can become a starting point for more detailed research in the future to allow the use of b-1,4-glucosidase in food and drug industry.

Conclusions

1. Highly purified b-glucosidase (BGS) from Phlebia radiata has maximum activity in pH 5,0 and temperature in 50°C what suggest that this fungus can be a good source of the potentially applicable enzyme.
2. According to results obtained from kinetic study b-glucosidase hydrolyze different substrates like salicin, cellobiose or even synthetic pNPG therefore, it can be concluded that the aglycone forms, daidzein, glycitein and genistein can be developed by the hydrolytic action of the fungal β-glucosidase on the glucosidic isoflavone precursors.

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Derewiecki Tomasz[1,2,4], Duda Marta[1,2], Mroczek Krzysztof [1,2], Chmiel-Derewiecka Danuta [3], Majcher Piotr [4]

[1]Zamość Rehabilitation Department, College of Management and Public Administration. Zamość, Poland
[1] Zamojska Klinika Rehabilitacji WSZiA Zamość, Polska
[2]Department of Physiotherapy, College of Management and Public Administration, Zamość, Poland
[2] Katedra Fizjoterapii WSZiA Zamość, Polska
[3]Department of Pedagogy, College of Management and Public Administration, Zamość, Poland
[3]Katedra Pedagogiki WSZiA Zamość, Polska
[4]Division of Rehabilitation and Physiotherapy, Department of Rehabilitation, Physiotherapy and Balneotherapy, Medical University of Lublin, Poland
[4]Zakład Rehabilitacji i Fizjoterapii Katedry Rehabilitacji, Fizjoterapii i Balneoterapii, Wydział Pielęgniarstwa i Nauk o Zdrowiu Uniwersytetu Medycznego w Lublinie, Polska

Risk factors determining appearing of the obesity among residents of the Zamość district

Czynniki ryzyka determinujące występowanie otyłości wśród mieszkańców powiatu zamojskiego

Summary
Introduction. The civilization progress in many European and World countries contributed to changing of whole societies` way of life. It caused a dramatic growth of share of obese people. The overweight and obesity make a timeless problem. The XXIth century man, apart from deriving a hedonistic pleasure from eating, avoids any physical effort, what causes decreasing of physical fitness and increasing of body mass.
Aim. The goal of the present paper is the analysis of risk factors determining occurrence of obesity.
Material and Methods. Conducted was an author`s survey. Tested were1014 inhabitants of Zamość district, Poland. The results were statistically analyzed, on the level of significance $p<0,05$.
Results. 34,51% of the tested group distinguished themselves with the value of BMI index from 25 to 30 (overweight), whereas in 10,39% of the respondents found was BMI>30, what indicated obesity. The analysis of results showed, that the most exposed to overweight and obesity are men 65-and- over-years-old, living in towns, hired as white collar workers, having vocational education.
Conclusions. Appropriate is promoting an active way of life, oriented for maintaining a proper body mass. The society should be made aware of the importance of problem and consequences of lack of knowledge about this subject.

Key words: risk factors, BMI (Body Mass Index), obesity

Streszczenie
Wstęp Postęp cywilizacyjny w wielu krajach Europy i Świata przyczynia się do zmiany sposobu życia całych społeczeństw, a co za tym idzie wzrasta drastycznie odsetek osób cierpiących na otyłość. Nadwaga i otyłość stanowią problem ponadczasowy. W XXI wieku człowiek, oprócz hedonistycznej przyjemności

jedzenia, wykazuje niechęć do wysiłku fizycznego, co sprzyja zmniejszeniu sprawności i wzrostowi masy ciała.
Cel Celem pracy jest analiza czynników ryzyka determinujących występowanie otyłości.
Materiał i metoda Przy pomocy autorskiej ankiety zostało przebadanych 1014 mieszkańców powiatu zamojskiego (Polska). Wyniki badań poddano analizie statystycznej. Przyjęto poziom istotności statystycznej $p<0,05$.
Wyniki W badanej grupie osób 34,51% charakteryzował wskaźnik BMI o wartości 25-30 (nadwaga), zaś 10,39% ankietowanych posiadało wskaźnik BMI>30 (otyłość). Analiza wyników ukazała, iż najbardziej narażeni na nadwagę i otyłość są mężczyźni po 65 roku życia, mieszkający w mieście, pracujący umysłowo z wykształceniem zawodowym.
Wnioski Celowe jest promowania aktywnego trybu życia ukierunkowanego na utrzymanie prawidłowej masy ciała. Należy również uświadomić społeczeństwu skalę problemu i konsekwencje wynikające z braku wiedzy na ten temat.

Słowa kluczowe: czynniki ryzyka, BMI (Body Mass Index), otyłość

Introduction

The civilization progress in many European and World countries contributed to changing of whole societies` way of life. It caused a dramatic growth of share of obese people. According to the WHO definition, the obesity is a chronic disease, that never subsides spontaneously. Its symptom are determined by external factors, like stress, improper nutrition, lack of physical activity, as well as by internal factors, as genetic predispositions, metabolic malfunctions and deteriorating processes. The overweight and obesity make a timeless problem. The XXIth century man, apart from deriving a hedonistic pleasure from eating, avoids any physical effort, what causes decreasing of physical fitness and increasing of body mass (Buczyjan et al. 2007; Ogińska-Bulik, 2004).

Despite the obesity is considered as a problem of highly developed societies, it begins, however, to concern also poorer developing regions (Lee, Pratley, 2005). The epidemiological research deliver more and more proofs for growing frequency of obesity occurrence as well in Poland, as in the whole World. According to those data, about 30% of Americans suffer from obesity, whereas including the people with overweight – the number grows to 67% of the population. In Europe about 50% of the population battle against an overweight, whereas 22% of women and 15% of men are evaluated as obese ones. Similar traits were found for the adult population of Poland. In the study conducted by Pol-MONICA Bis among the inhabitants of Warsaw in the age of 20-74 years obesity was found in 26% of men and 34% of women (Broda, 2003; Buczyjan et al. 2007; Kujowska-Łuczak, Pupek-Musialik, 2006; Lee, Pratley, 2005; Szostak–Węgierek, 2007).

The overweight and obesity are the result of co-operation of metabolic, environmental and biological factors, such as sex and genetic predispositions. To the environmental factors belong primarily: availability of cheap and highly processed food, containing much fat and simple carbohydrates; socially-economical status; education; living conditions; a kind of a job; limitation of daily physical activity. Genetic factors include

a tendency to a faulty fat tissue storage and slowing down of the basal metabolism. The conducted research proved, that obesity occurs in 2/3 of progeny out of both obese parents, in ½ of progeny of one obese parent, whereas only in 9% of children, when the both parents are slim. Obesity isn`t passed on by one gene, there are many genes appearing in different combinations (Araujo, 2003; Bryła and others 2006; Munir, Shuldiner, 2003; Obuchowicz, Zięba, 2011; Olszewska et al. 2011).

There are some simple anthropometrical methods, enabling us to evaluate a correct weight. Measured can be BMI (Body Mass Index), waist size or thickness of fat tissue fold (Bernas, 2007; Bryła, 2012)

Epidemiological research explicitly proved, that obesity is a non-questioned cause of a general mortality. It causes growth of incidence rate for Type II diabetes, respiratory and digestive tract diseases, bone – articular system malfunctions, increasing of risk of a cancer, heart ischaemia and hypertension. The study conducted among American women proved, that more than half (53%) of deaths in people with BMI>29 could be directly attributed to obesity. Moreover, obesity influences also social and emotional life of an affected person, as the way of self-perceiving or relations with other people (Kujowska-Łuczak, Pupek-Musialik, 2006; Ogińska-Bulik, 2004).

Aim

The aim of the present paper is the analysis of risk factors for occurrence of obesity.

Research tasks

1. Evaluating of BMI value in a tested group.
2. Checking, if the kind of a job performed by tested people influences their body mass.
3. Checking, whether the occurrence of obesity is influenced by sex, age and education level of respondents.
4. Testing the statistical significance of interdependence between above mentioned risk factors and occurrence of an improper body mass.

Material and methods

The survey embraced 1014 inhabitants of Zamość district in the age of 18 – 88 years. The group of respondents consisted of 572 women (56,41%0 and 442 men (43,59%). 588 of them lived in a town, whereas 426 heads in rural areas (Table 1).

Tab.1. Characteristics of a research material.

Wiek/Age	Lata/Years	
Min/minimum	18	
Max/maximum	88	
Płeć/Sex	Liczba osób/ people number	%
Kobiety/Woman	572	56,41
Mężczyźni/Man	442	43,59
Miejsce zamieszkania/Living place	Liczba osób/ people number	%

Miasto/City	588	57,99
Wieś/Country	426	42,01
Poziom wykształcenia/Education	Liczba osób/ people number	%
Podstawowe/Basic	43	4,24
Zawodowe/ Professional	126	12,43
Średnie/Average	509	50,20
Wyższe/Higher	336	33,14
Charakter wykonywanej pracy/Work character	Liczba osób/ people number	%
Uczeń/student	215	21,20
Fizyczna/physical	270	26,63
Umysłowa/intellectual	280	27,61
Mieszana/Mixed	109	10,75
Bezrobotny/Unemployed	12	1,18
Emeryt/rencista/Retired	128	12,62

As the research tool used was the author`s survey questionnaire. The results were statistically analyzed, using the program Microsoft Excel. The accepted level of statistical significance amounted $p<0,05$.

Results

34,51% respondents from the tested population had BMI between 25 and 30 (what indicated overweight), whereas in 10,39% of the tested people BMI exceeded 30, what indicated obesity. The detailed results are shown in the Table 2.

Tab.2. Division of respondents according to the values of BMI.

Value of BMI/Wartość BMI	People number/Liczba osób	%
Underweight/Niedowaga (<19)	76	7,24
Norm/Norma (19-25)	502	47,86
Overweight/Nadwaga (25-30)	362	34,51
Obesity/Otyłość (>30)	109	10,39

The analysis of results proved, that overweight and obesity appears more often in urban than in rural areas. Among town dwellers 37,10% showed excessive weight, whereas in 10,98% occurred obesity. Among country dwellers overweight occurred in 31,03% from the tested population, whereas obesity in 9,60%, respectively. Nevertheless, a hypothesis about an interdependence between dwelling place and frequency of overweight and obesity cases couldn`t be accepted because of the level of statistical significance. The results in detail were introduced in the Table 3.

Tab.3. The impact of place of residence on BMI.

Value of BMI/Wartość BMI	City/Miasto		Country/Wieś	
	People number /Liczba osób	%	People number /Liczba osób	%
Underweight/Niedowaga	42	6,99	34	7,59
Norm/Norma	270	44,93	232	51,79
Overweight/Nadwaga	223	37,10	139	31,03
Obesity/Otyłość	66	10,98	43	9,60

The excessive weight problem occurs more often in men than in women. 50,79% of tested men showed overweight, whereas 13,71% were obese; in women the corresponding results reached 22,52% and 7,95%, respectively. The hypothesis, however, about an interdependence between sex and frequency of overweight and obesity, should be cancelled because of the statistical significance level (Table 4).

Tab.4. The impact of gender on BMI.

Value of BMI/Wartość BMI	Women/Kobiety		Men/Mężczyźni	
	People number /Liczba osób	%	People number /Liczba osób	%
Underweight/Niedowaga	72	11,92	4	0,90
Norm/Norma	348	57,62	154	34,61
Overweight/Nadwaga	136	22,52	226	50,79
Obesity/Otyłość	48	7,95	61	13,71

The overweight and obesity problem more often concerns white-collar than blue-collar workers. Among office workers excessive weight was found in 45,22%, whereas obesity in 12,13%. In the group of manual workers the corresponding results amounted 36,88% and 9,57%, respectively. The influence of kind of a job on frequency of occurring overweight and obesity was statistically proved (Table 5).

Tab.5. The impact on the nature of the work on the BMI.

Value of BMI/Wartość BMI	Physical/Fizyczna		Inttelectual/Umysłowa	
	People number /Liczba osób	%	People number /Liczba osób	%
Underweight/Niedowaga	15	5,32	6	2,21
Norm/Norma	136	48,23	110	40,44
Overweight/Nadwaga	104	36,88	123	45,22
Obesity/Otyłość	27	9,57	33	12,13

As well overweight, as obesity, occurred more often in the group of people with a vocational education. 47,62% of respondents from this group had an excessive weight, whereas in 24,60% obesity was found. The difference, however, wasn`t statistically significant, so the hypothesis must be cancelled (Table 6).

Tab.6. The impact of level of education on BMI.

Value of BMI/Wartość BMI	Basic /Podstawowe		Proffesional /Zawodowe		Average /Średnie		Higher /Wyższe	
	n	%	n	%	n	%	n	%
Underweight/Niedowaga	7	16,28	3	2,38	40	7,49	26	7,51
Norm/Norma	20	46,51	32	25,40	278	52,06	172	49,71
Overweight/Nadwaga	8	18,60	60	47,62	180	33,71	114	32,95
Obesity/Otyłość	8	18,60	31	24,60	36	6,74	34	9,83

n-people number/liczba osób

To the lowest degree affected with overweight or obesity were the youngest respondents. In the age group from 18 to 35 years found were only 22,20% people with an overweight and 4,77 with obesity. Let`s compare those data with an age group of 65 y.o. and over, where found were 43,86% cases of overweight and 26,32% cases of obesity. Nevertheless, its statistically significance level indicated that the hypothesis should be given up. The results in detail are collected in Table 7.

Tab.7. The impact of age on the BMI.

Value of BMI/Wskaźnik BMI	Age 18-35 years/ Wiek 18-35 lat		Age 36-50 years/Wiek 36-50 lat		Age 51-65 years/ Wiek 51-65 lat		Age >65 years/Wiek > 65 lat	
	n	%	n	%	n	%	n	%
Underweight/Niedowaga	69	12,66	4	1,59	3	1,53	0	0,00
Norm/Norma	329	60,37	102	40,64	54	27,55	17	29,82
Overweight/Nadwaga	121	22,20	122	48,61	94	47,96	25	43,86
Obesity/Otyłość	26	4,77	23	9,16	45	22,96	15	26,32

Discussion

The overweight and obesity make a great epidemiological problem as well in Poland, as in other developed countries (Jarosz, Respondek, 2009; Krupienicz and others 2007). Obesity became one of the greatest health threats in contemporary World, despite millions of people starting losing weight. In Poland nearly 60% of people in their fifties suffer from excessive weight. Too high fat concentration is a well-known risk factor of such civilization diseases, as hypertension, heart ischemia, hyperlipidemia, Type II diabetes or the majority of cancers. It also influences appearing many muscular- skeletal malfunctions, what results in increasing of sick leaves frequency or earlier retirement, what, in turn, indicates another growth of socio-economical costs (Barbe, 2011; Belfiore et al. 2010; Braulio et al. 2011; Cyganek et al. 2007).

Widely used for evaluation a correct body weight in epidemiological studies is the method of calculating BMI indicator (Dżygadło, Łepecka-Klusek, 2012). In the tested group 34,51% of respondents had BMI from 25 to 30 (overweight), whereas in 10,39% BMI exceeded 30 (obesity). The research conducted for the time being confirmed the interdependence between increasing of BMI value in obese people and higher frequency of occurring a hypertension, ischaemia and hypercholesterolemia in them (Chmiel-

Perzyńska et al. 2010). That method, however, has such a disadvantage, that it doesn`t differ fat tissue from the mass of remaining parts of our body. For example, high values of BMI might be caused either by high fat contain, or the contain of remaining tissues in relation to body weight (Chwałczyńska et al. 2010).

The analysis of results showed, that urban dwellers more often suffer from overweight or obesity. In the group of town dwellers excessive weight was found in 37,10% of cases, whereas obesity in 10,98%of respondents. In rural areas overweight was found in 31,03% of cases, whereas obesity in 9,60%, respectively. Similar results were obtained by Gajewska, Goryński and Wysocki, who tested main causes of hospitalization of Polish patients. According to their calculations, in 2008 more often hospitalized were town dwellers than country dwellers (19,9 vs 14,4 in 100 000 with regards to obesity and 115,8 vs 109,3 in 100 000 regarding Type II of diabetes (Gajewska et al. 2011).

In the tested population men had more often problems with their body mass. 50,79% of tested men had excessive weight, whereas 13,71% were obese. In women corresponding shares were spread out in the following way: 22,52% had overweight, whereas 7,95% were obese. The hypothesis about interdependence of sex and frequency of overweight and obesity occurrence wasn`t, however, statistically significant. The epidemiological data for recent 20 years in the US pointed out, that during that period the frequency of obesity cases doubled. In European countries in more than 50% inhabitants recognized was overweight, whereas in 30% found was obesity (Andreyeva et al. 2007; Elmadfa, 2009). The weight problems had the greatest intensity in Greece, where 51% of men and 37% of women weighed too much, whereas 28% of men and 38% of women were obese. Also in Poland those problems occurred more often. The research conducted in 2000 by Food and Nutrition Institute proved, that overweight occurred in 41% of men and 28,7% of women, whereas obesity was found in 15,7% of men and 19,9% of women (Jarosz, 2006; Sekuła, 2003).

The overweight and obesity problem is much more common in white collar workers. Among them found were 45,22% cases of overweight and 12,13% of obesity cases. In the group of blue collar workers 36,88% of them had overweight, whereas 9,57% were obese. Moreover, the influence of work character on frequency of overweight and obesity confirmed the statistical significance level $p<0,05$ ($p=0,03483$).

Overweight and obesity were decidedly more frequent in the group of people with a vocational education. In that group found were 47,62% cases of overweight and 24,60% cases of obesity. Similar data were found by Waśkiewicz and Sygnowska, whose research results proved, that frequency of obesity cases (BMI from 30 kg/m^2) decreased simultaneously with education level growth. It diversified as follows: in men – 33% together with essential education, 27% in secondary school graduates and 19% with university education. In women the respective indicators were arranged as follows: 39%, 25% and 16%. At the same time education influenced significantly life style and nutritional habits (Sygnowska, Waśkiewicz, 2006).

In the tested group the youngest respondents were the least affected by the overweight and obesity problem. In an age group from 18 to 35 y.o. found were 22,20% of overweight cases and 4,77% of obesity cases. Let`s compare those results with corresponding data obtained for the age group of 65 y.o. and over. It was found, that 43,86% of that group

suffered from overweight, whereas 26,32% were obese. Nevertheless, the hypothesis about interdependence between age and overweight or obesity should be cancelled because of the level of statistical significance p>0,05. Similar results were obtained in studies of the Food and Nutrition Institute. Evaluated was, that obesity problem may affect every age group. In the years 1991-2000 the obesity rate in adults below 60 years of age increased by about 5%. The growing intensity of appearing of overweight and obesity in children and youth makes another serious problem. On the basis of research conducted by the Food and Nutrition Institute evaluated was, that overweight occurs in 15,9% of boys and 11,1% of girls, whereas obesity in 4% of boys and 3,4% of girls (Apovian et al. 2012; James, 2008; Kłosiewicz-Latoszek, 2010; WHO, 2012).

The society should be made aware of importance of a correct body mass. It involves not only aesthetic advantages or better feeling, but can reduce the risk of many diseases or improve the prognosis in the case of existing ones. Kubsik and Kowalski pointed out the relation between obesity and asthma. According to them, obesity increases the risk of occurrence of asthma, whereas reducing the body mass reduces also the asthma symptoms (Kowalski, Kubsik, 2010). That`s why the battle against obesity should become one of priorities of contemporary medical science.

Conclusions

1. The society should be made aware of the scope of problem and consequences of lack of knowledge about that subject.
2. Obesity causes many civilization diseases, like diabetes, hypertension, heart ischaemia and cancer.
3. Purposeful is promotion of an active life style, oriented to maintaining a correct body mass.

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Paulina Szczerbo, Adam Kurianiuk, Joanna Fiłon, Jolanta Ustymowicz- Fabiszewska, Jan Karczewski

Department of Hygiene and Epidemiology, Medical University of Bialystok
Zakład Higieny i Epidemiologii Uniwersytet Medyczny w Białymstoku

Dietary habits and their impact on the health of youth from secondary schools in Ostrołęka

Nawyki żywieniowe i ich wpływ na zdrowie wśród młodzieży z ostrołęckich szkół ponadgimnazjalnych

Summary
The aim of this study was to analyze eating habits and to assess the relationship between the extent of BMI, sex, place of residence, type of school and eating habits of the youth from Ostrołęka`s secondary schools. The study included 715 students (351 girls and 364 boys) from Ostrołęka`s secondary schools (Mazowieckie voivodship). The study was conducted in January, in the school year 2011/2012. To assess dietary habits an anonymous questionnaire was used. The survey consisted of 54 closed questions. The analysis used only the part of the questionnaire, concerning behavior, eating habits and the imprint. The students responded to questions such as regularity of the meals, snacking between the meals, consumption of fast-foods, vegetables and fruits, sweets and drinking soda, but not in the "light" version. Imprint included questions on sex, age, place of residence and the type of school. In addition, students could subjectively assess their weight and height, from which BMI was calculated. Statistical analysis was performed using the statistical package Statistica v. 10.0. The normality of distribution was verified with the Shapiro-Wilk test. Results of the analysis allowed for the use of mean ($\overline{x}$), standard deviation (SD) and, consequently, the application of χ^2 test, assuming the level of significance at $\alpha < 0.05$. The analyzes showed that there is a relationship between BMI, gender and type of school. Young people often ignored afternoon tea in their diet, and most commonly eat lunch and dinner. Obese students often snack between meals. Young people give up eating vegetables and fruit for snacks, sodas, and fast-foods. Relationship was found between gender, type of school and regularity of meals, eating between meals, eating fruits and vegetables and consumption of highly processed foods.

Key words: eating habits, youth, secondary school, Ostrołęka

Streszczenie
Celem pracy była analiza nawyków żywieniowych oraz ocena związku pomiędzy zakresem BMI, płcią, miejscem zamieszkania oraz typem szkoły a zwyczajami żywieniowymi młodzieży z ostrołęckich szkół średnich. Badaniem objęto 715 uczniów (351 dziewcząt i 364 chłopców) klas I- III ostrołęckich szkół ponadgimnazjalnych (województwo mazowieckie). Badanie przeprowadzono w roku szkolnym 2011/2012, w styczniu. Do oceny nawyków żywieniowych wykorzystano anonimowy kwestionariusz ankiety. Ankieta liczyła 54 pytania o charakterze zamkniętym. W analizie wykorzystano pierwszą część ankiety: zachowania i zwyczaje żywieniowe oraz metryczkę. Uczniowie odpowiadali na pytania dotyczące m.in. regularności spożywanych posiłków, pojadania między

posiłkami, spożywania żywności typu Fast-food, warzyw i owoców, słodyczy oraz picia napojów typu coca-cola, ale nie w wersji „light". Metryczka zawierała pytania dotyczące m.in. płci, wieku i miejsca zamieszkania oraz typu szkoły do jakiej uczęszczają uczniowie. Ponadto uczniowie mogli subiektywnie ocenić swoją wagę i wzrost, na podstawie których obliczono BMI. Analizę statystyczną wykonano przy zastosowaniu pakietu statystycznego Statistica v. 10.0. Normalność rozkładu zweryfikowano testem Shapiro-Wilka. Wyniki analizy pozwoliły na zastosowanie wartości średniej ($\overline{x}$) i odchylenia standardowego (SD), a w efekcie zastosowania testu χ^2, przyjmując poziom istotności $\alpha<0,05$. Przeprowadzone analizy wykazały, że istnieje zależność między BMI a płcią i typem szkoły. Młodzież najczęściej w swojej diecie pomija podwieczorek, a najregularniej spożywa obiad i kolację. Otyli uczniowie to grupa, która najczęściej pojada między posiłkami. Młodzież rezygnuje z jedzenia warzyw i owoców na rzecz słodkich przekąsek, napojów gazowanych oraz żywności typu Fast-food. Stwierdzono związek między płcią i typem szkoły a regularnością spożywanych posiłków, pojadaniem między posiłkami, jedzeniem warzyw i owoców oraz spożywaniem żywności wysokoprzetworzonej.

Słowa kluczowe: nawyki żywieniowe, młodzież, szkoła średnia, Ostrołęka, województwo mazowieckie

Introduction

Eating habits are one of the most important factors that affect human health. These behaviors are formed during adolescence, in the years 10-12 for girls, and 12-14 for boys. Adolescence is a very difficult and very important stage in their lives, especially among young people. At that time, the girls acquire body-fat, which for many, is a nuisance and a cause for lack of acceptance of one`s body, resulting in attempts to reduce weight by using weight loss diets. Among boys, in turn, increases the proportion of lean body mass. It changes the way of thinking, which in turn leads to the emergence of formed personality. Young age favors the acquisition, formation and consolidation of different behaviors, including eating behavior. There may be also complexes concerning different parts of the body, and thus, the lack of acceptance of their own appearance (Saracen, 2010; Pilch et al. 2011; Kozłowska-Shabbir, 1996, Wanat et al. 2011; Tomaszewska et al. 2012; Fallon, Ackard, 2002).

The main task of rational nutrition is to supply the body with all the necessary nutrients. Regularity of meals, as well as snacking habits, consumption of highly processed and high-fat foods is also important (Gawęcki, Mossor-Pietraszewska, 2004).

Youth does not pay particular attention to eating nutritious meals. They often reach for high-calorie products such as candy bars, cakes, sweet drinks and fast foods (Pilch et al. 2011). This is mainly the lifestyle of young people. Most of the time is spent on seating in front of the computer. In addition, these young people eat in a hurry, in order to return to the interrupted activity, as soon as possible (Turkle, Kiesler, 1997).

For many years, Poland has seen a steady increase in the prevalence of chronic non-communicable diseases. This includes mainly cardiovascular disease, obesity, type 2 diabetes and certain cancers (Suliga, 2010). Over the past twenty-five years, anorexia and bulimia, have begun to focus the main attention of the society. Both of these diseases has been officially recognized as an eating disorders. The main role in the formation of both

disorders is attributed to cultural and environmental factors. Other factors contributing to the occurrence of eating disorders are peers and mass media advertising, which create the ideal of fitness. Youth, which is devoid of critical thinking and rebelling against authority, often try to take drastic weight reduction. Knowledge of the factors, that contribute to the formation of eating disorders and consequently form irregular eating habits, is necessary for the development and implementation of educational programs aimed at eliminating these negative habits. It is important to form the correct pattern from the earliest years, as this will result in normal development and functioning of the body in adulthood (Saracen, 2010; Tomaszewska et al. 2012).

Aim of the study

The aim of this study was to analyze eating habits and to assess the relationship between the extent of BMI, sex, place of residence, type of school and the eating habits of young people from Ostrołęka`s secondary schools.

Materials and methods

The study included 715 students (351 girls- 49% and 364 boys- 51%) from Ostrołękas`s secondary schools. The study was conducted in January, in the school year 2011/2012. To assess dietary habits, a questionnaire was used, developed in the Department of Medicine and Environmental Epidemiology in Zabrze, Medical University of Silesia in Katowice. The survey consisted of 54 closed, single choice questions.

The questionnaire was divided into four parts: behavior and eating habits, socio-cultural factors, disorders of the digestive and other systems, imprint. The analysis used the first part of the survey and imprint. The students responded to questions such as regularity of meals, snacking between meals, eating fast-foods, vegetables and fruits, sweets and drinking soda, but not in "light" version. Imprint included questions on sex, age, place of residence and the type of school. In addition, students could subjectively assess their weight and height, which were calculated on the basis of BMI (Body Mass Index = weight [kg] / (height)^2 [m]). To assess the nutritional status of students four ranges of BMI were established: underweight (<16.0 - 18.49 [kg/m^2]), standard (18.5 - 24.99 [kg/m^2]), overweight (25.0 - 29 , 99 [kg/m^2]) and obesity (30.0 - 40.0 ≥ [kg/m^2]).

Statistical analysis was performed using the statistical package Statistica v. 10.0. The normality of distribution was verified with the Shapiro-Wilk test. Results of the analysis allowed for the use of the mean ($\overline{x}$), standard deviation (SD) and, consequently, the application of χ^2 test, assuming the level of significance at $\alpha < 0.05$.

Results

The study involved 715 students from high school, technical and vocational school in Ostrołęka. The study included 351 girls (49%) and 364 boys (51%). There were 246 (34%) high school students, 116 (16%) vocational school students, and 353 (50%) technical school students. The average age of the high school students was 17.1 (± 0.79) years, vocational school students 17.5 (± 0.85) years and 17.2 (± 0.90) years for technical school students. Fifty-one percent of the students indicated city as a place of residence, and 49% came from the rural areas.

Firstly, the BMI was calculated and compared in groups of men and women living in urban and rural areas, depending on the type of school. The results are shown graphically in Figures 1, 2 and 3.

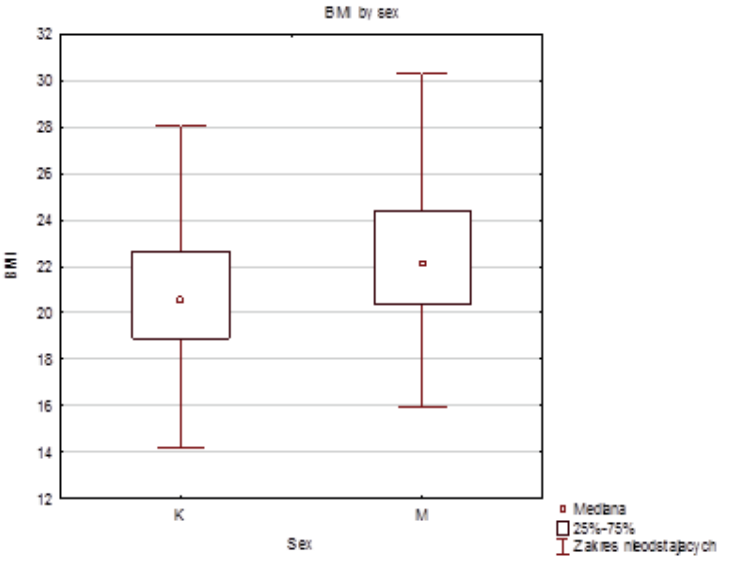


Fig. 1 Average BMI in women and men.

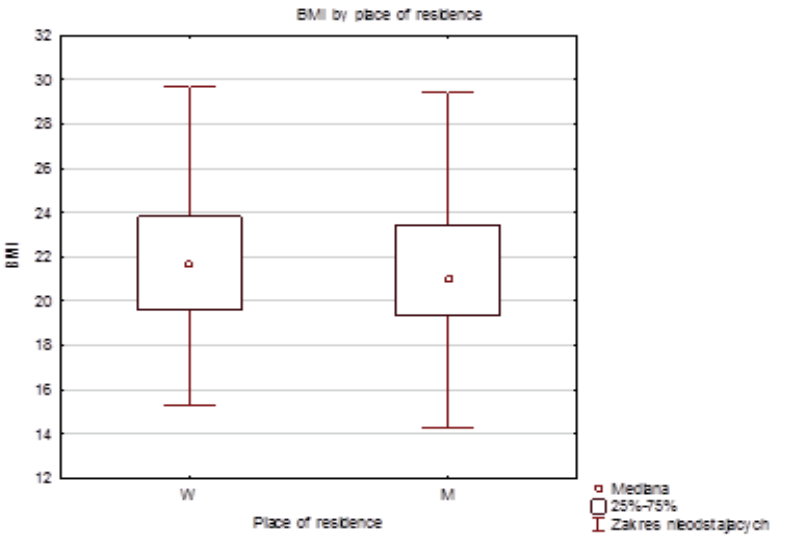


Fig. 2 Average BMI depending on place of residence.

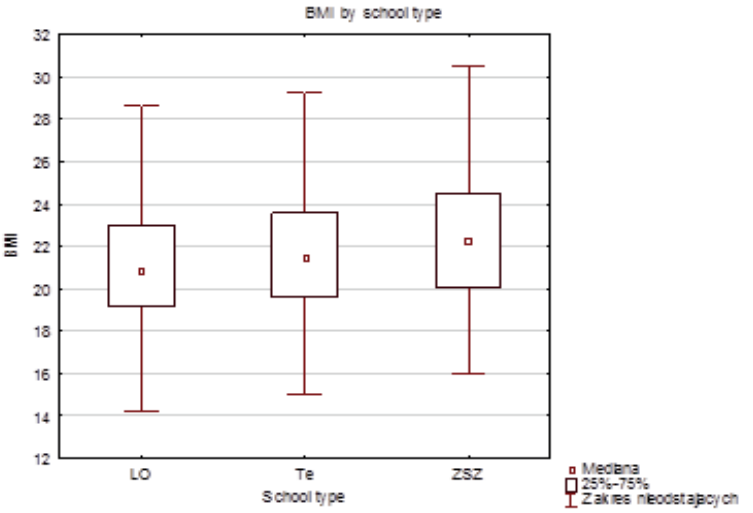


Fig. 3 Average BMI depending on type of school.

Average BMI in girls was 20.96 ± 2.95 [kg/m^2], while among boys the value was higher, at 22.66 ± 3.30 [kg/m^2]. The relationship between BMI and sex was highly statistically significant (p = 0.000). Mean BMI among students living in the city was 21.62 ± 3.34 and at countryside 22.02 ± 3.15. These differences are not statistically significant (p > 0.05). On average, a higher BMI was observed among vocational school (VS) students 22.65 ± 3.61, the mean BMI of high school (HS) students was 21.44 ± 3.32 and technical school (TS) students 21.82 ± 3.02. BMI between groups was statistically different (p < 0.05).

Tab. 1 Average BMI among men and women depending on the type of school and place of residence.

Type of school										
Group		HS* N=246			TS* N=353			VS* N=116		
		n	$\bar{x}$	±SD	n	$\bar{x}$	±SD	n	$\bar{x}$	±SD
Females	City	89	20,50	3,24	77	21,09	3,15	19	21,04	2,81
	Country	59	20,74	2,59	98	21,19	2,69	9	23,07	2,95
Males	City	59	22,63	3,59	72	22,40	3,21	36	22,64	3,03
	Country	39	22,84	3,11	106	22,55	2,88	52	23,16	4,20

Mean values of BMI in the studied groups are different. The highest value was observed among girls living in rural areas and studying in vocational schools and among boys who were students of the above type of school, living in rural areas as well as in the city. These values were successively for girls 23.07 ± 2.95 and for boys from the countryside 23.16 ± 4.20 and the city 22.64 ± 3.03. On the other hand, among girls living in the city, average BMI values were higher in students from technical schools 21.09 ± 3.15.

Tab. 2 Numbers depending on the extent of gender-specific BMI.

Trait		Standard N= 533		Underweight N= 75		Overweight N= 90		Obese N= 17	
		n	%	n	%	n	%	n	%
Sex	Females	262	37	55	8	30	4	4	0,5
	Males	271	38	20	3	60	8	16	1,5

In the studied group, normal weight was noted among 37% of girls and 38% of boys. Underweight was more common in women (8%) than in men (3%). The overweight was observed twice as likely in males (8%) than girls (4%). Obesity was noted in 0.5% of women and 1.5% of men.

Tab. 3 Numbers depending on the range of BMI and place of residence.

Trait		Standard N= 533		Underweight N= 75		Overweight N= 90		Obese N= 17	
		n	%	n	%	n	%	n	%
Place of residence	City	257	36	43	6	45	6	7	1,5
	Country	276	39	32	4	45	6	10	1,5

Among the youth, the largest percentage accounted for standard weight. Slightly more students with normal body weight were observed among those identified as the residents of rural areas, respectively 39% and 36%. Underweight was more often observed in the urban population (6%) than among rural youth (4%). Overweight and obesity were spread evenly, both in the city and in the countryside and were respectively 6% and 1.5%.

Tab. 4 Numbers, depending on the range of BMI and type of school.

Trait		Standard N= 533		Underweight N= 75		Overweight N= 90		Obese N= 17	
		n	%	n	%	n	%	n	%
Type of school	HS	179	25	36	5	26	4	5	0
	TS	270	38	31	4	46	6	6	1
	VS	84	12	8	1	18	3	6	1

By examining the relationship between BMI and the type of school, it is worth noting that no obese high school students were found. Only 1% of vocational school students were underweight and obese, and just 1% of students in technical schools were obese. The largest proportion of

adolescents with normal body weight was observed among technical school students (38%) and lowest among students in vocational schools (12%). Underweight occurred most frequently among high school students, while overweight among technical school students (6%).

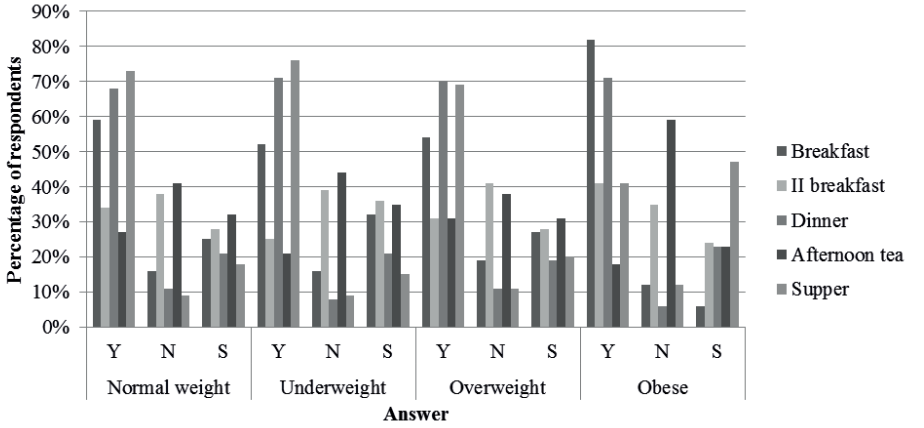


Fig. 4 Percentage of students who regularly eat basic meals, depending on the BMI.

The relationship between BMI and regularity of meals was examined. Statistical analysis showed that there is no relationship between the two variables ($p > 0.05$). Most frequently overlooked meal among young people was the afternoon tea (41%), youth most often ate dinner (69%) and supper (72%). Underweight students often overlooked afternoon tea (44%) and second breakfast (39%), the least overlooked meals were dinner (76%) and lunch (71%). The same was true in students who were overweight. Dinner and supper were consumed respectively by 69% and 70%, while 41% and 38% of students do not ate the second breakfast and afternoon tea. Obese youths was a group that is least likely to give up breakfast (82%) and dinner (71%), and consume afternoon tea the least regularly (59%).

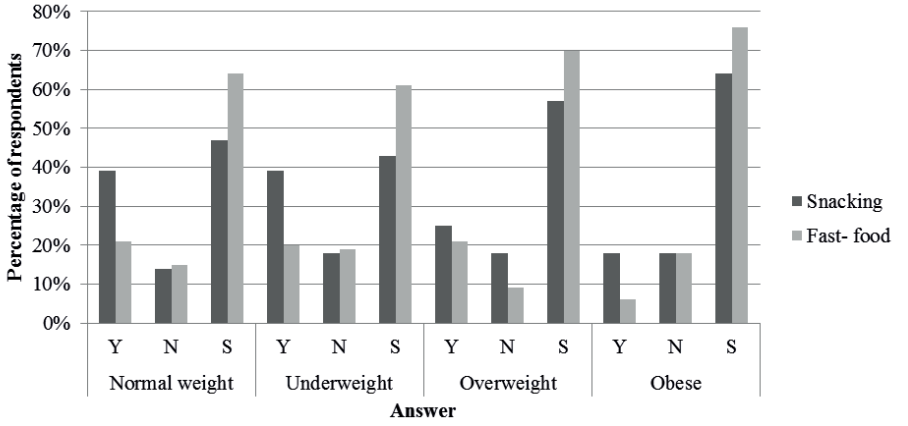


Fig. 5 Percentage of pupils snacking between meals and eating fast-foods, depending on the scope of the BMI.

The relationship between BMI and snacking between meals and consumption of fast-foods was analyzed. In this case there was no statistically significant difference between the two variables ($p > 0.05$), 39% and 21% of students with standard weight admit to snacking and eating fast-foods. Similar values could be seen in underweight students. In the case of adolescents, who were overweight, 25% admit to snacking between meals and 21% said they eat highly processed foods. As many as 64% of students with obesity admit to occasional snacking and only 6% eat fast foods. Overall, one in five people admit to eating highly processed foods, and less than 40% to snacking between main meals throughout the day.

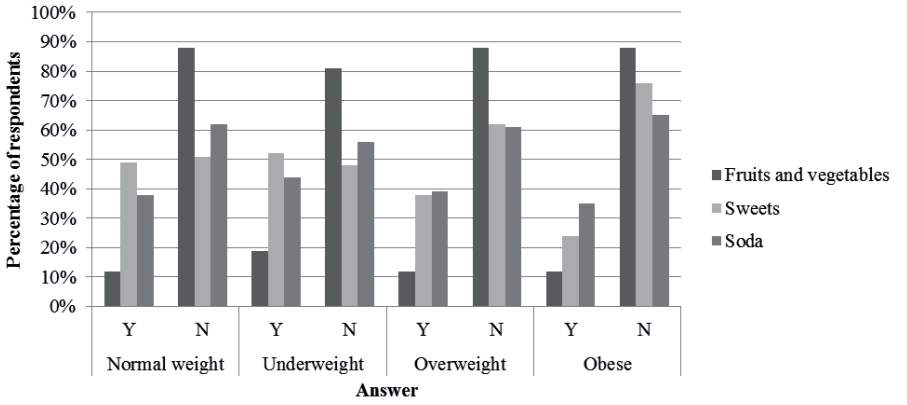


Fig. 6 Percentage of pupils eating selected food groups according to BMI.

Another relationship that has been subjected to an analysis was consumption of selected groups of food products, compared to BMI. Statistically significant relationship was found between the variables, BMI and eating sweets (candy bars, cookies, chips) ($p = 0.04$). There was no statistically significant difference between BMI and eating fruits and vegetables and drinking soda, but not in "light" type. Young people are reluctant to eat vegetables and fruits. About 13% of students in all groups declared reaching for above products. Young people preferred sweets (47%). Obese pupils most often abandon sweet snacks and sugary drinks, accordingly- 76% and 65%, underweight students were least likely to abandon these products- 48% and 56%. Overweight and standard weight young people resigned from eating sweets and drinking soda in similar percentages.

In addition, correlations between gender, place of residence, type of school, range of BMI and regularity of meals, snacking between meals, eating fast-food type of food, vegetables and fruits, sweets and drinking soda, but not in "light" version were analyzed. The analysis revealed a number of dependencies. There is a relationship between sex and eating breakfast ($p = 0.02$). The relationship between eating lunch, afternoon tea, dinner ($p = 0.000$), snacking between meals, eating fruits and vegetables, fast-foods and drinking sugary drinks and sex are highly statistically significant ($p = 0.000$). The relationship between type of school and the consumption of the second breakfast, afternoon tea, dinner, and fast-foods differ significantly ($p < 0.05$). There was also the confirmed relationship between place of residence and eating second breakfast, sweets, fruits and vegetables ($p < 0.05$).

Disscussion

Analyses showed that there were no obese students among high school students, however, being underweight was more common in this particular group. Underweight and obesity was a rare phenomenon among young people studying in vocational schools. Normal body weight occurred among the vast majority of technical students.

In 2010, 100 high school students were tested in Szydłowiec (Mazowieckie province). On the basis of BMI, it was observed that 58% of junior high school students had normal weight. Underweight was found in 31% of the students, while every tenth student was overweight. Underweight was more common in girls, while overweight in boys (Wanat et al. 2011).

In 2011, a similar study was conducted among high school students in Rumia in Pomorskie province. The 695 students aged 13 - 15 years were examined. The study showed that nearly 60% of girls and 72% of boys had BMI within the standard range. Underweight was found in 35% of girls and just over 18% of boys. Obesity was more common among boys (9%) than their female colleagues (5%). Obesity was found in 1% of girls and 1.5% of boys (Tomaszewska et al. 2012).

Also, these same studies showed some dependencies. As many as 95% of girls and 58% of boys would like to have a silhouette of a less than normal weight. Thus, the "very dissatisfied" or "dissatisfied" with their body weight female students were less than 53% and in boys were 24% (Tomaszewska et al. 2012). Similar studies were carried out in foreign centers. Roy studies have shown that the level of satisfaction and acceptance of own body of 9 - year-olds is 55%, over the years, satisfaction decreases, thusly in adolescents 13 - year amounts to only 42%, while a 16 - year 40% (Roy, 2003). Studies conducted in Australia among younger children aged 8 - 12 years showed that half of girls and a third of boys wanted to have a slim and sleek silhouette (Rolland et al. 1997). The research by Bellerose et al. showed that girls, more than boys, attempt at reduction of weight. Every third girl took steps at weight loss (Bellerose et al. 2001 and 2002). According to Sirolli 40% of young people, especially girls, aim to have a "perfect figure" (Sirolli, 2006). Other data obtained by Daee et al. in 2002 shows that as much as 41% to 66% of teenage girls and 20% to 31% of boys intentionally limited eating meals (Daee et al. 2002).

The results obtained in the present study and the review of the literature indicate that the observed behavior of young people in adult life can result in large deficits not only in nutrients, but also energy, which may result in abnormal development of the body and the formation of inappropriate dietary patterns.

The relationship between BMI range and regularity of meals was examined. Young people often skipped in their diet afternoon tea, while most often ate lunch and dinner. Statistical analysis showed a relationship between school and regularity of meals.

In 2010, an anonymous survey was conducted on a group of 100 students, aged 13 - 15 years who were high school students in Chełmek in the Malopolska province. More than half of the students do not consume breakfast (56%). Children often ate four meals a day (60%). Five meals a day ate just 9% of the surveyed students (Wanat et al. 2011).

Also in 2010, in the previously mentioned study, conducted among high school students in Szydłowiec, it was noted that as many as 54% of young people know to eat breakfast before going to school. Every third student remembered about the second breakfast (Wanat et al. 2011).

Similar studies were carried out on a group of 3108 students aged 15 - 19 years of vocational schools and technical schools. The study included a total of 19 schools from Radom, Warsaw and Ciechanów. The statistical analysis showed that vocational school and high school students ate more meals than technical school students. High school students dropped out breakfast more often than their colleagues in other types of schools. Young people rarely opted out of lunch and dinner (Saracen, 2010).

Our study shows that young people from all types of schools rarely skip lunch and dinner in their diets. The first breakfast usually is eaten by technical school students (29%) and least likely by vocational school students (8%). The second breakfast is often forgotten by youth from technical schools (17%). Only 1% of students from vocational school admit that they eat lunch and dinner. The afternoon tea is usually remembered by technical (13%) and high school students (8%).

The relationship between BMI range, type of school and snacking between meals, consumption of fast-foods, eating sweets, fruits and vegetables and drinking sugary drinks was analyzed. It is worth noting that over 60% of students with obesity admit to snacking between meals, but only 6% of the students declared eating fast foods. Among all students, less than 40% is snacking between meals and every one in five of them eat highly processed foods. Children rarely reach for fruit and vegetables, they are more likely to opt for sweets (47%). Frequently young people with obesity reach for the chips, chocolate bars, biscuits, sweets and fizzy drinks, while those with underweight avoid these types of products. The highest percentage of young people who admit to snacking between meals was noted among technical students (16%) and lowest in vocational school (3%). Also, young people from technical schools claimed, that their diet does not consist mainly of fruits and vegetables (44%). Sweets and sweet drinks are also groups of food products that are the preferred choice among technical school students, 22% and 19%. Only 9% of vocational school students admit that they reach for Coca-Cola type drinks. High school students and vocational school students were groups that rarely reach for fast-foods (5%). Twice as many students choose highly processed foods.

As mentioned earlier, surveys carried out in 2010 in Chełmek shows that fast food snacks and sugary drinks find their way among rations of young people several times a week (33%). It is worth noting that 70% of teens admit that you are drinking sodas at a rate of one liter per day (Fallon, Ackard, 2002).

Szydłowiec junior high school students know that they should not eat snacks between meals (53%), and the spacing between the main meals should be 3 - 4 hours (Wanat et al 2011).

It was noted that among young people from secondary schools from Radom, Warsaw and Ciechanów, 2.6% do not consume vegetables at all, 47% eat them regularly and 24% admitted to eating vegetables every day. However, no differences between students from different types of schools were identified (Saracen, 2010).

Our study have shown that more and more of a problem is not only skipping main meals of the day, but also snacking among them. Youth eat sweet high-calorie snacks. They give up eating vegetables and fruit for candy bars, chips, cookies, sweet drinks or fast-foods (Kunachowicz, 1998). This is due to the way of life led by young people, with a computer being the focal point in the young man's life. Eating habits change, young

people eat high-calorie products in a hurry to "kill" the hunger, then quickly returning to the interrupted activity. They lead a sedentary lifestyle, which may result in rapid weight gain. In the future, this may result in a lack of acceptance of their appearance, resulting in attempts to rapidly reduce their weight. The problem is not only obesity, particularly among young girls, but also excessive dieting (Orzock, 1999; Turkle, Kiesler, 1997).

It is important to accurately recognize the eating habits of students in order to be able to conduct effective nutrition education. Well-planned prevention program can bring great benefits. Awareness of young people about the rational nutrition and of the risks that accompany negative eating patterns should be raised.

Conclusions

1. There is a relationship between BMI, gender and type of school. In boys and vocational school students the average BMI values were higher.
2. There is the relationship between gender, type of school, regularity of meals, snacking between meals, eating fruits and vegetables and consumption of fast-foods.
3. Youth often ignored afternoon tea in their diet, and most often ate lunch and dinner.
4. Students refrained from eating vegetables and fruit for sugary snacks, sodas and highly processed foods.
5. Obese youth is a group that usually snacks between meals.

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**Adam Kurianiuk, Paulina Szczerbo,
Jolanta Ustymowicz-Farbiszewska, Jan Karczewski**

Department of Hygiene and Epidemiology, Medical University of Bialystok
Zakład Higieny i Epidemiologii Uniwersytetu Medycznego w Białymstoku

The evaluation of risk of bulimia among students of secondary schools in Bialystok

Ocena zagrożenia bulimią wśród uczniów białostockich szkół średnich

Summary
Prolonged stress and social pressure, to which young people are often subjected, combined with low self-esteem due to falsified media images affect the increasing incidence of eating disorders. These disorders can be divided into two groups, non-specific and specific eating disorders: bulimia and anorexia nervosa. The aim of this study was to evaluate the risk of development of bulimia nervosa among secondary school students in Białystok, taking into account sex, weight, and type of school. The study included 573 secondary school students from Białystok, mean of age was 17.91 (+ /- 0.77) years. The group consisted of overwhelming number of students with normal weight, only 8% were overweight or obese, less than 4% were underweight. Forty percent of the surveyed students admitted to eating without feeling hungry, 25% compensated stress by eating, 6% of students, mostly high school students, provoked vomiting after a heavy meal, 3% used laxative tablets. Teachers and parents should pay more attention to the symptoms of bulimia. High schools students, especially girls, are mainly exposed to the development of bulimia nervosa.

Key words: eating disorders, bulimia nervosa, adolescents

Streszczenie
Długotrwały stres i presja społeczna, której często poddawani są młodzi ludzie, jak również zaniżona samoocena spowodowana zafałszowanym przekazem medialnym, wpływa na coraz częstsze występowanie zaburzeń odżywiania o podłożu psychicznym. Zaburzenia te można podzielić na dwie grupy: specyficzne, do których zaliczamy żarłoczność psychiczną (bulimia nervosa) i jadłowstręt psychiczny (anorexia nervosa) oraz niespecyficzne zaburzenia odżywiania. Celem pracy była ocena zagrożenia bulimią wśród młodzieży szkół średnich w Białymstoku z uwzględnieniem płci, masy ciała i rodzaju szkoły. Badaniem objęto 573 uczniów szkół średnich w Białymstoku w wieku 17,91 (+/-0,77) lat. W badanej grupie uczniów przeważająca większość charakteryzowała się prawidłową masą ciała, zaledwie wśród 8% stwierdzono nadwagę i otyłość, natomiast niedowagę wśród niespełna 4%. Czterdzieści procent badanych uczniów przyznało się do jedzenia nie odczuwając głodu, 25% rekompensuje uczucie stresu jedzeniem, 6% uczniów, głównie uczennic liceów, prowokuje wymioty po obfitym posiłku, 3% stosuje tabletki przeczyszczające. Nauczyciele i rodzice powinni zwracać większą uwagę na objawy mogące świadczyć o bulimii, na której rozwój w przyszłości narażeni są głównie uczniowie liceów ogólnokształcących, w szczególności dziewczęta.

Słowa kluczowe: zaburzenia odżywiania, bulimia nervosa, młodzież

Introduction

Healthy eating habits and physical activity are among the most important factors affecting the development of children and youth. The energy needs of young organisms are high, which is why proper balanced diet, rich in all essential nutrients, is of particular importance (Buttriss, Weichselbaum, 2011). Unfortunately, over the last several years the increased supply of readily-available foods, rich in sugar and saturated fats often leads to the development of obesity, which could have fatal consequences in later life (cardiovascular disease, diabetes). Prolonged stress and social pressure, which young people are often subjected to, as well as low self-esteem due to falsified media transmissions, promoting the culture of material and physical beauty affects the increasing incidence of psychiatric eating disorders (Jośko et al. 2010). They can be divided into two groups, non-specific and specific eating disorders, classified as disease: bulimia nervosa and anorexia nervosa. Anorexia is characterized by an obsessive desire to achieve a minimum body weight through various weight loss diets, fasting and even induced vomiting after meals. Bulimia is diagnosed in the case of cyclic, uncontrolled binge eating and then provoking vomiting or use of laxatives (purging type of bulimia), or excessive exercise and fasting (non-purging type). Anorexia and bulimia often develop in the difficult time of adolescence, if untreated may lead to serious complications later in life (depression, anxiety) or even suicide attempts (Hoek et al. 2012). Until recently, it was thought that only girls suffer from these disorders virtually, but as shown by recent studies, eating disorders affect boys more and more often. It is estimated that 1-1.5% of the population suffers from anorexia (of which 9 out of 10 people are women). Bulimia, in turn, is diagnosed four times more often, this percentage may be as high as 10% because of the reluctance of patients to confess about their troubles to both physicians and loved ones (Brown, Keel, 2012).

Objective

The aim of this study was to evaluate the risk of bulimia among secondary school students in Bialystok by gender, weight, and type of school.

Materials and Methods

The study included 573 secondary school students from Białystok, 275 girls (48%) and 298 boys (52%), including 191 high school students, 253 students of technical schools and 129 of vocational schools. Mean of age was 17.91 (+ / -0.77), the study was carried out in the years 2010-2011. To assess dietary habits, a questionnaire developed in the Department of Medicine and Environmental Epidemiology in Zabrze, Medical University of Silesia in Katowice in own modification, consisting of 54 questions was used. The questions were of closed type, only possible answers were YES or NO. The questionnaire was divided into four parts: eating habits, socio-cultural factors, disorders of the digestive system and other systems, and imprint.

In the following, partial analysis only student`s responses to the following questions were taken into consideration:

- Do you eat when you’re hungry? (Question 1)
- Have you happened to provoke vomiting after a heavy meal? (Question 2)

- Do you feel guilty after eating large amounts of food? (Question 3)
- Do you eat when you are worried or troubled? (Question 4)
- Have you taken, especially after finished eating, laxative pills to regulate the digestive system? (Question 5)
- Do you control your weight more than once a day? (Question 6)

Students in the imprint, containing questions about gender and place of residence, subjectively marked their height and weight, which allowed for the subsequent calculation of BMI (Body Mass Index = weight [kg]/(height)^2 [m]). Upon this basis, by the applying the results to the centile charts for both sexes, it was possible to assess the occurrence of underweight, overweight and obesity among the respondents. Statistical calculations were performed using the statistical package Statistica v.10.0. The evaluation of the data was made using nonparametric χ^2 test, assuming that the level of significance at $\alpha < 0.05$.

Results

The studied group was characterized by an overwhelming majority of normal weight, only 8% of students were overweight or obese, less than 4% among them were underweight.

Tab. 1 Range of BMI in the studied group by type of school.

Type of school	Sex	Underweight	Normal body weight	Overweight	Obese
High school	F	1,05% (n=6)	19,37% (n=111)	0,35% (n=2)	0% (n=0)
	M	0,52% (n=3)	10,99% (n=63)	0,87% (n=5)*	0,17% (n=1)
Technical school	F	1,22% (n=7)	16,23% (n=93)	0,87% (n=5)	0,7% (n=4)
	M	0,17% (n=1)	21,82% (n=125)	2,09% (n=12)*	1,05% (n=6)
Vocational school	F	0,35% (n=2)	7,5% (n=43)	0,35% (n=2)	0% (n=0)
	M	0,52% (n=3)	12,04% (n=69)	1,57% (n=9)*	0,17% (n=1)
Sum		3,84% (N=22)	87,96% (N=504)	6,11% (N=35)	2,09% (N=12)

*- statistically significant result

There was no statistically significant correlation between the extent of BMI and the different types of schools ($p > 0.05$) or answers to other questions taken into consideration. It was made possible, by excluding body mass of students, to significantly simplify the further analysis. It should be noted that there were significantly more overweight boys than girls ($p < 0.02$), as illustrated in figure 1.

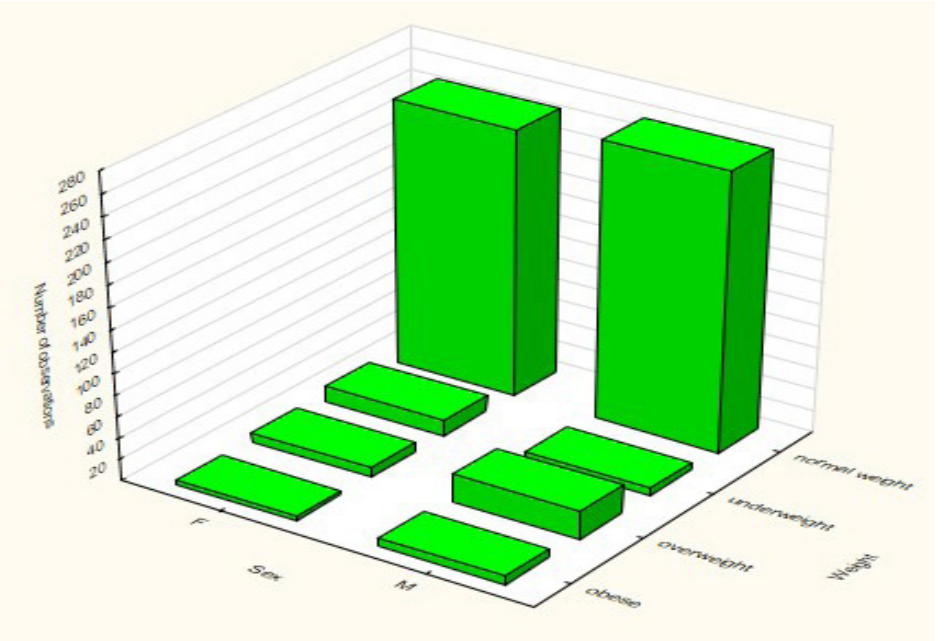


Fig. 1 BMI ranges in the group of students by type of school.

Forty percent of the surveyed students admitted to eating without feeling hungry. The question took into account both snacking between meals and eating regular meals. There were no significant differences according to gender and type of school, the lowest percentage of positive responses was found among students in vocational schools (31.78%).

Tab. 2 Responses to question number 1.

Type of school	Sex	Do you eat when you're hungry?			
		Yes		No	
High school	F	9,95%	(n=57)	10,82%	(n=62)
	M	4,89%	(n=28)	7,68%	(n=44)
Technical school	F	8,38%	(n=48)	10,65%	(n=61)
	M	9,42%	(n=54)	15,70%	(n=90)
Vocational school	F	2,09%	(n=12)	6,10%	(n=35)
	M	5,06%	(n=29)	9,25%	(n=53)
Sum		39,78%	(N=228)	60,22%	(N=345)

Vomiting, after a heavy meal, was provoked by 6% of the students. Even though the number of girls providing a positive response was almost two times more than the boys, this was not a statistically significant relationship. On the other hand, the female high schools students provoked vomiting significantly more often than their colleagues from other schools ($p < 0.03$).

Tab. 3 Responses to question number 2.

Type of school	Sex	Have you happened to provoke vomiting after a heavy meal?			
		Yes		No	
High school	F	1,91%	(n=11)*	18,85%	(n=108)
	M	0,17%	(n=1)	12,39%	(n=71)
Technical school	F	1,04%	(n=6)	17,98%	(n=103)
	M	0,87%	(n=5)	24,26%	(n=139)
Vocational school	F	0,70%	(n=4)	7,50%	(n=43)
	M	1,04%	(n=6)	13,26%	(n=76)
Sum		5,75%	(N=33)	94,25%	(N=540)

*- statistically significant result

Eating heavy meals caused feelings of guilt among 27% of the students, mostly in high school, where the figure was 35%. Responses to this question were strongly associated with gender and type of school ($p < 0.01$). The girls gave more than 77% of all positive responses.

Tab. 4 Responses to question number 3.

Type of school	Sex	Do you feel guilty after eating large amounts of food?			
		Yes		No	
High school	F	10,82%	(n=62)*	9,95%	(n=57)
	M	1,05%	(n=6)	11,52%	(n=66)
Technical school	F	6,98%	(n=40)*	12,04%	(n=69)
	M	3,32%	(n=19)	21,82%	(n=125)
Vocational school	F	2,97%	(n=17)*	5,24%	(n=30)
	M	1,75%	(n=10)	12,57%	(n=72)
Sum		26,78%	(N=154)	73,22%	(N=419)

*- statistically significant result

Problems of almost every fourth student were “overeaten”, while, as in the previous question, this kind of behavior manifested more significantly in girls (76%) and high school students (p <0.01), who generally answered positively (51% of all responses) . This result was also statistically significant.

Tab. 5 Responses to question number 4.

Type of school	Sex	Do you eat when you are worried or troubled?			
		Yes		No	
High school	F	11,34%	(n=65)*	9,42%	(n=54)
	M	1,57%	(n=9)*	10,99%	(n=63)
Technical school	F	5,58%	(n=32)*	13,44%	(n=77)
	M	3,14%	(n=18)	21,99%	(n=126)
Vocational school	F	2,27%	(n=13)*	5,93%	(n=34)
	M	1,22%	(n=7)	13,09%	(n=75)
Sum		25,12%	(N=144)	74,88%	(N=429)

*- statistically significant result

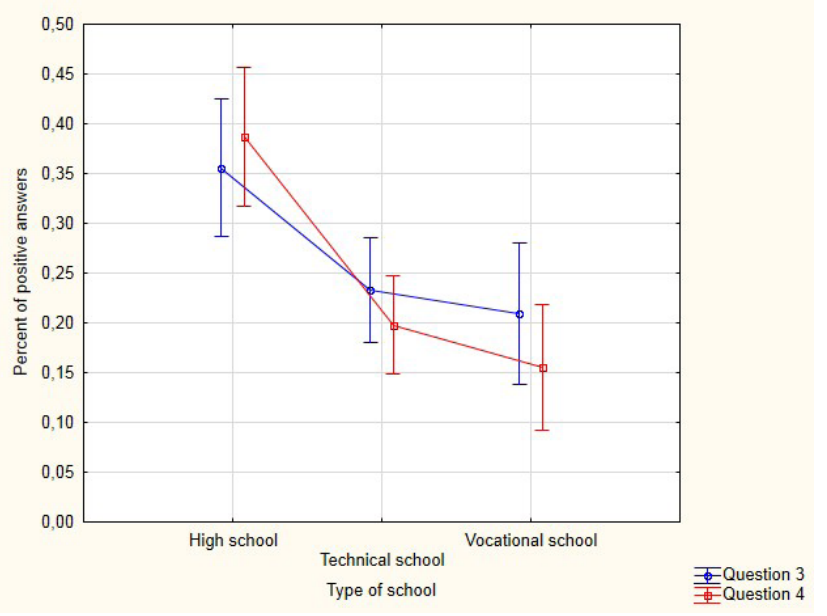


Fig. 2 Answers to question number 3 and 4 by type of school.

Laxative Tablets were used by less than 3% of all of the respondents, there was no statistically significant correlation between gender and type of school ($p > 0.05$).

Tab. 6 Responses to question number 5.

Type of school	Sex	Have you taken, especially after finished eating, laxative pills to regulate the digestive system?			
		Yes		No	
High school	F	1,04%	(n=6)	19,72%	(n=113)
	M	0,17%	(n=1)	12,39%	(n=71)
Technical school	F	0,87%	(n=5)	18,15%	(n=104)
	M	0,35%	(n=2)	24,78%	(n=142)
Vocational school	F	0,0%	(n=0)	8,20%	(n=47)
	M	0,35%	(n=2)	13,96%	(n=80)
Sum		2,78%	(N=16)	97,22%	(N=557)

Nearly 10% of the respondents control their weight more than once a day, these usually vocational school students (12%). There were three times more boys than girls controlling their weight daily, however no statistical relationship between gender and type of school was found.

Tab. 7 Responses to question number 6.

Type of school	Sex	Do you control your weight more than once a day?			
		Yes		No	
High school	F	1,04%	(n=6)	19,72%	(n=113)
	M	0,87%	(n=5)	11,69%	(n=67)
Technical school	F	2,09%	(n=12)	16,93%	(n=97)
	M	2,62%	(n=15)	22,51%	(n=129)
Vocational school	F	0,70%	(n=4)	7,50%	(n=43)
	M	2,09%	(n=12)	12,22%	(n=70)
Sum		9,41%	(N=54)	90,59%	(N=523)

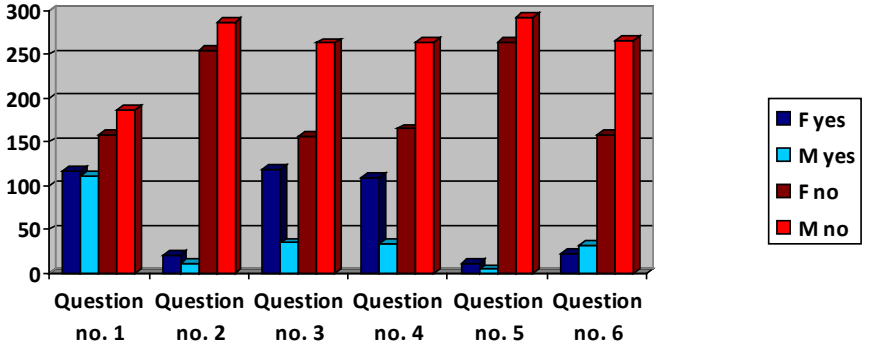


Fig. 3 Responses to all questions by sex.

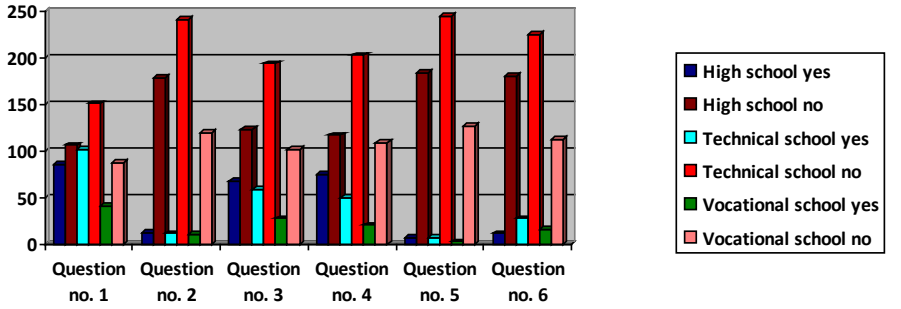


Fig. 4 The answers to all the questions by the type of school.

Discussion

The pressure of the external environment to succeed and the increased demands, put before high school students, combined with the ambition of the students themselves, cause severe stress in the case of failure at school or problems in one`s personal life (family conflicts, lack of acceptance in the group). High school students treat eating as one way of coping with stress, at the same time they feel guilty after eating a hearty meal, which in the long run, paradoxically, lead to an even greater increase in stress. It is one of the vicious circle mechanisms that could directly lead to the development of non-specific eating disorders and bulimia. This problem concerns mainly girls, representing nearly 80% of the students, who could be affected by it. The media, promoting the cult of the beautiful body and idealized success, accelerating socio-cultural changes further deepen this process. "Modern man" should not only be characterized by a great appearance but also by underlain success in his career and family life, by being able to act in any situation and not giving in to any adversities (Patel et al. 2003). The simple availability of various weight loss diets, not always of proven effectiveness, is an easy and quick way to lose weight, preserving negative eating habits on the way. The non-specific eating disorders usually begin to develop at the age of 15-19 years and are a strong predictor of developing anorexia or bulimia later in life (Frojd et al. 2013).

Forty percent of the students admitted to eating, even when not feeling hungry, mostly sweets and other snacks eaten between meals. Binge eating, characteristic for bulimia, can not be ruled out. Frequent fast-food snacking between meals, promotes the development of obesity and also leads to the formation of a negative habit replacing healthy meals with unhealthy snacks. Simultaneously, reducing snacks to only the "light" type of products result in shortages of all essential nutrients (Medar et al. 2006).

A small percentage of students used laxative tablets to provoke vomiting after meals. Although such behavior is not widely spread, it is a clear warning signal, evidential of a serious eating disorder. This is one of the most common symptom of purging type of bulimia. This is a particularly dangerous type of the disease as long induced vomiting can cause severe health side effects, starting with damage to the tooth enamel by impairment of the gastrointestinal duct (heartburn, reflux) to the rupture of the esophagus. Negative effects of bulimia affect one`s health in a variety of ways, both from the physiological and psychological side (Trujillo, 2012). Fatigue, lethargy, sudden mood swings or concentrating difficulties especially affect young people. Problems with learning caused by bulimia leads to a feeling of loss of control over their own lives, confusion and anxiety. High blood pressure, loss of bone structure, muscle weakness, or electrolyte imbalance does not result in a sudden deterioration in health, but in the long run, can cause diverse cardiovascular diseases or cancer. Dry skin, hair loss and frequent headaches are some of the more easily noticeable symptoms of bulimia (Carney et al. 2003). Parents and teachers, recognizing these alterations in young people, combined with changes in behavior, may suspect the development of eating disorders. Of the most importance, is the attitude of understanding and empathy through honest dialogue to persuade young people to share their problems. Even rare and not highly specific symptoms are valuable information to prevent development of the disease (Hardy et al. 2010).

Treatment of bulimia nervosa is an arduous, complicated and lengthy process. Diagnosis of this disease is not easy, patients are trying to hide their ailments from those around, even though there are usually quite aware of them. Avoiding situations and impulses that could lead to seizures of binge eating, cause the patient to withdraw from social life, decrease self-esteem and promotes long-term stress (Poterucha, Wine-Mieczan, 2010), which only leads to a further increase in negative symptoms (feeling of shame, depression, substance abuse) . Studies in schools in Białystok allowed to conclude that the most vulnerable group to the development of bulimia are high schools students, especially girls. High requirements they put in front of them, not coming along with expected achievements, indirectly force even more work on themselves. Through the dissemination of stereotype, according to which eating disorders are not viewed as a real disease, the society treats people suffering from anorexia or bulimia as they may simply "pull oneself together" to get rid of their ailments without any help from the outside (Kelly et al. 2011). Identification of the problem in this way only enhances the sense of shame and discourage young people from seeking professional help. Genetic factors may also affect the development of bulimia, however, their effect is not fully acknowledged and requires further investigation. The treatment process, in addition to a obligatory physician and psychologist participation, must involve all of the immediate family members (Crouter et al. 2006). Regular psychotherapy, in conjunction with

pharmacological agents, has positive results. Unfortunately, there are also frequent cases of remission, even after many years. The effective involvement of parents in the treatment process has an especially positive effects, control of meals and change in the current eating habits lead to the elimination of seizures of binge eating. Affirmation in accepting the teenager increases their motivation, reduces feelings of shame and stress (Fitzpatrick, Lock, 2009).

One in ten students weighs themselves more than once a day, it is worth pointing out that there are several times more boys in this group than girls. This surprising result may reflect not so much a desire to confirm the speed of weight loss as it`s increase. Development of the gyms in recent years and trends promoting athletic silhouette encourage young boys to intense weight training. Increasing muscle mass and improve one`s condition is a source of pride, provided that the exercise will be conducted under the guidance of an experienced instructor (Faigenbaum, Myer, 2010).

Conclusions

1. High school students, especially girls, are mainly exposed to the development of bulimia nervosa in the future.
2. One in four surveyed students from all types of schools compensated feelings of stress by eating and 6% of students provoked vomiting after a hearty meal, which could lead to the development of purging type of bulimia.
3. Teachers and parents should pay more attention to the symptoms that may indicate the development of bulimia nervosa.

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Anna Olszewska, Katarzyna Skórzyńska-Dziduszko, Monika Prendecka, Krystyna Lupa-Zatwarnicka

Human Physiology Department, Medical University of Lublin
Katedra i Zakład Fizjologii Człowieka, Uniwersytet Medyczny w Lublinie

Obesity – a rapidly incoming public health problem
Otyłość – gwałtownie narastający problem społeczny

Summary
Obesity is now widely accepted as a multifactorial, chronic disorder, with an alarming increase in the worldwide prevalence in both adults and children. According to available data in 2013 from the Global Database on Body Mass Index launched on the WHO website, in 2008 more than 1.4 billion adults, 20 and older, were overweight. Of these overweight adults, over 200 million men and nearly 300 million women were obese. Overall, more than 10% of the world's adult population was obese. In 2011, more than 40 million children under the age of five were overweight. More than 30 million overweight children are living in developing countries and 10 million in developed countries. The increasing overweight and/or obese population is disturbing because of the well-established major health risks and chronic conditions associated with obesity, such as hypertension, hyperlipidemia, type II diabetes, coronary heart disease, stroke, obstructive sleep apnea, asthma, orthopedic disorders, and social and mental health problems.
The aims of the study were to summarize the current knowledge about the trends in obesity and to investigate the prevalence of overweight and obesity of patients in Cisna commune (Bieszczady).
According to our results, the prevalence of overweight and obesity in group of females was 36 and 23%, respectively. The prevalence of overweight and obesity in group of males was 37 and 31%, respectively.
In our investigations, the age of patients correlates positively with BMI in group of non-smoking males, non-smoking females and smoking females. In group of smoking males the correlation is also positive but statistically non significant.
In the current study, there is a significant difference between BMIs values in group of males and females. The prevalence of overweight and obesity is higher in males than females.

Key words: obesity, overweight, BMI, mortality

Streszczenie
Otyłość jest obecnie powszechnie uznawana za wieloczynnikową, przewlekłą chorobę, której występowanie wzrasta w alarmującym tempie, zarówno w przypadku osób dorosłych, jak i dzieci. Na podstawie danych dostępnych w 2013 roku na stronie WHO (the Global Database on Body Mass Index), w 2008 roku 1,4 miliarda dorosłych, powyżej 20 roku życia, posiadało nadwagę. Spośród tych osób, ponad 200 milionów mężczyzn i prawie 300 milionów kobiet to ludzie otyli. W 2011 roku, ponad 40 milionów dzieci poniżej piątego roku życia posiadało nadwagę. Ponad 30 milionów dzieci z nadwagą mieszka w krajach rozwijających się, a 10 milionów w krajach rozwiniętych. Narastanie populacji osób z nadwagą lub/i otyłych jest niepokojąca ze względu na występowanie poważnych zagrożeń

zdrowotnych i przewlekłych dolegliwości związanych z otyłością, takich jak nadciśnienie, hiperlipidemia, cukrzyca typu 2, choroba niedokrwienna serca, udar, obturacyjny bezdech senny, astma, schorzenia ortopedyczne, oraz społeczny i psychiczne problemy zdrowotne.
Celem badania było zebranie bieżącej wiedzy na temat tendencji zachorowalności na otyłość i określenie częstości występowania nadwagi i otyłości wśród pacjentów gminy Cisna (Bieszczady).
Na podstawie naszych wyników, stwierdzono występowanie nadwagi u 36% kobiet i 37% mężczyzn. Otyłość stwierdzono u 23% kobiet i 31% mężczyzn.
W naszych badaniach, wiek pacjentów wykazywał dodatnią, istotną statystycznie korelację z BMI w grupie niepalących mężczyzn, niepalących i palących kobiet. W grupie palących mężczyzn korelacja była także dodatnia, ale nie istotna statystycznie.
W obecnym badaniu wykazano istotną statystycznie różnicę pomiędzy wartościami BMI w grupach mężczyzn i kobiet. Częstość występowania nadwagi i otyłości jest wyższa w przypadku mężczyzn.

Słowa kluczowe: otyłość, nadwaga, BMI, śmiertelność

Introduction

Obesity is now widely accepted as a multifactorial, chronic disorder, with an alarming increase in the worldwide prevalence in both adults and children (Elangram, 2009). According to the World Health Organization (WHO), overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health (www.who.int/mediacentre/en/). For practical purposes and among both children and adults, BMI (weight (kg)/height $(m)^2$) is now widely used to assess obesity (Wang, Beydoun, 2007). The WHO currently defines overweight and obesity by using BMI cutpoints of 25 and 30 kg/m^2, respectively (www.who.int/mediacentre/en/). These cutpoints were recommended by National Heart, Lung, and Blood Institute's and North American Association for the Study of Obesity expert Committee (Wang, Beydoun, 2007). According to Bray (1992), good weight is defined as BMI between 18.5 and 25 kg/m^2 for men and women between 19 and 34 years old and 21-27 kg/m^2 for those over 35 years old. Overweight is a BMI of 25 or 27-30 kg/m^2 and is associated with low risk. A BMI > 30 kg/m^2 is almost always synonymous with obesity, except in body builders and other athletes.

The National Heart, Lung, and Blood Institute/North American Association for the Study of Obese committee also recommends using waist circumference cutpoints of 40 inches (102 cm) for men and 35 inches (88 cm) for woman to define "central obesity". Increasingly, research shows that waist circumference or central obesity is a better predictor of obesity-related diseases than overall obesity assessed by using BMI (Wang, Beydoun, 2007).

According to available data in 2013 from the Global Database on Body Mass Index launched on the WHO website, in 2008 more than 1.4 billion adults, 20 and older, were overweight. Of these overweight adults, over 200 million men and nearly 300 million women were obese. Overall, more than 10% of the world's adult population was obese. In 2011, more than 40 million children under the age of five were overweight. More than 30 million overweight children are living in developing countries and 10 million in developed countries (www.who.int/mediacentre/en/).

Currently, more than two thirds of US adults and approximately one third of US children and adolescents are overweight or obese. The prevalence of obesity and overweight among US children and adults has more than doubled since the 1970s, and the rate continues to rise. Obesity has become the second leading preventable cause of disease and death in the United States second only to tobacco use (Wang, Beydoun, 2007).

The increasing overweight and/or obese population is disturbing because of the well-established major health risks and chronic conditions associated with obesity, such as hypertension, hyperlipidemia, type II diabetes, coronary heart disease, stroke, obstructive sleep apnea, asthma, orthopedic disorders, and social and mental health problems. The overweight and/or obese contributes to the increase in mortality and morbidity of multiple cancer types: postmenopausal breast cancer and cancers of the colon and/or the rectum, endometrium, kidney, esophagus but not definitely for prostate, gallbladder, ovary, and pancreas (Elangbam, 2009; Low et al. 2009; Li et al. 2006).

Manson et co-workers (1995) examined association between BMI and both overall mortality and mortality from specific causes in a cohort of 115,195 U.S. women were 30 to 55 years of age and free of known cardiovascular disease and cancer in 1976. During 16 years of follow-up, they documented 4726 deaths, of which 881 were from cardiovascular disease, 2586 from cancer, and 1259 from other causes. The increased relative risk of death was 1.3 in those with a BMI 25.0-26.9, 1.6 in those with BMI 27.0-28.9 and was doubled (2.1) for those with a BMI of 29.0-31.0. Among woman with a BMI above 32 who had never smoked, the risk of death from cardiovascular disease was 4.1 and from cancer was 2.1. In terms of attributable risk, some 53% of all deaths in that study among women with a BMI of 29 or greater could be attributed directly to their obesity.

Most non insulin dependent diabetic patients are overweight, about 75% in most studies (Jung, 1997). The excessive free fatty acid released by adipose tissue leads to decrease in insulin sensitivity of muscle, fat and liver, which is followed by raised glucose levels, insulin resistance and type 2 diabetes (Qin et al. 2010).

Until recently it was thought that only severe degrees of excess weight increased the risk of coronary heart disease but some evidence shows a clear association with modest weight gain (Jung, 1997). Willet and co-workers (1995) found that the risk of coronary heart disease was increased 2-fold in women of BMI 25-28.9 and 3.6 for BMI of 29 or more.

Blood pressure is increased by 6 mm systolic and 4 mm diastolic for a 10% gain in body fat with those genetically more susceptible showing the greater effect (Jung, 1997).

The most characteristic lipid disorder in obesity is elevated total cholesterol and triglicerides, high LDL-cholesterol and low HDL-cholesterol. Dattilo and Kris Etherton (1992) summarized, via the review method of meta-analysis, the results of studies that examined the effect of weight reduction by dieting on total cholesterol, triglicerides, LDL-cholesterol and HDL-cholesterol. The results indicated that for every 1 kg of weight lost, there is a corresponding reduction by about 1% in total cholesterol and LDL, a rise by 1% in HDL and reduction by 3% of cholesterol.

The aim of the study

The aims of the study were to summarize the current knowledge about the trends in obesity and to investigate the prevalence of overweight and obesity of patients in Cisna commune (Bieszczady).

Materials and methods

The study was performed during a research camp arranged by the Medical University of Lublin in Cisna commune (Bieszczady) in July 2012 on 216 females (146 non-smoking and 70 smoking) and 120 males (69 non-smoking and 51 smoking).

The entire characteristic of the examined group is presented in the Table 1.

Tab. 1. The characteristic of the examined group of patients (n=336)

Patients	Parameter	Mean	SD*	Maximum	Minimum	Median
Non-smoking females	AGE (years)	48.22	17.72	82.0	12.0	50.0
	BMI** (kg/m^2)	26.33	5.98	45.6	15.6	25.4
	BODY WEIGHT (kg)	68.88	14.35	115.0	40.0	68.0
	FGC*** (mg/dL)	98.19	27.36	328.6	72.5	92.2
Smoking females	AGE (years)	48.53	11.73	76.0	23.0	51.0
	BMI** (kg/m^2)	26.26	5.37	42.7	16.3	25.8
	BODY WEIGHT (kg)	70.09	13.28	100.0	48.0	67.0
	FGC*** (mg/dL)	92.93	12.04	151.2	72.0	91.3
Non-smoking males	AGE (years)	52.52	17.85	90.0	18.0	52.0
	BMI** (kg/m^2)	28.04	4.68	41.8	19.1	27.7
	BODY WEIGHT (kg)	85.37	16.24	148.0	62.0	83.0
	FGC*** (mg/dL)	101.92	20.65	171.2	70.7	95.8
Smoking males	AGE (years)	51.56	13.40	79.0	29.0	53.5
	BMI** (kg/m^2)	29.15	5.03	44.1	19.9	28.1
	BODY WEIGHT (kg)	90.54	15.98	135.0	62.0	90.0
	FGC*** (mg/dL)	105.71	25.06	227.4	78.2	98.1

*Standard deviation ** Body mass index *** Fasting glucose concentration

The glucose concentrations were measured with the use of standard enzymatic methods. Body Mass Index (BMI) was calculated using the formula:
BMI = body mass [kg] / height [m^2]

The results were analyzed statistically. The values of analyzed parameters were characterized by the means of arithmetical mean (M), standard deviation (SD), the minimal and maximal values, and median. W Shapiro-Wilk test was used to assess the distribution conformity of examined parameters with a normal distribution. To compare the two groups according to the type of distribution and variance homogenity Mann-Whitney test was used. To assess if there was a correlation between two parameters a correlation coefficient significance Spearman test was used. An accepted conclusion error was 5% and connected with it statistical significance was $p < 0.05$ which would reveal the existence of statistically significant differences of correlations. The statistical analyses were performed using computer software STATISTICA v.8.0 (StatSoft, Poland).

Results

The cohort was grouped into approximate quartiles according to age (18-36, 36-53, 54-71, 72+) and BMI (underweight BMI <18.5 kg/m^2, normal weight BMI 18.5-24.9 kg/m^2, overweight BMI 25-29.9 kg/m^2, obesity BMI ≥30.0 kg/m^2). Table 2 shows the prevalence of overweight and obesity in the examined group of patients within age groups.

Tab. 2. The prevalence of overweight and obesity in the examined group of patients within age groups (n=336)

	males (n=120)			females (n=216)		
age group	n	% overweight*	% obese**	n	% overweight*	% obese**
18-35	27	37	7	51	16	6
36-53	39	31	31	73	32	22
54-71	38	42	42	76	55	29
72+	16	44	44	16	31	56

*overweight BMI 25-29.9 kg/m^2 ** obesity BMI ≥30.0 kg/m^2

The lowest percentages of obese people (for males, 7; for females, 6) were obtained for patients in the youngest group (18-35 years old). The highest percentages of obese people (for males, 44; for females, 56) were calculated for the patients aged 72+ (the group of the oldest patients). See Table 2.

According to our results, the prevalence of overweight and obesity in group of females was 36 and 23%, respectively. The prevalence of overweight and obesity in group of males was 37 and 31%, respectively (data not shown). The prevalence of underweight was found only in the youngest group of females and it was 3% (data not shown).

In our investigations, the age of patients correlates positively with BMI in group of non-smoking males (see the Figure 1), non-smoking females (see the Figure 3) and smoking females (see the Figure 4). In group of smoking males the correlation is also positive but statistically non significant (see the Figure 2).

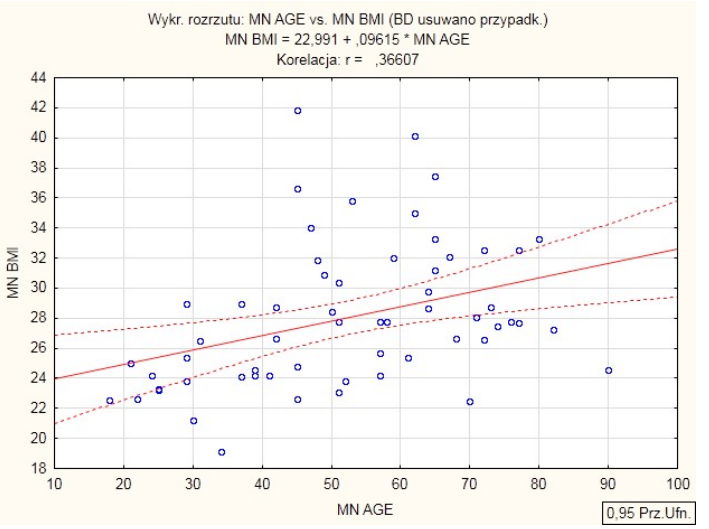


Fig. 1. The age of non-smoking males (MN AGE) correlated positively with BMI (R=0.36; p<0.05)

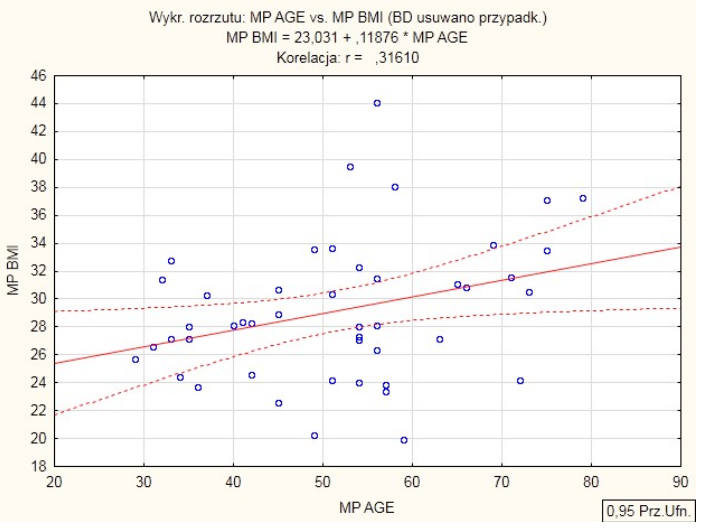


Fig. 2. The age of males (MP AGE) correlated positively with BMI (R=0.32; p>0.05)

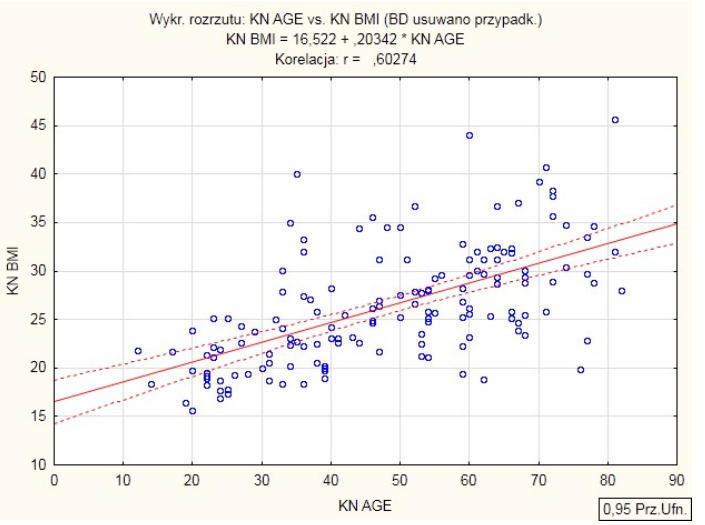


Fig. 3. The age of non-smoking females (KN AGE) correlated positively with BMI (R=0.60; p<0.05)

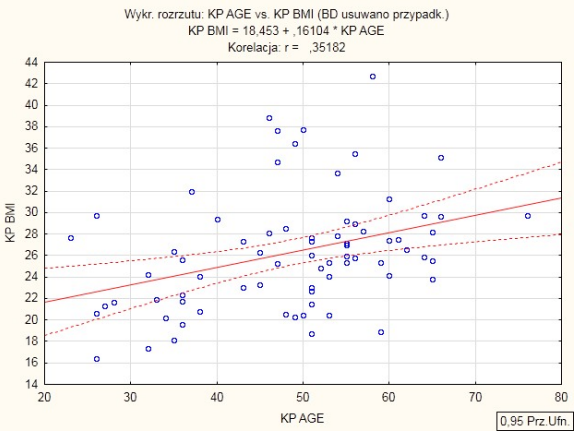


Fig. 4. The age of smoking females (KP AGE) correlated positively with BMI (R=0.36; p<0.05)

In the current study, there is a significant difference between BMIs values in group of males and females (see the Figure 5). The prevalence of overweight and obesity is higher in males than females.

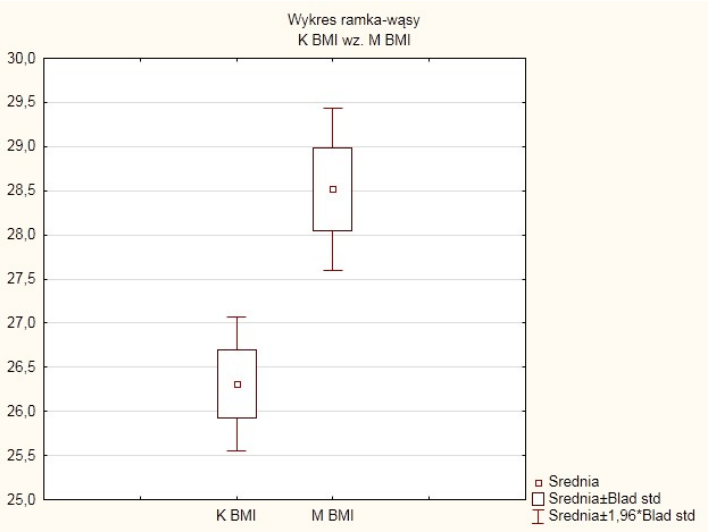


Fig. 5. A significant difference between BMI values between females (K BMI) and males (M BMI)

Discussion

The literature review of Low and co-workers (2009) shows the prevalence of adults being overweight and obese in developed and developing countries. The prevalence of obesity for males and females ranged from 2.4% in the Republic of Korea to 32.2% in the USA among the developed countries, and from 2.4% in Indonesia to 35.6% in Saudi Arabia among developing countries (no obvious trends were noted). There were no differences between males and females for adult obesity among the developed countries. However, it was noted that the prevalence of obesity was generally higher among females compared to males in the developing countries. According to our results, the prevalence of overweight and obesity in group of females was 36 and 23%, respectively. The prevalence of overweight and obesity in group of males was 37 and 31%, respectively.

Low and co-workers (2009) show the prevalence of obesity by age groups. There was an increasing trend with age. The peak prevalence was reached at around 50 to 60 years old in developed countries and at around 40 to 50 years old in most developing countries. It was observed that most of the rural areas tented to have a lower prevalence of obesity than the urban areas. A gender difference was also noted with females having a higher prevalence of obesity in both rural and urban areas. In our investigations, the age of patients correlates positively with BMI in group of non-smoking males, non-smoking females and smoking females. In group of smoking males the correlation is also positive but statistically non significant. Smoking appreciably elevates mortality (Jung, 1997). Because the presence of two conditions (obesity and cigarette smoking) together probably carries an increased risk to health, statistics on how these conditions overlap could help in the development of an effective policy for prevention and treatment (Sturn, 2002; Healton et al. 2006). Smokers tend to gain weight when they quit smoking. The

stronger the dependence, the greater the risk of relapse. With a normal BMI, smokers tend to have a greater risk of abdominal fat accumulation compared with nonsmokers. The mechanism is not well elucidated but because smoking has an antiestrogenic effect, it could be related to a hormonal imbalance that could lead to central obesity (Cnop et al. 2003, Willi et al. 2007).

In Europe, the prevalence of obesity in men ranged from 4.0% to 23.3% and in women from 6.5% to 36.5%. The highest prevalences were found in regions of Italy and Spain in both sexes, as well as in Portugal, Poland, the Czech Republic, Romania, and Albania in women. Eastern Europe and the Mediterranean countries showed higher prevalences of obesity than countries in Western and Northern Europe (Berghöfer et al. 2008).

In the UK rates of obese have increased by 30% in woman, 40% in man, and 50% in children within the last decate resulting in 23% of adults being obese in 2007 and prognosis of 50% for 2050 (Zeyda, Stulnig, 2009).

In the current study, there is a significant difference between BMIs values in group of males and females. The prevalence is higher in males than females. This finding is consistent with many studies which come from different countries. In the systematic review by Wang and Beydoun (2007), 66.3% of adults aged 20 years and older were overweight or obese and 34.42% were obese between 2003 and 2004. The prevalence was higher in males than females. The obesity prevalence doubled from 15.1% in 1976 and 1980 to 30.2% in 1999 and 2000 among adults US. The Chinese obesity standard shows an increase from 20.0 to 29.9% between 1992 and 2002. The annual increase rate was highest in men aged 18-44 years and women aged 45-59 years (approximately 1.6 and 1.0% points, respectively). In general, male subjects, urban residents, and high-income groups had a greater increase (Wang et al. 2007).

The lowest percentages of obese people (for males, 7; for females, 6) were obtained for patients in the youngest group (18-35 years old). The highest percentages of obese people (for males, 44; for females, 56) were calculated for the patients aged 72+ (the group of the oldest patients). Our finding does not support the finding of Bender and co-workers (1999) which have investigated the associations among body weight, age, and mortality in 6193 German obese patients with mean BMI of 36.6 and mean age of 40.4. The excess mortality associated with obesity declined with age. Standardized mortality rations increased with BMI but, within each BMI group, decreased with age.

According to a Kumanyika and co-workers report (2002), obesity is an extremely costly problem. Obesity accounts for 2-6% of total health care costs in several developed countries. The true costs are undoubtedly much greater. In the USA in 1995, the direct healthcare costs of obesity were similar to those for type 2 diabetes, 1.25 times greater than those of heart disease and 2.7 times greater than those of hypertension.

Conclusions

Obesity is a major public health problem with extensive human suffering and also a massive financial cost to society. According to our results, the prevalence of overweight and obesity in group of females was 36 and 23%, respectively. The prevalence of overweight and obesity in group of males was 37 and 31%, respectively. The lowest percentages of obese people (for males, 7; for females, 6) were obtained for patients

in the youngest group (18-35 years old). The highest percentages of obese people (for males, 44; for females, 56) were calculated for the patients aged 72+ (the group of the oldest patients), so the age of patients correlates positively with BMI in group all groups of patients. In the current study, there is a significant difference between BMIs values in group of males and females. The prevalence is higher in males than females. These data provide evidence that there is a strong requirement for creating new, national strategies and programmes that can address the challenges of growing obesity and chronic disease epidemic.

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Aneta Stanisławek[1], Agnieszka Żuk [1], Dariusz Stanisławek [2], Diana Piaszczyk[1]

[1]Health Institute of Jan Paweł II State School of Higher Education in Biała Podlaska
[1]Instytut Zdrowia Państwowej Szkoły Wyższej im. Papieża Jana Pawła II w Białej Podlaskiej
[2] Department of Mechanical Engineering of Kazimierz Pułaski University of Technology and Humanities in Radom.
[2] Wydział Mechaniczny. Uniwersytet Technologiczno - Humanistyczny im. Kazimierza Pułaskiego w Radomiu.

Assessment of Schoolchildren's Eating Habits
Ocena nawyków żywieniowych młodzieży szkolnej

Summary
Proper nutrition should be a very important part of the educational activities of nurses. Creating a health promoting school programs one should focus on the behaviour of children which is essential to maintain or improve their health.
Among the most common nutritional deficiencies in school-age children these should be mentioned:
• irregular meals;
• not eating breakfast before school and not heating lunch at school;
• improper content of food groups in planning each of the meals.
These and other deficiencies in one's diet may have a negative impact on the development and health of children and adolescents. Lack of proper diet can lead to weight gain and obesity or anorexia.

Key words: heating habits, nutrition, diet dependant diseases, obesity

Streszczenie
Prawidłowe żywienie powinno stanowić bardzo istotny element edukacyjnej działalności pielęgniarki. Tworząc szkolne programy prozdrowotne należy koncentrować się na tych zachowaniach dzieci, które mają podstawowe znaczenie dla utrzymania lub poprawy ich stanu zdrowia.
Wśród najczęściej występujących nieprawidłowości w zakresie żywienia dzieci w wieku szkolnym wymienić należy:
• nieregularność spożywania posiłków;
• niespożywanie pierwszego śniadania przed wyjściem do szkoły oraz drugiego w szkole;
• nieprawidłową zawartość grup produktów spożywczych w planowaniu poszczególnych posiłków.
Te oraz inne nieprawidłowości w sposobie odżywiania mogą mieć niekorzystny wpływ na rozwój oraz zdrowie dzieci i młodzieży. Brak odpowiedniej diety może prowadzić do nadwagi i otyłości lub anoreksji.

Słowa kluczowe: nawyki żywieniowe, żywienie, schorzenia dietozależne, otyłość

Introduction

The food in human life plays a very important role, affecting the development, health and physical fitness. Getting food processing and consuming it have always been one of the most important human activities.

In the early beginning of its existence Homo sapiens relied on instinct, they gathered and ate mostly fruits, leaves and roots. They ate small quantities of insects, molluscs and eggs of birds and reptiles. About three million years ago Homo sapiens began to lead a hunting life, enriching their food in the meat of wild animals. Another skill acquired by humanoids was kindling a fire, it allowed them to diversify their food. Another skill that has been mastered is the production of crops and livestock, the beginning of which took place in western Asia and Egypt 10 000 years ago (the Mesolithic period), and in Europe about 5000 years ago (in the Neolithic) (Gawęcki, 2008).

The result was a gradual development of agriculture dealing with more and more areas under cultivation, which made it easier to better meet the nutritional requirements. In varying food products manufacturing, dating back to the Neolithic times, has played an important role, where drying, salting and smoking were involved. In 1810 Appert discovered the opportunity to protect food from spoilage by heating it in a closed vessel, which marked the beginning of storage and thus the possibility of utilization at a later time (Higman, 2012).

In the early thirties of the last century, food technology identified itself as an independent branch of science, contributing to the development of all branches of the processing of raw materials (Gawęcki, 2005).

Definition of nutrition

Human nutrition can be defined as providing the human body with appropriate foods to ensure the maintenance of the basic processes of life. These foods can be taken in their natural state or in the form of a variety of processed foods and beverages. Rational human nutrition is tailored to the age, sex, energy intake, type of work, health, the climate in which they live and other factors (Jeżewska, 2011).

Due to the role in the body, there are three main groups of nutrients such as:

- nutrients: mostly protein and minerals,
- energy components: mostly carbohydrates and fats,
- regulating ingredients: vitamins, some minerals, fiber.

Human nutrition is a rapidly growing field of knowledge that is interdisciplinary and belonging in part to agricultural sciences, and in part to medical science (Jarosz, 2012) Social rank in this field of science is high, because to a large extent it determines the development of civilization and decides on health and well-being of present and future generations (Kunachowicz et al. 2000). This applies to rich societies in which there is free access to food, and advances in the technology of its manufacturing and advertising pressures threaten with hiperalimentation and so called lifestyle diseases that reach a rich population as well as people living in poverty, who need to be ensured of food security relative to protect them from hunger and diseases caused by malnutrition (Gawęcki et al. 2006).

The role of nutrition in the development of children

In certain periods of life consequences of poor nutrition are more noticeable and may be irreversible, because in certain aspects of a child's life, the demand for specific nutrients rises. This is due to the intensity of building new tissues and cells, or decreased digestive efficiency of the ingredients used **in food (Krawczyński, 2008).**

In the first year of life the baby is growing and developing the fastest. Gradually its ability to digest increases and it can absorb more, newer and more complex foods. The main food product over this period of child's life is mother's milk containing the necessary building and immunological nutrients, which cannot be replaced by any other food products.

From the first to the third year of life there is rapid growth and development of the child's body resulting in a need to provide a sufficient amount of nutrients, especially protein and calcium. They should be delivered in five regular meals per day preferably in the form of milk and dairy products. It is also advised to provide eggs, lean meats, poultry, fish, vegetables and fruit (Felińczak, 2011).

Between the fourth and sixth years of age the rate of growth is slowing down, but the body's energy needs are increased as the child becomes more mobile which implies increased demand for energy. The gastrointestinal tract at this age is now fully operational and ready to start learning healthy eating habits.

School age is a time of physical and mental development of the child. Younger children, who are still at school have to spend more time in a seated position, have reduced energy needs and often have no appetite. This situation forces the parents to pay attention to the attractiveness of food and eating the children's lunch. Because of the creation of permanent teeth it is important to consume adequate amounts of calcium, magnesium, fluorine, phosphorus, which are contained in green vegetables, marine fish, dairy products. It is also import ant to administer foods that need to be intensively bitten.

At the age of 10-15 years there is an acceleration of the physical and mental health, which is accompanied by an increase of physical activity. There should then be provided a greater amount of cheese, meat, vegetables, fruits, fats, bread, cereal, pasta. This is the time in which the differences in development between girls and boys begin to mark, which reflects the nutritional needs. And so the girl should eat more rich and varied meals (the body needs all the nutrients in increased amounts - protein, calcium, iron). The menu should be dominated by lean meats, fish, cheese, cereal with whole grains, fruits, vegetables, especially green and leafy ones.

In girls, over sixteen year old demand for energy and nutrients falls down while in boys the demand for energy tends to increase, as between sixteen and twenty years of age they reach sexual maturity. This is the period in which bone and muscle tissue ultimately shape so that the boys take on physical fitness. It should be pointed out at this stage to prevent obesity through sports and performing various physical activities (Ogden, 2011). The diet should be varied and include all groups especially dairy products, meat, vegetables, fruits (Gawęcki, 2008).

Material and the research methods

The purpose of this paper is to present the role of nurses in promoting proper eating habits among school-aged children.

The specific objectives are:

- Determination of the regularity of meals for school children.
- Presentation of the quality and quantity of food intake
- Determination of the physical activity of children examined.

A survey was conducted among students in grade V of Jan Kochanowski Primary School No. 5 in Biala Podlaska. The study involved a group of 96 students - 49 girls and 47 boys aged 11-12.

Discussion of results

The survey conducted among the students shows that obesity occurs in 9.3% of the students, including 55.5% of girls and 44.4% boys. 14.5% of the students are overweight - 57.1% girls and 42.8% boys. However, underweight was declared by 27% of students in the study - 50% girls and 50% boys, what is shown in the following figure:

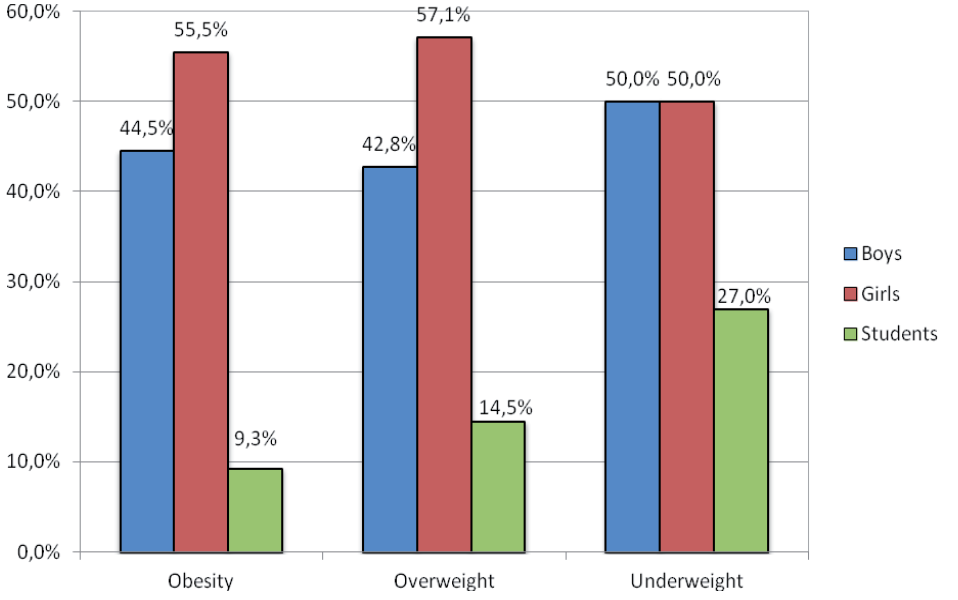


Fig. 1. The presence of excess body weight among the surveyed students (overweight and obesity) and underweight by sex.

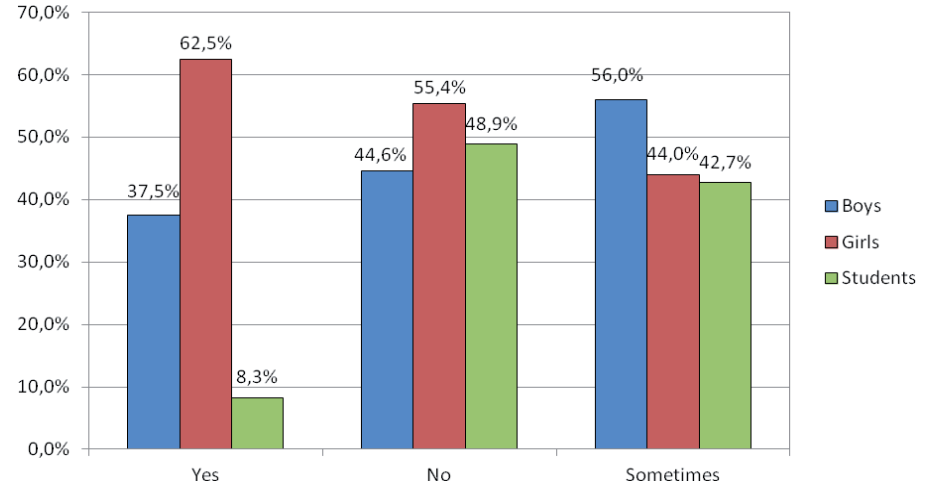


Fig. 2. Children who do not eat breakfast before going to school by gender.

These studies indicate that 8.3% of children surveyed consumed breakfast before going to school, including 37.5% boys and 62.5% girls, while 48.9% of respondents do not eat breakfast - 44.6% boys and 55.4% girls. On the other hand 42.7% of children sometimes eat breakfast - 56% of boys and 44% girls.

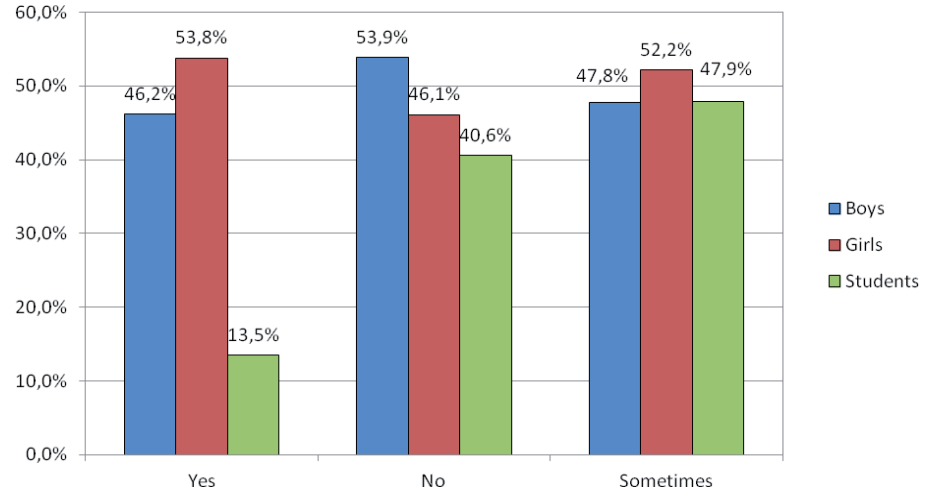


Fig. 3. Students who take a snack to school by gender.

The above study shows that 13.5% of school children eat lunch - 46.2% boys and 53.8% girls. Lunch is eaten by 40.6% of the respondents - 53.9% boys and 46.1% girls, while lunch is sometimes consumed by 47.9% of the students, including 47.8% boys and 52.2% girls .

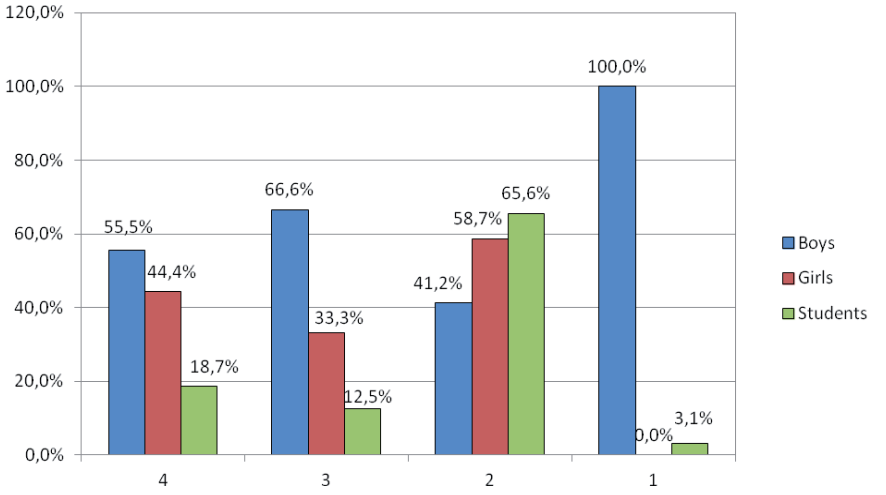


Fig. 4. Number of meals consumed by children during the day by sex.

The study shows that 18.7% of students eat four meals a day including 44.4% of girls and 55.5% boys. Three meals a day are eaten by 12.5% of the children - 66.6% boys and 33.3% girls. Two meals a day are eaten by 65.6% of which 58.7% are girls and 41.2% boys. One meal a day is eaten by 3.1% of the students, including 100% of boys.

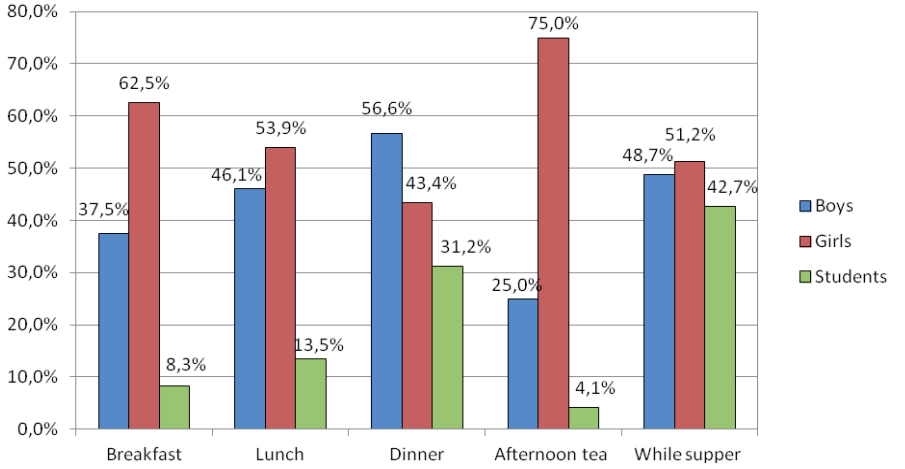


Fig. 5. Type of food consumed by children in the day by gender.

The chart above shows that breakfast is consumed by 8.3% of the students - 37.5% of boys and 62.5% girls. Lunch is eaten by 13.5% of the students - 46.1% of boys and 53.9% girls. Dinner is consumed by 31.2% of the children - 56.6% of boys and 43.4% girls. Afternoon tea is consumed by 4.1% of respondents - 25% of boys and 75% girls while supper is consumed by 42.7% of children - 48.7% of boys and 51.2% girls.

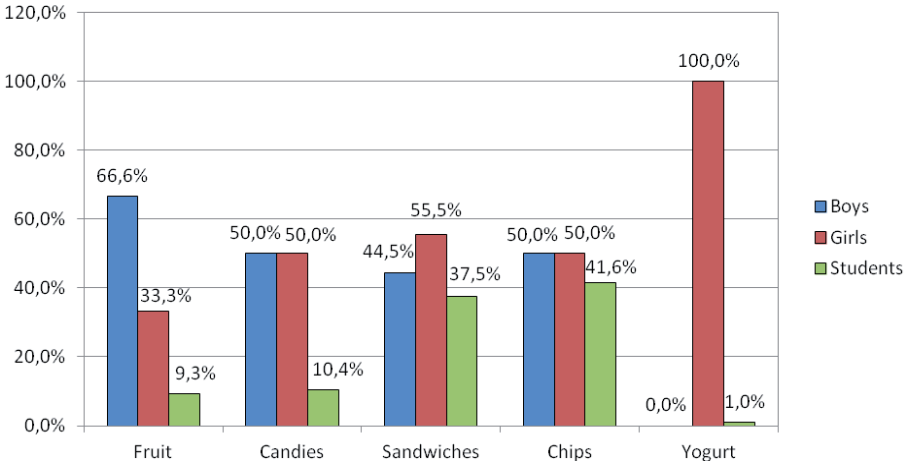


Fig. 6. Snacks between meals, school-age children by gender.

This study suggests that 9.3% of students eat fruit during the day including 66.6% of boys and 33.3% girls. Candies are eaten by 10.4% of the respondents in the day, including 50% of girls and 50% boys. Sandwiches are taken to school by 37.5% of the children, including 44.5% of boys and 55.5% girls. Potato chips are eaten up by 41.6% of the students during the day, including 50% of girls and 50% boys. However, only 1% of students eat yogurt during the day and they are girls.

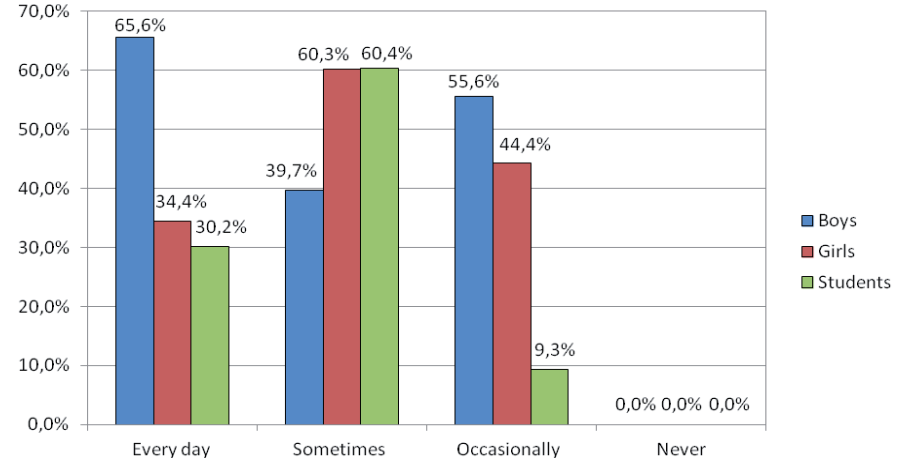


Fig. 7. Number of fruit eaten by the children of school age by sex.

The research shows that 30.2% of students eat fruit every day, including 65.6% of boys and 34.4% girls. However, fruits are eaten sometimes by 60.4% of respondents, including 39.7% of boys and 60.3% girls. Occasionally fruit is eaten by only 9.3% of children - 55.6% of boys and 44.4% girls.

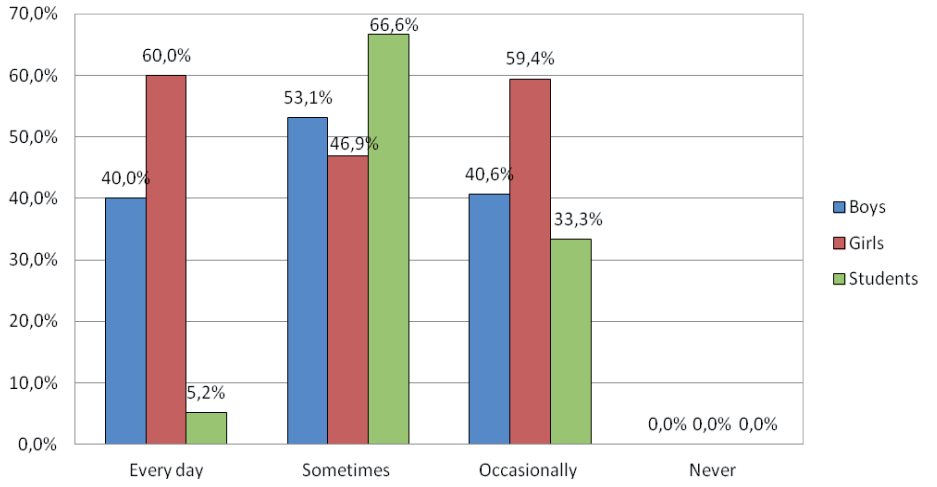


Fig. 8. Children who eat raw vegetables by sex.

These studies tell us that every day raw vegetables are consumed by 5.2% of the students - 60% of girls and 40% boys. 66.6% of students reach for vegetables sometimes, including 53.1% of boys and 46.9% girls. Occasionally, raw vegetables are consumed by 33.3% of the students - 59.4% of girls and 40.6% boys.

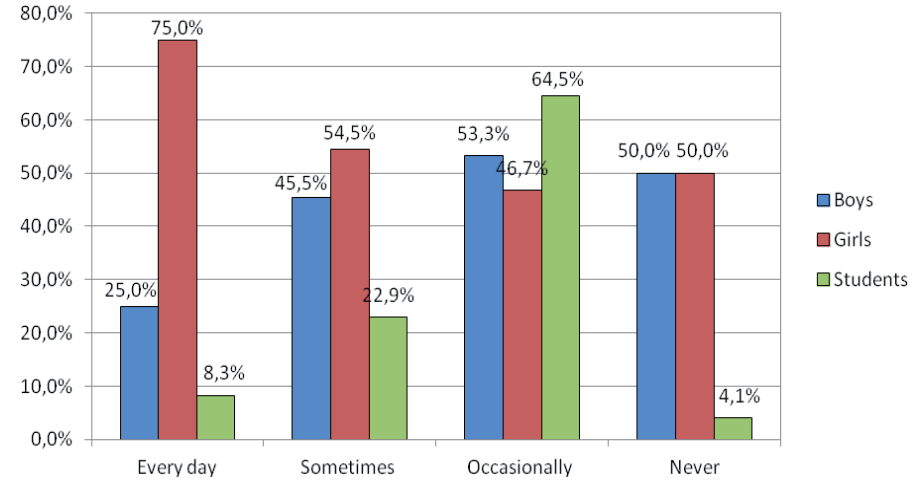


Fig. 9. Students who eat wholemeal bread by gender.

The study shows that only 8.3% of students eat whole meal bread every day, including 75% of girls and only 25% of boys whole wheat bread is sometimes eaten by 22.9% of children - 54.5% of girls and 45.4% boys. Occasionally whole meal bread is consumed by 64.5% of the students, including 53.2% of girls and 46.7% boys. However, 4.1% of respondents never eat whole meal bread, including 50% of girls and 50% boys.

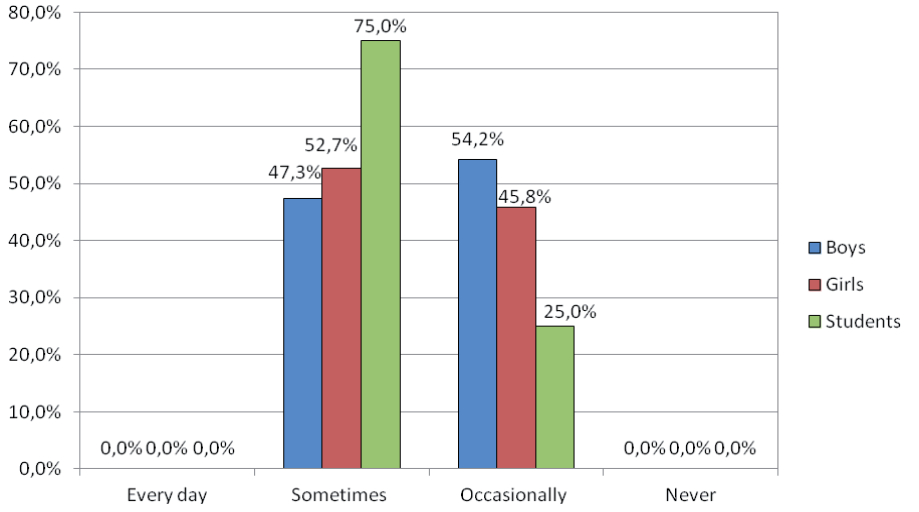


Fig. 10. Students who eat fish by sex.

Research shows that fish is eaten daily by 0% of the students. Sometimes fish is eaten by 75% of the respondents - 52.7% of girls and 47.3% boys. Occasionally, fish is eaten by 25% of children - 45.8% of girls and 54.2% boys.

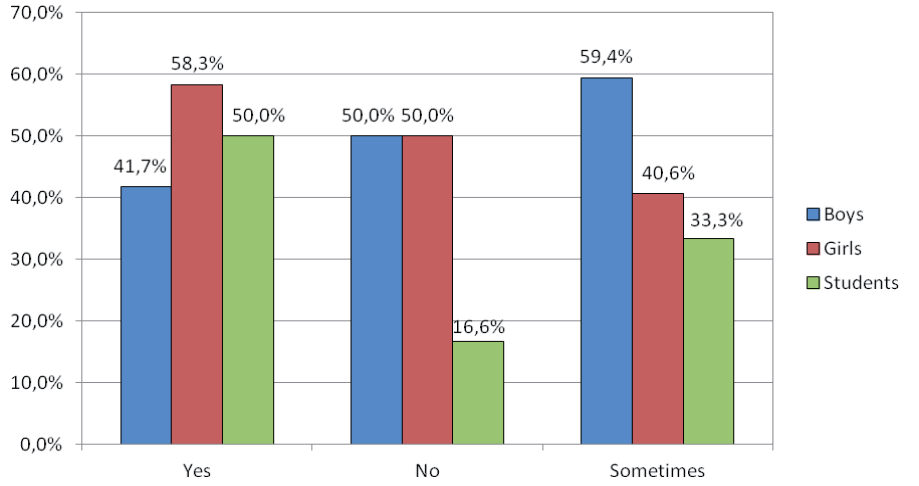


Fig. 11. Dairy intake by children of school age by sex.

The research shows that 50% of the students consume dairy products, including 41.7% of boys and 58.3% girls. Dairy products are not eaten by 16.6%, including 50% of boys and 50% girls. However, dairy products are eaten by 33.3% of the children - 59.4% of boys and 40.6% girls.

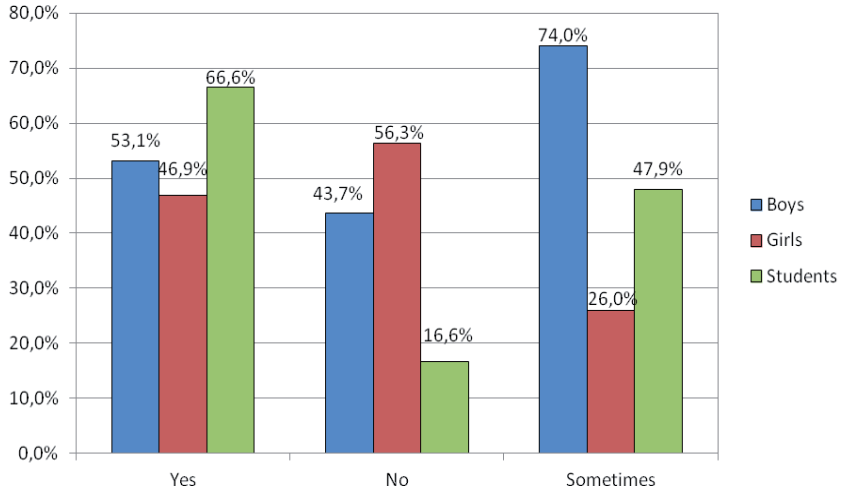


Fig. 12. Children watching television or using the computer every day by gender.

This study shows that 66.6% of students watch television and use the computer every day, including 53.1% of boys and 46.9% girls. 16.6% of the students do not watch television ore use the computer - 43.7% of boys and 56.3% girls. However 47.9%, watch television and use the computer sometimes, including 74% of boys and 26% girls.

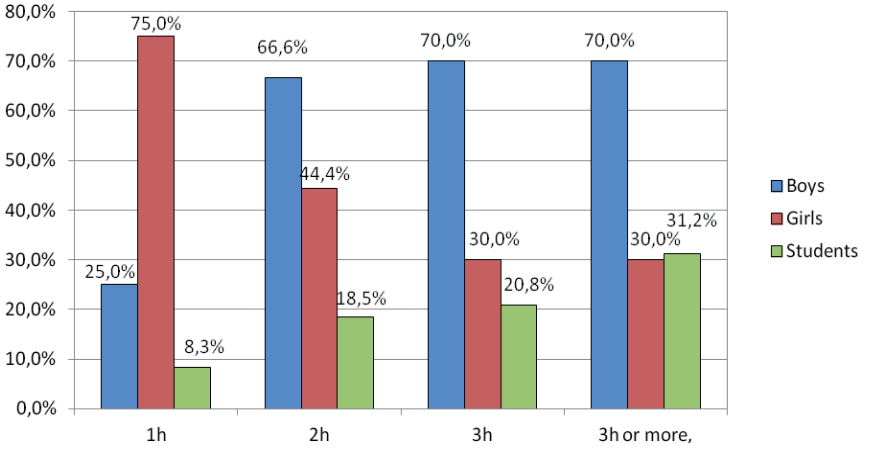


Fig. 13. Number of hours spent by children in front of the TV or computer by sex.

This study shows that 8.3% of students spend 0.5 hour per day in front of a TV or computer, including 25% of boys and 75% girls. One hour a day is spent by 18.5% of children of school age - 66.6% of boys and 44.4% girls. On the other hand, two hours a day are spent in front of a computer or TV by 20.8% of the respondents including 70% of boys and 30% girls. However, three hours or more a day are spent by 30.2% of the children - 70% of boys and 30% girls.

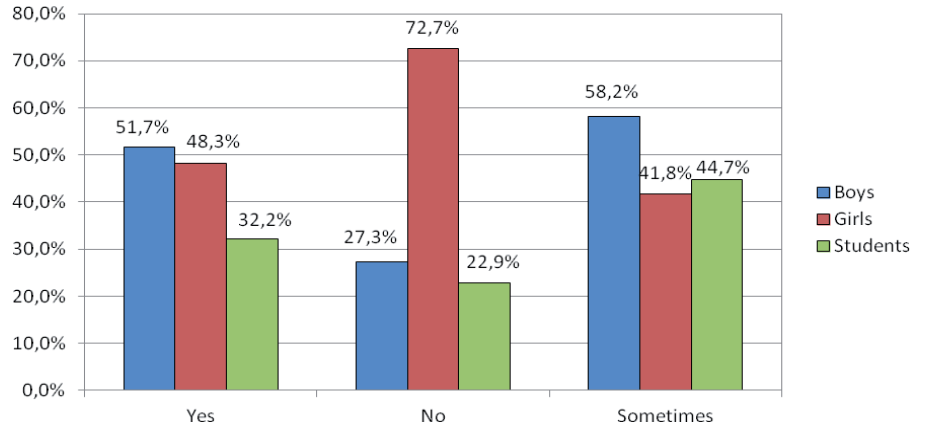


Fig. 14. Physical activity in the PE classes of the school children by gender.

This study shows that physical activity is performed by 32.2% of the respondents in PE classes - 51.7% of boys and 48.3% girls. However, sometimes the physical activity is performed by 44.7% of children, including 58.2% of boys and 41.8% girls. However, physical activity does not concern 22.9% of students, including 27.3% of boys and 72.7% girls.

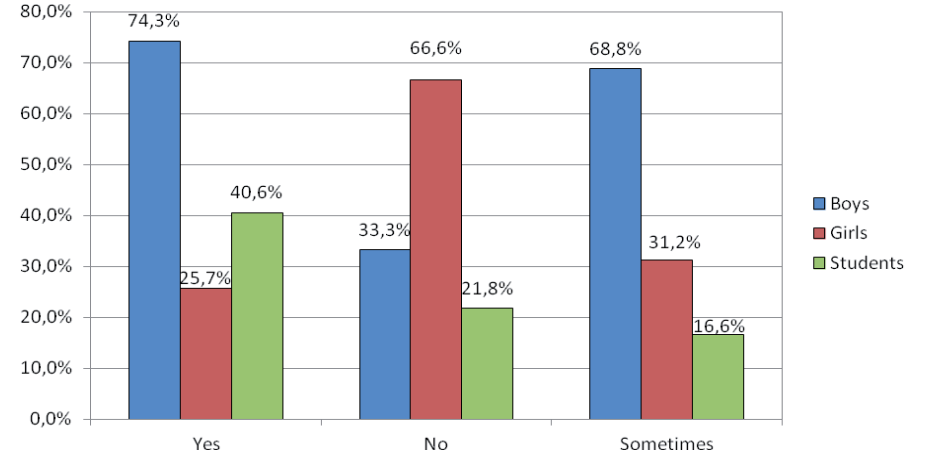


Fig. 15. Students who participate in physical activities outside school.

Research has shown that physical activities outside school involved 40.6% of the children - 25.7% of girls and 74.3% boys. 16.6% of the students sometimes participate in extracurricular activities - 31.2% of girls and 68.8% boys. 21.8% of the respondents do not participate in physical activities outside school - 66.6% of girls and 33.3% boys.

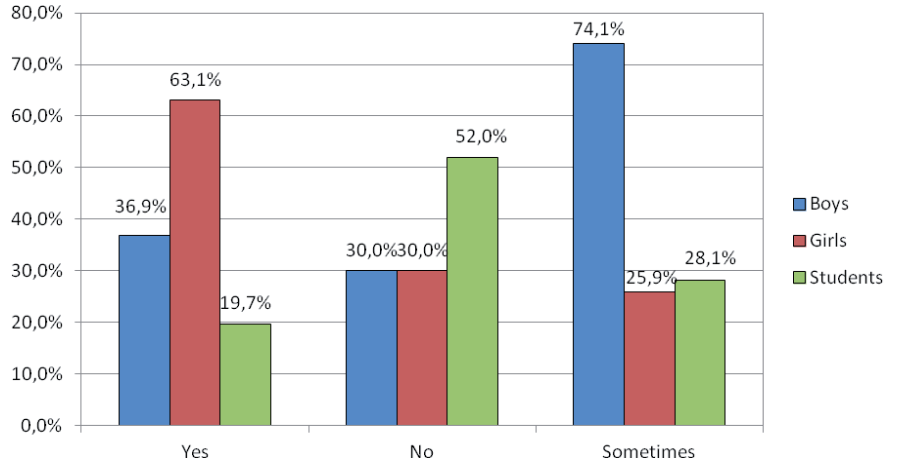


Fig. 16. Children whose parents provide them with the information on healthy eating.

This study shows that 19.7% of parents provide their children with the information about healthy eating, including 36.9% of parents of boys and 63.1% of parents of girls. However, sometimes the information is provided for 28.1% of the children, including 74.1% for boys and 25.9% for girls. News on adequate nutrition cannot be transmitted to 52% of the students, including over 30% of boys and 30% girls.

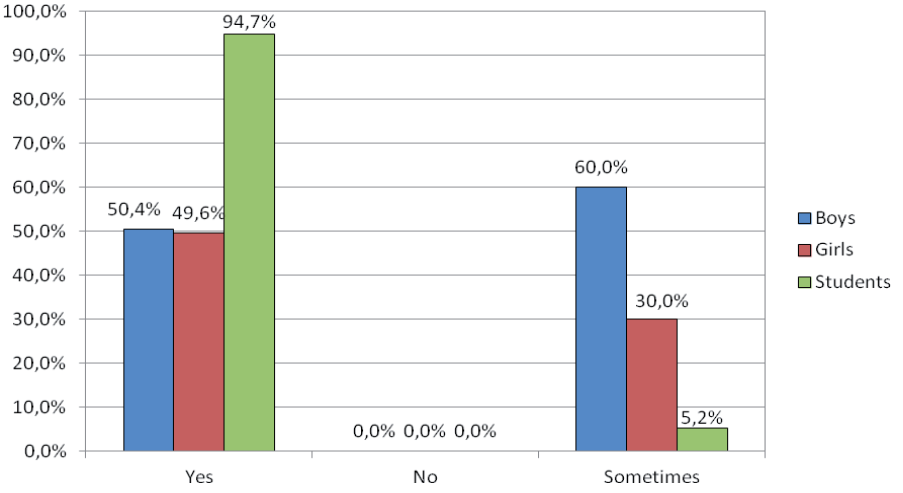


Fig. 17. Children who acquire knowledge about healthy eating from a nurse

The research I conducted illustrate to us that 94.7% of the students acquire the knowledge from the school nurse - 49.6% of girls and 50.4% boys. However, this knowledge is delivered by the school nurse sometimes to 5.2% of the students - 30% of girls and 60% boys.

Discussion

The leader in promoting proper nutrition style is undoubtedly the Institute of Nutrition and Food in Warsaw. The educational activity is an important part of the tasks of the Institute to raise awareness and public understanding in the field of food, nutrition, physical activity and their effects on health. The aim of education is to improve awareness and knowledge in the field of food and nutrition by promoting the principles of rational nutrition and healthy lifestyle, providing information on healthy foods, rational nutrition and the prevention and control of diseases resulting from faulty nutrition, dietary recommendations for healthy people and patients, to promote the principles of rational nutrition and healthy lifestyle in the prevention of diet-related diseases.

Proper eating habits have a significant impact on children's development during adolescence, where there is a huge demand for nutrients and energy, and it is in a turbulent transformation of the body, puberty, changes in body shape and the formation of internal organs. There are also significant changes in the maturation of emotional, mental and social development of young people. In view of the important role of nutrition in human adolescence, this work raises issues of immense importance in the regularity of meals for school children, the amount and quality of meals consumed by students and physical activity among youth (Gawęcki, 2005).

In response to these issues it should be noted that there is little compliance with the assumptions promoted by the Institute of Nutrition and Food in Warsaw, as students, due to the current system of school education stays away from home much too long thereby preventing the consumption of food at fixed times. In addition, young people tend to leave the breakfast, this important meal does not apply to 48.9% of the children and only 42.7% have breakfast sometimes, but only 8.3% of students eat breakfast in the morning before going to school. The most common food consumed during the day was dinner - by 42.7% of the children. The next meal was lunch consumed respectively by 31.2% of the children, then a snack - 13.5%, followed by lunch - 8.3% and breakfast and afternoon tea - 4.1%. Among the young people four meals per day were consumed by 18.7% of the respondents, three meals a day by only 12.5%, and two meals per day were consumed by the majority of as much as 65.6% of the students. Only 3.1% of respondents consumed one meal a day. When it comes to the quality and quantity of food they eat, it should be noted that in this day and age there is a huge availability of food high in energy, which is not necessarily healthy for young organisms. Such foods are rich in so called empty calories that only satisfy the hunger for a while. This way of eating leads to glucose metabolism, which contributes to the development of type II diabetes and other metabolic diseases.

Students eat too little fruit, only 30.2% of children eat it every day, and sometimes fruits are consumed by 60.4% of respondents, while only 9.3% of students eat them occasionally. When it comes to vegetables, only 5.2% of children eat them every day. Sometimes the vegetables are consumed by 66.6% of students and by 33.3% just occasionally. When it comes to whole meal bread, it is consumed daily by 8.3% of students, by 22.9% of respondents sometimes and occasionally by 64.5%. 4.1% of the students do not eat bread. The white bread is consumed every day by 75% of the young people. Sometimes by 16.6% and only 8.3% occasionally consume white bread. In the case of dairy products

50% of children eat them willingly, and sometimes 33.3% of the respondents. 16.6% of the students do not eat dairy at all. The fish, in turn, is not eaten every day by anyone, even though the fish contains unsaturated fatty acids, complete protein, minerals such as magnesium, calcium, iodine, selenium, and vitamin D. Sometimes fish is consumed by 75% of students and by 25% occasionally. The meat most eagerly eaten by the students is the pie, which is 40.6% of consumption. Ham is eaten by 35.4% of the children. On the other hand, 22.9% of respondents eat beef and 11.4% of the students like to eat sausage. The most eaten snacks are unfortunately chips - 41.6% of the students. Then there are sandwiches, which are consumed by 37.5% of respondents, followed by sweets consumed by 10.4% of children and in the end there are fruits consumed by 9.3% of respondents. Improper eating habits can have devastating health consequences for the young population.

In this study children also responded to questions about physical activity, but only 32.2% eager to participate in physical education classes, 44.7% of the students practise sometimes and 22.9% do not practice at all. When it comes to physical activities outside school only 40.6% of the students are actively involved in such activities, 16.6% of respondents practice sometimes and 21.8% do not exercise at all. The disturbing fact is confirmed in this study that the youth of today spend a lot of time in front of the computer or TV. Every day, up to 66.6% of students sit in front of a computer or television, 31.2% of the students do it more than 3 hours aday. Two hours a day in front of a computer or TV are spent by 20.8% of respondents, and an hour a day by 18.5% of children, and half an hour a day is spent by 8.3% of students. On the other hand, sometimes 47.9% of respondents spend time in front of the computer or TV, 16.6% of the children do not do it at all.

Conclusions

1. Almost a half - 48.9% of children of school age do not eat breakfast, and only 8.3% students eat breakfast before going to school.
2. The most regularly consumed meals are dinner and lunch, which was observed with 73.9% of respondents. The most often missed meals were breakfast and afternoon tea.
3. Most of the children eat only two meals a day, while the three meals aredaily consumed by only 12.5% of the students which is the right and worthy way to diet
4. Students eat too little fruit, because only 30.2% of the children eat them every day in their diet. Vegetables and fruits are not often consumed by children, because only 5.2% of students eat them in their diet.
5. Only 8.3% of respondents consume in their diets recommended wholemeal bread.
6. Half of the respondents (50%) consume dairy products.
7. The low intake of fish is very disturbing, it is sometimes consumed by 75% of the respondents, and it is occasionally eaten by 25% of children.
8. Another very disturbing fact is that as many as 41.6% of students consume so called empty calories in the form of snacks between meals.
9. It was also noted among the respondents that there is a very low physical activity during the classes of physical education, because only 32.2% of students take an active part in them, and when it comes to physical activities after school, only 40.6% of the students are actively involved in these. Others prefer watching TV or using the computer for three hours a day.

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Marek Tomaszewski[1,2], Monika Tomaszewska[3], Grażyna Olchowik[2,4]

[1]Katedra i Zakład Anatomii Prawidłowej Człowieka Uniwersytetu Medycznego w Lublinie
[1]Department of Human Anatomy Medical University of Lublin
[2]Pope John Paul II State School of Higher Education in Biala Podlaska, The Health Institute
[2]Państwowa Szkoła Wyższa im. Papieża Jana Pawła II w Białej Podlaskiej, Instytut Zdrowia
[3]I Zakład Radiologii Lekarskiej Uniwersytetu Medycznego w Lublinie
[3]I Department of Radiology, Medical University of Lublin
[4]Katedra i Zakład Biofizyki Uniwersytetu Medycznego w Lublinie
[4]Department of Biophysics Medical University of Lublin

Obesity as a disease of the twenty-first century
Otyłość jako choroba XXI wieku

Summary
The present time appears to be a growing number of people suffering from obesity. Although a number of studies has not been known so far that eventually the molecular mechanisms conducive to the occurrence of overweight. This article introduces the current state of knowledge in this area.

Key words:obesity, metabolic syndrome, FTO

Streszczenie
W obecnym czasie odnotowuje się coraz większą rzeszę ludzi cierpiących na otyłość. Mimo licznych badań nie poznano do tej pory ostatecznie jakie mechanizmy molekularne sprzyjają występowaniu nadwagi. Poniższy artykuł przybliża aktualny stan wiedzy z tej dziedziny.

Słowa kluczowe: otyłość, zespół metaboliczny, gen podatności na otyłość.

Introduction

Obesity is defined as body weight increased significantly above normal values established for the age, gender and race, caused by excessive growth of body fat (Lang, 2012). This process leads to impairment of various organs and an increased risk of morbidity. In adults, it is recognized when the fat content is higher than 30% of ideal body weight in females and 25% males. In children, the content of fat in the body is highly dependent on age and sex (Berkowitz et al. 2005; Galal, Hulett, 2005). To assess the degree of obesity and the present distribution of anthropometric data used centile charts and so. BMI (Body Mass Index) is calculated by dividing body weight (in kilograms) and the square of the body length (in meters). A BMI of 25-29.9 kg/m2 is overweight while the value above 30 kg/m2 is called obesity (Poskitt, 1995).

A more accurate indicator of obesity is to assess the amount of fat, made with electronic equipment or calculated with the following formula: the amount of body fat [%] = (1.2 xBMI) + (0.23 xwiek) - (10.8 xpłeć) -5.4. Based on a mathematical calculation of the value of above 15-20% in men and more than 25-30% of women confirmed obesity (where the number of points for sex is 1.0 for men and 0 for women) (Barao, Fornes, 2012).

To assess the nutritional status and risk of certain diseases of civilization is evaluate the distribution of body fat compared to the rate of waist circumference to hip circumference ratio (WHR, waist to hipcircumference ratio). WHR (by Bjontropa) above 1 for men is called a androidal and less than 1 - gynoidal; WHR above 0.8 for women is the type of androidal, and below 0.8 is a type of gynoidalny. Androidal type is a risk factor for diseases of civilization (Białkowska, 1994; Barao, Fornes, 2012).

Obesity has been officially recognized as a chronic disease, not just a cosmetic defect since 1985 (Health implications of obesity. National Institutes of Health Consensus Development Conference Statement, 1985). In 1997, the World Health Organization (WHO) officially announced the worldwide epidemic involving adults and children, recognizing it as one of the greatest threats to human health (Wojcicki, 1994). In Europe, the prevalence of obesity affects approximately 30% of adults and about 20% of children and adolescents, although there are differences between the northern countries (10 - 20% of obesity in the general population) and southern (30 - 35% of obesity in the general population) (Lobstein, Frelut, 2003). In Poland, based on growth charts developed by the Institute of Mother and Child, and carried out in 1994-1995, obesity was observed in 3.4% and overweight in 8.7% of children and adolescents aged 6 - 17 years (Oblacińska, 1997). This percentage has increased noticeably in the second half of the nineties and was 18% in children aged 7 - 11 years and 12% in children aged 14 - 17 years (Lobstein, Frelut, 2003).

Terminology

Depending on the arrangement of the subcutaneous tissue is distinguished by obesity androidalną and gynoidal. Androidal obesity (abdominal, visceral, 'apple') is characteristic of a male in which the fat is localized mainly in the stomach. In this type of risk is particularly high coexistence of metabolic diseases (insulin resistance syndrome, hyperinsulinemia, hyperuricemia, elevated levels of fibrinogen in the blood, hypercholesterolemia, hypertriglyceridemia), hypertension, diabetes and cardiovascular diseases (coronary heart disease, stroke, limb ischemia, embolic disease thromboembolism). Obesity gynoidal (gluteal-femoral, a "pear") occurs primarily in females, in which the fat is localized mainly on the hips, buttocks and thighs (Baghi, Preuss, 2007; Haslam, James, 2005).

Considering the division we can distinguish pathogenic regulatory and metabolic obesity. Regulatory Obesity occurs when the under the influence of various factors (psychological, hormonal, economic) is disturbed normal feeding mechanism (excessive stimulation of the appetite center). Obesity and metabolic caused by a congenital or acquired disorder in carbohydrate or lipid (Knerr, 2004; Stawiarska-Heel et al. 2007).

Depending on the etiology of obesity distinguish simple, youthful and secondary or pathological. Obesity simple (idiopathic, one-symptom, source) arises from an imbalance between the amount of energy supplied with food and its consumption. In 20% of cases it is genetically determined and is probably associated with low basal metabolic rate of the family members with which it occurs. Juvenile obesity is mainly due to release of dense growth in this age group. Obesity is associated with secondary endocrinological diseases or nerve side effects of the treatment of chronic and genetic defects (Kosti, Panagiotakos,

2006; Lange, 2001). Among the bands genetic and chromosomal predisposing to obesity include disclosure of the teams: Willy-Pradera, Moon Bardet-Biedl, Alstrom-Hallgren, Cohen, Carpenter, Turner, Klinefelter, storage diseases and Down syndrome.

Etiologic agent

The most common reasons for increasing the amount of fat include abnormal eating habits, low physical activity, emotional problems and abnormal nutrition of pregnant women.

Improper eating habits (overeating, improper composition of the diet with lots of sugars and fats, nutrition in fast food) leads to the accumulation in the body of significant amounts of saturated fat and trans isomers at the expense of antioxidants, trace minerals, fiber and mineral water (Agras, Kramer, 1987; Elliott et al. 2004; Haslam, James, 2005; Komorowski, Pawlikowski, 1992; Lange et al. 2001).

Low physical activity ("couch potato kid") and abnormally shaped family lifestyle in which most of the time is spent in front of the TV or computer, snacking high-calorie snacks. Physical activity in the open air in such a case is limited to a short walk to the car or to the supermarket. It is shown that the muscular stagnation due to a lack of physical activity leads to clumping of fat droplets in adipocytes, compacted and thus fat is broken down harder. In addition, reduction of physical activity and prolonged immobilization reduces the consumption of energy supplied from food (Gutin, Manos, 1993; Nazar, Kaciuba-Uściłko, 1995).

Emotional problems, abnormal family relationships, stressful lifestyle with great psychological stress ("being unwanted and unnecessary", "lives in his own world" is not always understood by the environment). Long-term negative factors are offset psycho-pleasure which is the food. In addition, they may interfere with the proper functioning of the hunger centers in the hypothalamus (medial and lateral), and the cerebral cortex, resulting in a continuous binge (Goodman, Whitaker, 2002; Szajewska, 2002).

Improper nutrition of pregnant women. The results suggest that maternal obesity and excessive energy delivery prenatal promote childhood obesity, increasing the risk of metabolic syndrome, changes in vascular reactivity and hypertension. Additionally, it is believed that the early introduction of artificial infant milk (increased protein intake) promote excessive growth of body weight compared to breast-fed children (Breier et al. 2001).

Pathophysiology

Control over the amount of food intake exercise of hunger and satiety centers located in the hypothalamus, rhinencephalon, the limbic system and the cerebral cortex. The main structure of the system is the arcuate nucleus and ventromedial nucleus, including both producing neurons excitatory neurotransmitters (neuropeptide Y, agouti protein) as well as appetite suppressants (substances antyoreksygenne) - Proopiomelanocortin, transcripts of cocaine and amphetamines. Nutritional information centers are replaced by the chemical nature of the energy substrates (glucose, free fatty acids, amino acids) as well as by neurotransmitters such as gamma-aminobutyric acid (GABA), acetylcholine, dopamine, epinephrine, serotonin, endorphins. Stimuli continuously reach the regulatory

centers that affect glucose, insulin release, food intake and thermogenesis. Additionally, the appetite is affected certain neurotransmitters stimulate (norepinephrine, increases the appetite for carbohydrates) and serotonin-inhibiting (reducing cravings for carbohydrates) and dopamine (inhibits fat intake) (Baghi, Preuss, 2007; Haslam, James, 2005).

Significant impact on the development of obesity protein leptin is as a result of the expression of the ob gene located on chromosome 7. This substance is produced by adipose tissue, together with the flow of blood reaches the hypothalamus, where it is combined with the specific receptor (dimerization) causes inhibition of the synthesis and release of neuropeptide Y. Leptin increases satiety, reduces appetite, increases thermogenesis and processes leading to the loss of energy, than is lowers blood glucose and insulin in the blood. Due to the fact that the concentration of leptin in the blood of obese people is higher compared to those of normal weight, it is believed there are certain of those substances that act as antagonist to leptin (leptin-resistance action). If overweight people, the concentration of leptin in the blood drops to control values after four weeks of acute diet (400 kcal / day), it is only then they can expect to restore the feeling of fullness after a meal. Note, however, that this type of diet is not always safe because of the fact that leptin also regulates immune function. The study also observed that there are significant fluctuations in the ob gene expression during starvation and return to a normal diet. During fasting serum leptin concentration is reduced to undetectable values and increases to very high during the commutation of increased caloric (anorexia nervosa). The resulting condition may cause difficulties in maintaining a normal body weight, to reduce appetite and increase energy expenditure. The situation is different in different situation: in obese patients using caloric restriction reduced leptin levels in the blood, and thus increases appetite, reduces thermogenesis and energy expenditure, which may hamper obtained with difficulty reduced body weight (Breier et al. 2001; Romer, 1997; Świerczyński et al. 1997; Tatoń et al. 2007).

The other causes of obesity are mentioned also reduce postprandial thermogenesis. Mature people react to welcome meal in the form of increased heat dissipation by up to 10% of the supplied energy (called diet-induced thermogenesis). The essence of this process is the protein-termogenin which dissipates in the form of a substantial part of the heat energy generated during the processes included in the respiratory chain. Uncoupling can be found in the mitochondria of brown adipose tissue (BAT), which in the form of small aggregates are distributed in a normal white adipose tissue. In the absence of BAT or impairment of the function in obese postprandial thermogenesis is very limited or does not exist. The process of creating protein in the BAT is adjusted such with the participation of sympathetic fibers, dense tangle cells of that tissue. b-3-adrenergic receptors in BAT, which in turn stimulates the breakdown of fat in adipose tissue, glucose transport to BAT and postprandial thermogenesis.Which is a neurotransmitter norepinephrine stimulates end here. It has been shown that the primary defect that leads to the development of obesity, is often associated with reduced sensitivity of adrenergic receptors in brown adipose tissue. The visceral obesity sympathetic activity at the beginning of the disease is increased, and, with increasing insulin resistance decreases. The highest number of b-3 adrenergic receptors found an area with high metabolic activity in intra-abdominal and perirenal adipose tissue. b-3-adrenergic receptor has about 40% of the human population.

It has been shown that the synthesis of the mutant gene encoding b-3adrenergic receptors. This mutation is inherited as a recessive trait.If the individual inherits from both parents, it is predisposed to obesity, due to defective. Changes in their construction may impair thermogenesis and lipolysis, including peritoneal adipose tissue leading to the development of visceral obesity and type 2 diabetes with all its consequences metabolic (Walston et al. 1995).

Some types of obesity, in response to a high-calorie diet, accompanied by excessive secretion of acylation stimulating proteins (ASP). To increase their production runs associated with activation of protein-adypsyn whose expression increases during differentiation to adipose tissue cells. In the obesity gynoidal, the concentration of ASP in blood plasma is increased, the higher is the ability of the subcutaneous adipose tissue deposition. An inverse relationship is observed in abdominal obesity as cell response in visceral fat in ASP protein is impaired. This condition results in an increase in free fatty acids in serum decreased ability to remove from the blood plasma postprandial triglyceride-rich lipoproteins and increased the flow to the liver. All this leads to increased synthesis of atherogenic lipoproteins and increase in the concentration of ASP in blood plasma (Kielar, 1995).

In addition, among the factors affecting body weight and body fat distribution plays the following genes: a gene of peroxisomal proliferator-activated receptor gamma(PPAR-γ) is responsible for the differentiation of fibroblasts into the adipocytes and affecting the metabolism of mature cells; cannabinoid receptor (CNR1) is an integral part of the network that control appetite, fat mass and obesity associated gene(FTO) (Męczekalski et al. 2008).

FTO is located on chromosome 16 (16q12.2). It consists of 9 exons and covers an area of more than 400 kb (Loos and Bouchard, 2008). This gene encodes a 2-demethylase oxoglutaran, depending on the DNA, an enzyme present in many tissues (particularly the hypothalamus). FTO expression is inhibited by intermediates of the Krebs cycle metabolites, in particular by fumarate (Gerken et al. 2007). On the basis of studies have shown an association between the FTO risk allele carrier state and the components of metabolic syndrome, such as waist circumference, insulin sensitivity, the concentration glucose, triglycerides and cholesterol (Andreasen et al. 2008). It is now believed that the mechanism of action is related FTO:

- the control offood intakeand the type offood preferences, and to a lesserextentin the regulation ofenergy expenditure(Wardle et al. 2009);
- a change inmRNAexpressionin the hypothalamusFTO (arcuate nucleus) (Gerkenetal., 2007);
- withadipogenesisbychanges in insulin sensitivityin the cerebral cortex(Tschritter et al. 2007);
- direct influenceon the metabolismof fat cellsthrougheffects onlipolysisin adipocytes(FTO mRNAexpressionis activatedat an earlystage ofdifferentiation ofpreadipocytes) (Wahlenetal, 2008).

Complications

If left untreated, obesity entails a number of health consequences. Early complications associated with overweight in children and adolescents include: high blood pressure, stroke, atherosclerosis, insulin-resistance, type 2 diabetes, dyslipidemy, metabolic syndrome, non-alkoholic fatty liver disease (NAFLD), hypertransaminazemy, kidney bubble, glomerulosclerosis, obstructive sleep apnea (OSA), bronchial asthma, reduced exercise tolerance, diseases of the bone and joints (knee valgus, Blount disease, slipped capital femoral head, flat feet, scoliosis, postural problems, back pain, arthritis bones and joints), emotional disorders (low self-esteem). The consequence of untreated obesity results in the following complications in later life obesity, risk factors for the occurrence of cardiovascular (hypertriglyceridemy, hypercholesterolemy, high LDL cholesterol, low HDL cholesterol, hyperinsulinemy, hypertension), left ventricular hypertrophy, reduced life expectancy (Gawlik et al. 2009; Haslam, James, 2005).

Conclusions

At the present time appears to be an increasing number of people suffering from obesity. Although a number of studies has not been known so far that eventually the molecular mechanisms conducive to the occurrence of overweight. The study of genetic determinants of obesity give hope for the future. Perhaps this knowledge will help in the near future to develop new drugs that will be healed in certain of obesity and thus prevent the occurrence of many of its serious complications. However, in order to protect yourself from unpleasant consequences of untreated complications of obesity, you should pay special attention on the fight. Both parents and physicians should educate children to the need for proper, balanced diet, avoid situations conducive to weight gain and promote an active lifestyle. Addressed these recommendations should not only be obese, but thin as normal weight during childhood and adolescence does not protect against the development of obesity in later. American Society of Endocrinology recommends: breast-feeding for at least six months of age, the commitment of schools to organize daily hour of exercise in all age groups, information on the principles of optimal diet and the benefits of increasing physical activity, promoting the consumption of unhealthy food restriction and prohibition of advertising, as also create opportunities for safe walking to reach the school. In addition, the recommendations emphasize the particular importance of preventive measures in children with BMI> 85 th percentile (August et al. 2008).

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Małgorzata Stryjecka, Milena Pręciuk, Łukasz Plizga, Ewa Juda

The Institute of Agricultural Sciences The State School of Higher Education in Chełm
Instytut Nauk Rolniczych Państwowa Wyższa Szkoła Zawodowa w Chełmie

The content of the vitamins in daily food rations youth 16-18 summer with Chełma and its surroundings

Zawartość witamin w całodziennych racjach pokarmowych młodzieży 16-18 letniej z Chełma i okolic

Summary
The purpose of this work was to determine the content of the vitamins in daily food rations (CRP) 16-18 summer youth living in Chełm and their surroundings. Intakes of vitamins, has been assessed on the basis of intelligence on intakes of 24 hours preceding the interview. In the test participated 208 persons (including 119 girls and 89 boys). After analysis of the content of the vitamins in the CRP found many irregularities. Recorded in allowances both girls and men too low supply following vitamins: D and folate. In addition, girls were found in allowances lower than recommended standard (RDA) content of vitamin B_1. By contrast, in the CRP boys was lower than recommended standard, the supply of vitamin B_{12} deficiency.

Key words: youth, vitamins, daily food rations (CRP)

Streszczenie
Celem niniejszej pracy było określenie zawartości witamin w całodziennych racjach pokarmowych (CRP) młodzieży 16-18 letniej zamieszkującej Chełm i okolice. Spożycie witamin zostało oszacowane na podstawie wywiadu o spożyciu z 24 godzin poprzedzających wywiad. W badaniu wzięło udział 208 osób (w tym 119 dziewcząt i 89 chłopców).Po przeprowadzonej analizie zawartości witamin w CRP stwierdzono wiele nieprawidłowości. Zanotowano w dietach zarówno dziewcząt jak i mężczyzn zbyt niską podaż następujących witamin: D i folianów. Ponadto w dietach dziewcząt stwierdzono niższą niż zaleca norma (RDA) zawartość witaminy B_1. Natomiast w CRP chłopców stwierdzono niższą niż zaleca norma, podaż witaminy B_{12}.

Słowa kluczowe: młodzież, witaminy, całodzienne racje pokarmowe (CRP)

Introduction

One of the factors that are a major impact on human health is nutrition. (Górna et al. 2012). Essential elements, without which the human body is unable to function properly, are vitamins. Body needs of small quantities of these compounds, however, the proper development and growth are without them impossible (Grochowska-Nidworok et al. 2012). A plethora of them, or a shortage in the human diet may contribute to the establishment of a sickness teams. The purpose of this work was to determine the content of selected vitamins in daily food rations youth 16-18-letniej with Chełma and localities.

Materials and methods

The survey was covered by 208 persons (including 119 girls and 89 boys), aged 16-18 years living in Chełm and their surroundings (lubelskie voivodship). Tests have been carried out in spring 2012. Young people participating in the test gave oral permission to participate in an interview. Persons participating in the test declared that they don't take vitamin supplements, and / or vitamins- minerale. Content assessment vitamins in daily food rations has been carried out on the basis of intelligence on intakes of the last 24 hours prior to the survey. To determine the portion sizes has been reached „Photo Album of Products and Dishes" (Szponar et al. 2000). For most vitamins used standard set at the level of the recommended allowance (RDA) only for vitamin E and D have been the norm as set down at the level sufficient intake (AL) (Jarosz, 2012). In order to examine the daily food rations, individual products food and dishes have been introduced into a computer programme Diet 4.0. In the calculations have been taken into account the size of the take-off on the way technology, in accordance with the recommendations of Nadolna et al. (Nadolna et al. 1994; Nadolna et al. 2000).

The results obtained have been developed statistically using programme Statistica 8.0. companies StatSof

A discussion of the results of research

The average content of vitamins in daily food rations (CRP) girls and boys aged 16-18 years living in Chełm and their surroundings is shown in table 1 and 2.

Content of vitamin a in daily food rations both girls and boys, was higher than recommended by norm. In the case of girls the content of the vitamin was 712,17 ± 312,7µg, which represents 101,74% implementation of standards (RDA). But in the case of the boys the supply of vitamin A was 912 ± 327,4µg, (101,33% implementation of the standard).

The supply of vitamin D from the diet, for both sexes, was significantly lower than recommended by norm. Content of vitamin D in the CRP girls amounted to 2,79 ± 1.4 µg (55,8% implementation of standards), and boys 3,12 ± 1,9 µg (62.4% of implementation of the standard). The implementation of the demand for vitamin E in the group of girls remained 8,97 ± 3,17mg, while boys 10,27 ± 7,45mg. In both cases, the supply was higher than recommended by norm. Content of vitamin C in daily food rations exceed daily demand for this vitamin, in the case of girls on the 21,75%, while boys 29,87%. The average content in daily food rations thiamine was for girls, lower than the recommended standards and amounted to 0,98 ± 0,27mg (89,09% of the standard). While the content of vitamin B_1 in allowances boys amounted to 1,22 ± 0,58mg (101,67% of the standard). In allowances girls and boys content of vitamin B_2 was higher in relation to existing standards The average content riboflavin in CRP girls amounted to 1,24 ± 0,93mg, while boys 1,43 ± 0,89mg. In both the CRP girls and boys found higher than recommended standard (RDA) consumption niacin.

Analysing the content of vitamin B_6 in CRP both sexes can be concluded that it was higher than recommended standard (RDA). In the case of girls it was 1,29 ± 1,1mg (107,5% implementation of standards), while boys 1,41 ± 0,93mg (108,46% of the standard).

In the case of cyanocobalamin (vitamin B_{12}) have been recorded for girls supply that vitamins at a higher level than recommends standard (RDA), and boys below the standard.

Diet both girls and boys contained low supply folate, in the case of girls it amounted to 274.2 ± 112.9 µg (68,55% of the standard). In the case of boys have been recorded in the level of folate diet at the level of 294,7 ± 129,3 µg (73,67% of the standard).

Tab. 1. The average content selected vitamins in daily food rations (CRP) girls aged 16-18 years living in Chełm and their surroundings, and the comparison received content with the standards in force

Vitamins	Girls n= 119 Middle ±SD	Standard	% of the implementation of standards
Vitamin A (retinol eq.)[µg]	712,17±312,7	700	101,74
Vitamin D [µg]	2,79±1,4	5	55,8
Vitamin E [mg]	8,97±3,17	8	112,12
Vitamin C [mg]	91,31±59,4	75	121,75
Vitamin B_1 [mg]	0,98±0,27	1,1	89,09
Vitamin B_2 [mg]	1,24±0,93	1,1	112,72
Vitamin B_6 [mg]	1,29±1,1	1,2	107,5
Vitamin B_{12} [µg]	2,53±1,49	2,4	105,42
Niacin [mg]	15,9±10,2	14	113,57
Folate [µg]	274,2±112,9	400	68,55

SD- standard deviation

Tab. 2. The average content selected vitamins in daily food rations (CRP) boys aged 16-18 years living in Chełm and their surroundings, and the comparison received content with the standards in force

Vitamins	Boys n=89 Middle±SD	Standard	% of the implementation of standards
Vitamin A (retinol eq.) [µg]	912±327,4	900	101,33
Vitamin D [µg]	3,12±1,9	5	62,4
Vitamin E [mg]	10,27±7,45	10	102,7
Vitamin C [mg]	97,4±52,1	75	129,87
Vitamin B_1 [mg]	1,22±0,58	1,2	101,67
Vitamin B_2 [mg]	1,43±0,89	1,3	110,0
Vitamin B_6 [mg]	1,41±0,93	1,3	108,46
Vitamin B_{12} [µg]	1,72±1,1	2,4	71,67
Niacin [mg]	17,2±8,9	16	107,5
Folate [µg]	294,7±129,3	400	73,67

SD- standard deviation

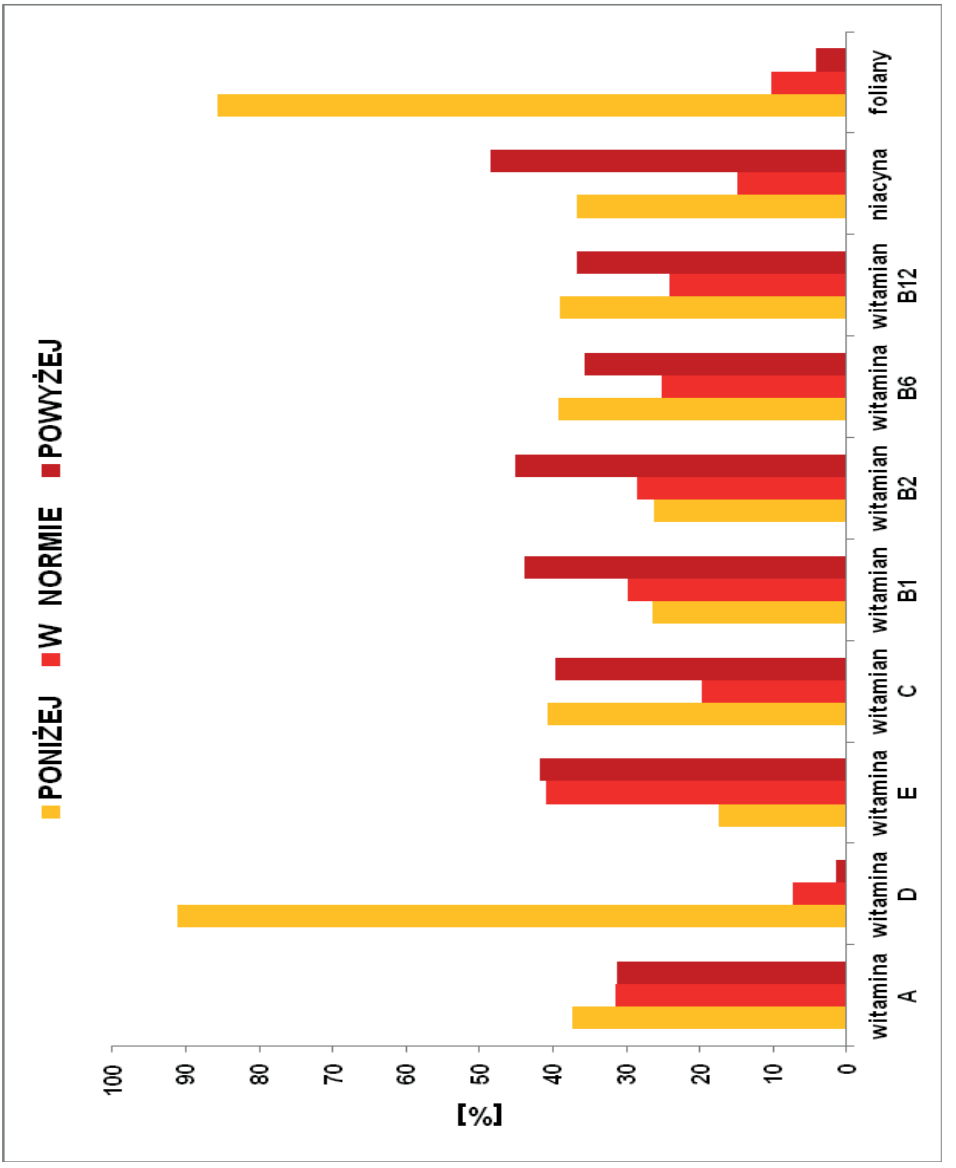


Fig. 1. Division of the ration of nutritional girls aged 16-18 from Chełm and surroundings

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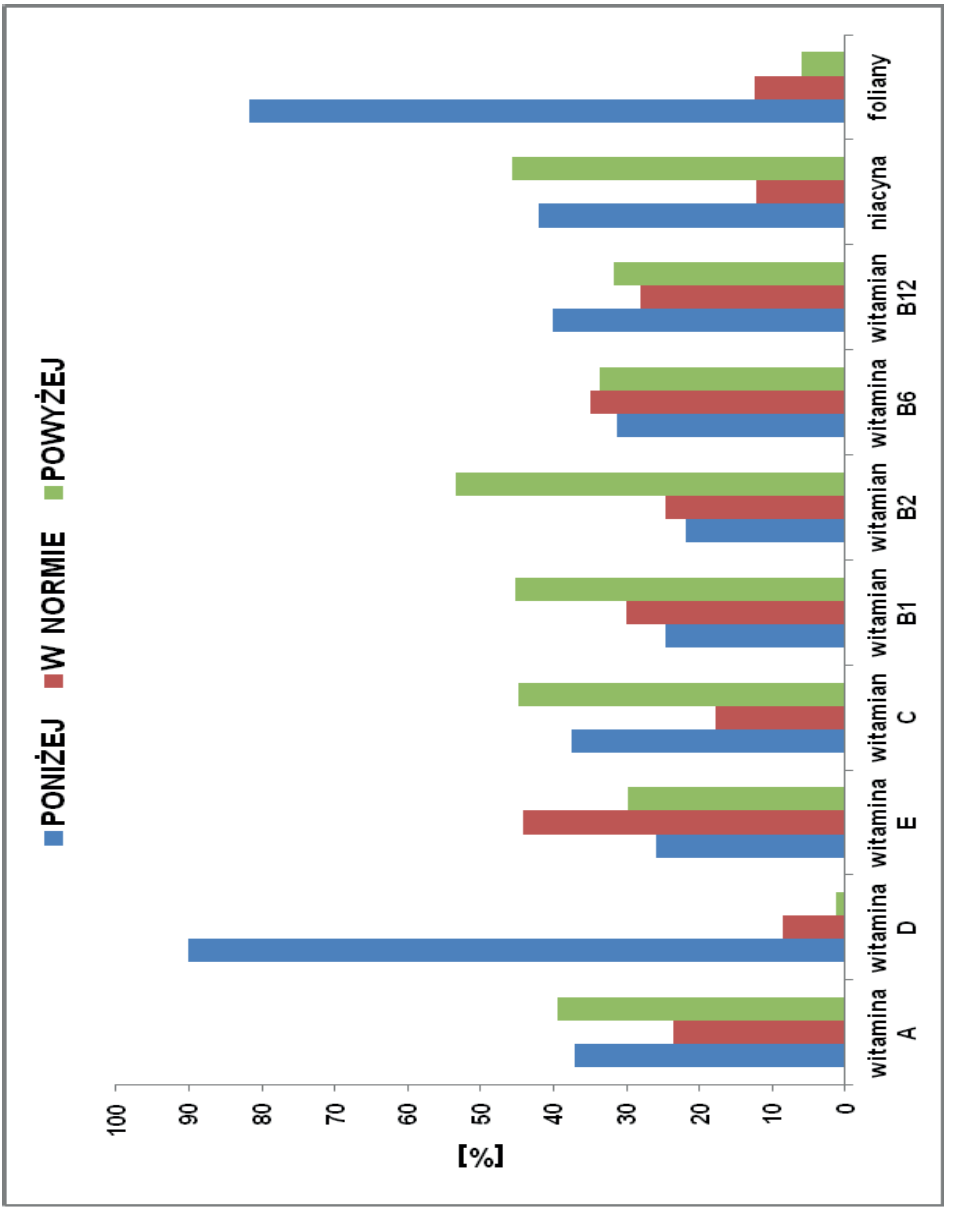


Fig. 2. Division of the ration of nutritional boys aged 16-18 from Chełm and surroundings

Discussion

Calculation of the average content of the vitamins in daily food rations girls and boys aged 16-18 years with Chełma and the surrounding areas is shown in table 1 and 2.

In assessing diet in people aged 16-18 years found many irregularities, which also confirms many authors in it's publications (Wądołowska, 2010; Charzewska et al. 2011: Krela-Kaźmierczak, 2000: Jakubik et al. 2006).

In this work is established both in the diet of girls and boys higher intakes of vitamins a than recommends norma. Similar results obtained in their research also Goluch-Koniuszy and Fugiel by examining the diets students of middle school in Szczecin (Goluch-Koniuszy, Fugiel, 2009). The average intake of vitamin d covered standard (RDA) only 55,8%, compared to girls and allowances in 62.4% for boys. Similar results were also observed in the case of menus grad students in Białystok. While different results obtained in their research Affenito et al. (2007), who were tested for subsistence american girls, which on average eat witamine D in quantities 5,8-6,0 µg, which covered the norm in more than 100%. Low levels of intake of vitamin D in the respondents is worrying. a long-term shortage of vitamin D can contribute to the speech rickets of children, while adults osteomalacji or osteoporosis (Tukaj, 2008).

Also in the case of both sexes recorded lower supply in daily food rations vitamin E.

Similar results obtained Regulska-Ilow et al. (2009) when analysing diets students of grammar school in Oleśnica.

The level of vitamin C in the test daily food rations was higher than recommended standard, in the case of both girls and boys.

Also Szewczyński et al. (2006) in examining the participation of antioxidant vitamins nutrition school pupils with Warsaw zanotowali higher than recommends standard (RDA) share of vitamin C in allowances.

In the case of the contents of thiamin hydrochloride daily food rations have been recorded in the case of girls lower supply of that vitamin than recommends norma RDA (89,09%) while slightly higher than recommended standard in the case of boys (101,67%). similar dependency received in their research Regulska-Ilow et al. (2009).

The content of riboflavin menus people of both sexes participating in an interview, was higher than recommends standard. In contrast, the content of vitamin B_2 in daily food rations students of grammar school in Oleśnica. Occurred in the case of girls lower supply of that vitamin in the diet, and for boys higher.

In the diet of young people of the female and male stated higher intakes of vitamin B_6 in relation to the standards (in case of girls by 7,5%, while boys 8,46%). Ostrowska et al. (2003) did not show any derogations from the norm. Vitamin B_6 is responsible for e.g. proper supply in the body homocysteine (Ilow et al. 1999).

The level of niacin in allowances persons participating in an interview, for both sexes was higher than recommended by norma. Similar results obtained Markiewicz-Żukowska et al. (2011) in examining the nutritional value daily food rations students of grammar school with internat in the Zambrowie.

In the case of girls reported exceeding the standards in terms of cyanocobalamin (B_{12}). Vitamin that involved mainly meat-based products, fruit and vegetables almost this vitamins don't contain allows us to say that the diet girls is rich in meat products.

Excess of that vitamin at the same time high supply of vitamin C, may cause nosebleeds. In the case of boys it was found that a lower share of that vitamin in daily food rations than recommended by norma. B_{12} deficiency causes anaemia Kosek (1996) in examining diet of children and young people living in one of the homes in Krakow said 34% surplus that vitamin. There was very low levels of intake folate for both sexes covering standard (RDA) only in the event of daily subsistence allowance girls at the level of 68,55% and in case of menus boys 73,67%. Similar results obtained Markiewicz-Żukowska et al. (2011), by examining the diet of young people residing students of grammar school with internat in the Zambrowie. A shortage of folic acid may contribute to creating defects neural tube disorders of the functioning of the nervous system, and cardiovascular disorders (Czeczot, 2008).

Conclusion

1. In the case of vitamins soluble in fats, found lower, for both sexes than recommended standard, the dietary intake of vitamin D.
2. It was found for both sexes low supply folianów in daily food rations.
3. It was found in low supply CRP girls vitamin B_1
4. In the CRP boys have been recorded lower than recommended by norma intakes of vitamin B_{12} deficiency.

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Jolanta Piskorz[1], Gustaw Wójcik[2,3], Barbara Sokołowska[4], Włodzimierz Bulikowski[3], Krzysztof Stolarski[1], Joanna Prokop[1]

[1]Department of Anaesthesiology and Intensive Care – Zofia Zamojska Tarnowska Regional Hospital in w Tarnobrzeg;
[2]Department of Diagnostic Imaging - Zofia Zamojska Tarnowska Regional Hospital in w Tarnobrzeg;
[3]Department of Rehabilitation, Physiotherapy and Balneotherapy - Medical University In Lublin;
[4]Health Institute – State College in Biała Podlaska

Parenteral Nutrition and Enteral Nutrition in Acute Pancreatitis
Żywienie pozajelitowe a dojelitowe w ostrym zapaleniu trzustki

Summary
Acute pancreatitis (AP) is a disease of not only the prostate, because in about 25% cases severe form developes, which results in multiple organ failure and death. Nutrition in acute pancreatitis is an integral part of the treatment. The choice of method depends on the nutritional characteristics of the patient, severity of the disease and the complications associated with it. Total parenteral nutrition is used when the use of the digestive tract cannot ensure an adequate daily intake of nutrients, or wnen there are contraindications to enteral nutrition.
AP best results were obtained by feeding patients gastrointestinally (supply of nutrients to the small bowel or the probe) and in the case of enteral feeding in conjunction with parenteral, depending on the needs of the patient. The use of only parenteral nutrition is subject to a greater number of septic and metabolic complications and a higher mortality rate compared with partial or total enteral nutrition.
Using nutritional therapy metabolism of patients should be evaluated in order to prevent complications and to assess the effectiveness of treatment.

Key words: parenteral nutrition, enteral nutrition, pancreatitis

Streszczenie
Ostre zapalenie trzustki (OZT) to choroba dotycząca nie tylko samego gruczołu, ponieważ w ok. 25% rozwija się jej ciężka postać, której skutkiem jest niewydolność wielonarządowa i śmierć. Żywienie w OZT stanowi integralną część leczenia. Wybór metody żywienia zależy od stanu klinicznego pacjenta, ciężkości choroby i powikłań z nią związanych. Całkowite żywienie pozajelitowe stosuje się, gdy drogą przewodu pokarmowego nie można pokryć odpowiedniego zapotrzebowania organizmu na składniki odżywcze, lub gdy są przeciwwskazania do żywienia dojelitowego.
Najlepsze wyniki leczenia OZT uzyskano żywiąc pacjentów drogą przewodu pokarmowego (podaż substancji odżywczych do jelita czczego przez sondę lub jejunostomię) oraz w przypadku stosowania żywienia dojelitowego w połączeniu z pozajelitowym w zależności od potrzeb pacjenta. Stosowanie tylko żywienia pozajelitowego jest obarczone większą liczbą powikłań septycznych, metabolicznych oraz większą śmiertelnością w porównaniu z częściowym lub całkowitym żywieniem dojelitowym.
Stosując leczenie żywieniowe należy prowadzić ocenę metabolizmu pacjentów, aby nie dopuścić do powikłań oraz w celu oceny skuteczności leczenia.

Słowa kluczowe: żywienie pozajelitowe, żywienie dojelitowe, ostre zapalenie trzustki

Introduction

Parenteral nutrition is administering directly into the circulatory system of the body all the necessary nutrients in a form allowing their assimilation in the right quantity and in the right proportions, according to the current needs of the organism [Dróżdż 1994]. The indications for total parenteral nutrition is the condition in which the intestinal tract is not functioning, it is not able to utilize the nutrients in sufficient quantities due to malabsorption or digestion.

Using parenteral nutrition catabolism of the patient's own tissue is limited and thus this creates the conditions to survive the critical period (Goldfinch, Socha, 1994). Contemporary parenteral nutrition, due to choosing the appropriate composition of parenteral mixtures, may also have a therapeutic effect, such as modifying the inflammatory response, enhancing immunity, relieving inefficient liver, kidneys, lungs, affecting the movement of water between cellular spaces (Ciszewska-Jędrasik, Pertkiewicz, 2004) .

Enteral nutrition is used when the patient has a well functioning gastrointestinal tract. Nutrient solutions should be introduced into the digestive tract in a place where they can be absorbed. The choice of route to this type of feeding depends on the underlying disease, the expected duration of the diets and the preferences of the patient.

Pancreatitis is a severe disease with a mortality rate of about 10%. In the course of about 80% moderate or mild, but 20 - 25% develop a severe form of the disease, which may result in organ failure and death. In AP adequate fluid intake and nutrition still creates healing problems. Despite increased knowledge derived from the study of metabolism and clinical nutrition intervention proceedings, there are many concerns regarding the optimal nutritional therapy (Lubos, 2007).

The main pathogenic factor in the development of acute pancreatitis is within the pancreatic enzyme activation and then its selfdigestion. This leads to a variety of pathophysiological changes, from mild inflammation to necrosis of the organ and the development of pancreatic infiltration. Secondary infection and reducing the flow may lead to the development of visceral septic complications and then to a multiple organ failure (Lubos, 2007).

Parenteral nutrition in acute pancreatitis is typically used in conjunction with the enternal feeding to the jejunum. In the most severe cases the patient needs surgery because of septic complications, there is respiratory failure, prolonged paralytic ileus gastrointestinal parenteral nutrition should be used, and once a patient is driven out of shock, a small amount of nutrition to the jejunum should be added.

Parenteral nutrition does not affect the course of the disease however, it prevents starvation, minimizes the loss of tissue and can maintain its activity, thus reducing the risk of surgery, and starvation if the gastrointestinal failure is prolonged (Lubos, 2007).

Parenteral nutrition is an interference with the metabolism of the body, which can cause biochemical disorders, worsen existing or lead to their disclosure [Goldfinch, Socha 1994]. It is therefore necessary to lead the constant guidance of metabolism in patients to assess the efficacy of treatment and avoid complications arising from the use of parenteral nutrition.

Żywienie parenteralne uznawane jest za jeden z bardziej zaawansowanych sposobów terapii dożylnej, jest integralną częścią opieki nad pacjentem. Dożylne podawanie składników odżywczych ratuje zdrowie i życie pacjentów, którzy nie mogą utrzymać dobrego stanu odżywienia wykorzystując przewód pokarmowy. Ryzyko związane z tą terapią musi być dokładnie rozważone w stosunku do potencjalnych korzyści z niej wynikających (Mark, 2006).

Parenteral nutrition is considered to be one of the more advanced methods of intravenous therapy, it is an integral part of patient care. Intravenous administration of nutrients saves the health and lives of patients who cannot maintain good nutritional status using the gastrointestinal tract. The risk associated with this therapy must be carefully considered in relation to the potential benefits arising from it (Mark, 2006).

Objectives

Aim of this study is to present the advantages and disadvantages resulting from the use of parenteral and enteral nutrition in acute pancreatitis.

Ethioparogenesis of the disease

Acute pancreatitis (AP) is an inflammation of the prostate and surrounding tissue sometimes caused by the release of pancreatic enzymes. The most common factors initiating are biliary disease and chronic alcohol abuse - 80% of cases. The remaining 20% are other reasons mi.in drugs, infections, hereditary factors, metabolic, and more (Mark, 2006).

Regardless of the etiology, there is an activation of pancreatic enzymes (tryptase, phospholipase A2, and elastase) within the gland. These enzymes cause tissue destruction, and activation of the complement cascade with the release of inflammatory cytokines. Therefore there sometimes occures inflamation, swelling, and sometimes necrosis. In mild acute pancreatitis an inflammatory process is limited to the pancreas. In severe cases there is a severe inflammation with necrosis and bloody flooding into the prostate and a generalized inflammatory response develops. After 5-7 days, pancreatic necrosis may become infected by intestinal bacteria (Mark, 2006).

Enzymes and cytokines that enter the peritoneal cavity cause chemical burns and create a third fluid space. These, in turn, enter the bloodstream, causing a generalized inflammatory response which might lead to the development of ARDS and renal failure. General symptoms are the result of increased capillary permeability and decrease in vascular resistance. Death within the first few days is usually caused by heart or respiratory failure (Mark, 2006).

Severe acute pancreatitis according to the Atlanta classification can be divided into two stages. The first phase takes about 7-10 days and begins with an aseptic inflammation of the gland, systemic inflammatory response syndrome (SIRS) develops, sepsis and multi-organ failure and even death occure (Poves et al. 2004). In the second phase, there is often necrosis of the pancreas. During this time, patients' lives are still at risk of infection and immune response of pancreatic necrotic amended gland (Casas, 2007).

Nutrition its importance and pathophysiological processesin ap

In patients with acute pancreatitis due to stress, inflammation and pain the basic metabolism increases, which leads to increased energy consumption. 80% of patients with severe necrotizing pancreatitis can daily lose more than 40 grams of protein, resulting in a negative nitrogen balance and it is detrimental to the course of the disease (Meier et al. 2006; Meier, Beglinger, 2006; O'Keefe, 2005).

The way of administration of nutrition is important. Protein or amino acids administered parenterally do not stimulate exocrine pancreatic function, the severity of pancreatic stimulation with enteral feeding depends on the anatomy of supply of nutrients (Lubos, 2007). The diet should be given to the jejunum by gavage established outside the Treitz ligament. However, the supply of intragastric or intraduodenal protein stimulates pancreatic secretory response, which is contraindicated in case of severe acute pancreatitis (Lubos, 2007).

Often there occurs hyperlipidemic in pancreatitis states, which may cause the disease, but also modest increases of lipids are the consequence of mastitis. However, in most published studies in humans intravenous infusion of fat stimulates the exocrine pancreas and increases disease. The plasma lipids during intravenous use should be monitored (Lubos, 2007). If fats are administered to the duodenum, there is a strong external stimulation of the pancreas, while the supply of the same amount to the jejunum minimally stimulates pancreatic function. Minimal stimulation is not specific for fat, but may occur after administration to the jejunum of any nutrient mixture (Lubos, 2007).

In the AP there is a reduced glucose tolerance as a result of reduced insulin sensitivity and insulin secretion deterioration due to damage to the pancreatic islets. Glucose should be carefully administered intravenously due to the risk of hyperglycemia. Part of this can be prevented by using exogenous insulin infusion. The supply of glucose to the jejunum is the weakest stimulus for pancreatic exocrine (Lubos, 2007).

Patients with severe illness or complications requiring surgical treatment should start nutritional therapy as soon as possible. You should always start with aggressive fluid resuscitation because there is a significant volume depletion, caused by the escape of fluid into the abdominal cavity and retroperitoneal space. You may need transfusions of 6-8 liters of fluid a day with appropriate electrolytes.

If the digestive tract is efficient enough to ensure an adequate supply of calories and nutrients there should be introduced enteral nutrition to the jejunum by gavage, in the event of side effects or inadequate supply parenteral nutrition should be included. In the absence of tolerance, enteral and parenteral nutrition should be used and possibly 10-30 ml / h elemental diet should be given to the jejunum, as shown in studies that early enteral nutrition in acute pancreatitis compared to parenteral nutrition is more beneficial in terms of lower incidence of infections, hyperglycemia and reduced mortality (Garcia, 2012).

Parenteral nutrion – monitoring, benefits and disadvantages

Parenteral nutrition is the only form of nutrition in patients with acute pancreatitis which is not recommended, but it is often necessary when there is no possibility of enteric supply. This situation exists, for example, in a prolonged paralytic obstruction. Partial parenteral nutrition is used when it is impossible to provide the right amount of nutrients by the enteral one.

The demand for essential nutrientsin the AP is the energy of about 25-35 kcal / kg mc./24h, protein 1.2 to 1.5 g / kg bw/24 h, carbohydrates 3-6 g / kg bw/24 h according to glucose, preferably not exceed 7mmol / L. Fats to 2g/kg bw/24 h, so that the concentration of triglycerides in the blood serum was higher than 2-3 mmol / l (Lubos, 2007). Parenteral nutrition should be tailored to the needs and capacity of the patient's metabolism, metabolic disorders and co-existing deficiencies or excesses.

Total parenteral nutrition should be complete, and therefore all the necessary nutrients such as amino acids, carbohydrates, fats, water, electrolytes, vitamins and trace elements, must be given in the required quantities (Lubos, 2007). In the AP one should be aware of supplementation of calcium and magnesium, as deficiencies of these elements are often observed due to the formation of insoluble calcium and magnesium soaps.

Monitoring of parenteral nutrition

Using parenteral nutrition can easily lead to serious metabolic complications and deterioration of the general condition of patients. Nutrition should be carefully monitored using the appropriate clinical and biochemical variables. In AP there is a phase of catabolism, impaired water and electrolyte and acid-base balance. Nutrition should be introduced as soon as possible, but not in the phase of severe fluid and electrolyte or acid-base disturbances, these need to be aligned.

Monitoring the nutritional therapy includes:

- daily measurements of weight and keeping information cards in order to control water balance
- testing of electrolytes (sodium, potassium, calcium, magnesium, chloride, iron, phosphate), control of the concentration of vitamins and trace elements
- testing blood glucose levels to monitor its tolerance by the body and control the insulin regimen
- frequent (depending on the clinical situation) measurements of creatinine, urea, albumin, or protein with a short half-life-transferrin, transthyretin
- liver function tests, INR
- weekly test of blood serum cholesterol, triglycerides (Lubos, 2007).

In AP there is a strong catabolism. Daily nitrogen balance should be calculated to monitor the loss of protein and supplement its deficiencies. Physiologically urinary nitrogen loss takes place in the form of urea. Using the appropriate formulas we can calculate the loss of nitrogen in the urine. For this purpose, daily urine collection is carried out and the urea concentration is determined. For the determination of nitrogen balance in patients in the catabolism we have to take into account the fact that the loss of nitrogen in them shall also be due to the elimination of ammonia. Determination of both the urea and ammonia in the urine allows a better evaluation of the loss of nitrogen from the urine.

Complications of parenteral nutrition and disadvantages of its use:

The most serious complication of nutritional therapy is the team re-nourishment (refeeding syndrome). Marinella draws attention to the underestimation of this

complication in clinical practice. This syndrome is characterized by hypophosphataemia, hypomagnesaemia and hypokalaemia, which are the result of the sharp changes in intracellular energy oversupply, particularly carbohydrates (Marinella, 2009).

Adkins said that the re-nourishment syndrome is a potentially fatal phenomenon. It can occur in patients receiving any kind of nutrition both parenteral and enteral and oral after a steady malnutrition or starvation (Adkins, 2009).

Re-nourishment syndrome is also associated with deficiencies of vitamins (especially thiamine) and fluid retention, and this leads to congestive heart failure.

Hypophosphatemia is the dominant feature of the re-nutrition. In the case of catabolism, which we have in AP for the loss of phosphate from the intracellular space. Subsequent high caloric intake leads to the release of insulin and glucose and phosphate fast movement into cells. Subsequent hypophosphatemia leads to impaired neuromuscular dysfunction of parastezjami, seizures and impaired muscle contractility, which results in a weakening of the respiratory muscles and respiratory failure. In severe hypophosphatemia rhabdomyolysis can occure. Phosphorus deficiency also leads to thrombocytopenia and clotting disorders (Lubos, 2007).

Hypokalemia and hypomagnesemia etiology is similar as in the case of phosphorus. Magnesium and potassium deficiency in blood serum leads to arrhythmias. Both hypomagnesemia and hypokalemia are the cause of neuromuscular dysfunction, weakness, paresthesias, seizures, confusion, and respiratory depression.

Niedobór tiaminy wynika z powodu szybkiego jej zużywania w procesie glikolizy. Pogarsza to metabolizm glukozy z następczą kwasicą mleczanową.

Thiamine deficiency resultsfrom its rapid wear in the process of glycolysis. This reduces the metabolism of glucose with subsequent lactic acidosis.

Other metabolic complication caused by parenteral nutrition is fatty liver. It usually occurs as a result of overfeeding, especially with glucose. Obesity is associated with increased serum of transaminases and hepatomegaly (Lubos, 2007).

Total parenteral nutrition used for a longer period of time may cause atrophy of the intestinal villi and the translocation of intestinal bacteria into the bloodstream. Buchman et al says that after 21 days without enteral villi significantly reduce their height and also the number of intestinal epithelial cells becomes reduced [Buchman 1995]. Just a small amount of nutrients to be delivered by the gastrointestinal tract, to prevent the atrophy of intestinal villi.

Parenteral nutrition is associated with a higher incidence of catherer infections by which they are administered. This may include a peripheral vein, central or arteriovenous fistulas. Another complication is venous thrombosis.

Summary and conclusions

Nutrition in acute pancreatitis is an extremely important part of treatment. The choice of method depends on the feeding characteristics of the patient, the severity of inflammation and complications resulting from the development of the disease. The most physiological way of nutrition is the way through the digestive tract - oral or by probing. Parenteral nutrition in this disease entity is typically used when the gastrointestinal tract cannot cover the total daily intake of nutrients. In severe cases of acute pancreatitis when feeding is contraindicated, such

as paralytic ileus, total parenteral nutrition is used. Sometimes it is possible to supply, in this case, a small amount of food in the intestine to prevent the atrophy of intestinal villi.

Using only parenteral nutrition in acute pancreatitis is not a good method of choice. Kalfarentzos et al conducted a prospective randomized study in patients with severe pancreatitis. Patients were treated with parenteral and enteral nutrition in the first 48 hours after admission to the hospital. It has been shown that enteral nutrition was well tolerated, with no adverse effects on the course of the disease. These patients had fewer septic complications and general complications compared with patients nourished completely parenterally. Also, the cost of medical nutrition therapy was higher in patients fed parenterally (Kalfarentzos, 2007).

Windsor at al in conducted studies that compared parenteral and enteral nutrition showed that enteral nutrition reduces the acute phase response in acute pancreatitis, reduces the severity of the disease and improves clinical outcomes. However, damage to the pancreas in the CT image actually does not change (Windsor et al. 1998).

Abou-Assi et al showed that hypocaloric enteral nutrition seems to be safer and less expensive than parenteral nutrition, but only 3% of patients had severe pancreatitis (Abou-Asi et al. 2002).

Mc Clave et al randomized patients to total parenteral nutrition or total enteral nutrition by naso-intestinal tract in a subset of acute pancreatitis from mild to moderately severe. This study demonstrated that enteral nutrition is possible in a mild and moderate pancreatitis, but the results of the two treatment groups did not differ statistically. Parenterally fed patients had a significantly higher concentration of glucose in the early days, the costs of treatment were significantly higher (Mc Clave, 1997).

Nutritional support in severe acute pancreatitis is still controversial when it comes to the merits of enteral and parenteral nutrition. Singh et al conducted a retrospective study of 130 patients with acute pancreatitis. They evaluated the therapeutic efficacy of combination therapy for enteral with parenteral nutrition. In this group of patients, where first used parenteral nutrition (in the first stage of the disease), and the second and third stages were introduced enteral nutrition, there was a greater success with treatment. Evaluation according to the APACHE II and IL-6 were significantly lower in these patients compared with the group, which was introduced earlier enteral nutrition. This study indicates that a combination of parenteral and enteral nutrition can not only improve the natural history of pancreatitis, but also reduce the incidence of morbidity and mortality (Singh et al. 2012).

Xu et al studied the effects of enteral nutrition compared with parenteral feeding on the intestinal barrier function in patients with severe acute pancreatitis. The study was performed on 63 patients: 29 were in the enteral nutrition group and 34 in the parenteral nutrition group. The concentration of endotoxin and the oxidase was determined in both groups of patients. It was observed that the concentration of endotoxin and oxidase significantly decreased in enterally fed patients, therefore, enteral nutrition improves intestinal barrier (Xu et al. 2011).

Another study carried out by Petrov and Whelan on enteral nutrition compared to parenteral administration in the course of acute pancreatitis shows that using enteral nutrition significantly reduces infectious complications and mortality (Petrov, Whelan, 2010).

Meier et al argue that enteral nutrition in acute pancreatitis provides a protective barrier of the intestinal mucosa, causing fewer metabolic complications and sepsis, and

is cheaper. However, total parenteral nutrition is reserved for patients with obstruction of the small intestine or duodenum (Meier, 2002).

Istnieje wiele badań, które donoszą o przewadze żywienia dojelitowego nad pozajelitowym w OZT. Niemniej jednak żywienie pozajelitowe często musi być zastosowane w leczeniu niedoborów żywieniowych w ciężkim ostrym zapaleniu trzustki. Niekiedy na początku choroby stanowi jedyną możliwość odżywiania pacjenta.

There are many studies that have reported a predominance of parenteral enteral nutrition in acute pancreatitis. However, parenteral nutrition must often be used in the treatment of nutritional deficiencies in severe acute pancreatitis. Sometimes on the onset of the disease it is the only possibility nutrition of the patient.

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Chapter III

The influence of knowledge and awareness on the development of health behaviors

Wpływ wiedzy i świadomości
na kształtowanie zachowań prozdrowotnych

Ewa Kostrzewa-Zabłocka[1,2], Piotr Dziemidok [2,3], Wioletta Wolańczyk[4]

[1]Chair of Nursing at the Faculty of Physiotherapy and Pedagogy, Higher School of Management and Administration in Zamość
[1]Katedra Pielęgniarstwa Wydziału Fizjoterapii i Pedagogiki, Wyższa Szkoła Zarządzania i Administracji w Zamościu
[2]Department of Diabetology, Institute of Rural Health in Lublin
[2]Oddział Diabetologii, Instytut Medycyny Wsi im. Witolda Chodźki w Lublinie
[3]Department of Health. John Paul II State Higher School in Biała Podlaska
[3]Instytut Zdrowia. Państwowa Szkoła Wyższa im. Papieża Jana Pawła II w Białej Podlaskiej
[4]Student at the Faculty of Nursing, Higher School of Nursing and Administration in Zamość
[4]Studentka Wydziału Pielęgniarstwa Wyższej Szkoły Zarządzania i Administracji w Zamościu.

Nurse as an active contributor in prevention of obesity among junior high school youth

Pielęgniarka jako osoba biorąca czynny udział w profilaktyce nadwagi u młodzieży gimnazjalnej

Summary
In the forthcoming decades, one can expect an epidemic of obesity among children, growing number of obese adults as well as complications associated with obesity. Faced with the problem of overweight and obesity among children and youth, the first step should be to educate, since it is basic foundation of a healthy lifestyle. Prevention of obesity should be promoted among parents/guardians and teachers by dissemination of the correct attitudes at school and at home. Cooperation between school nurses and school staff involves mutual support, complementing the school's objectives as well as protection and promotion of healthy lifestyle of among students and staff.

Key words: adolescent health, physical activity, obesity, prevention, treatment

Streszczenie
Epidemia otyłości u dzieci pozwala spodziewać się w najbliższych dziesięcioleciach większej liczby otyłych dorosłych, a także powikłań towarzyszących nadwadze. Stając przed problemem nadwagi i otyłości u dzieci i młodzieży, należy w pierwszej mierze rozpocząć od edukacji, gdyż jest ona podstawowym fundamentem zdrowego stylu życia. Prewencja otyłości powinna być przeprowadzona wśród rodziców/opiekunów i nauczycieli poprzez promowanie prawidłowych postaw w środowisku szkolnym i domowym. Współpraca między pielęgniarką szkolną, a pracownikami szkoły polega na wzajemnym wspieraniu się, uzupełnianiu w ramach zadań, które realizuje szkoła w ochronie i promocji zdrowia uczniów i pracowników.

Słowa kluczowe: zdrowie młodzieży, aktywność fizyczna, nadwaga, profilaktyka, leczenie

Introduction

Over the last years, the perception of children with excess body weight has clearly changed. For some time, press, books, and medical publications reveal frightening statistics. Overweight and obesity have become a scourge of the twenty-first century (Jarosz, 2009). During the past 25 years, the number of obese school-age children has doubled. In 1997, the World Health Organization identified obesity as a disease. It is now believed that one in five children is overweight or obese. Changing the nutritional habits and encouraging physical activity increases the chances of achieving the weight suitable to the height, sex and age by children suffering from overweight (Jóźwiak, 2011). The role of genetic factors is not the same among all people, but genes have a strong impact on the family history of obesity. It is believed that the interaction of the foregoing with environmental factors discloses an innate tendency for this disease (Zgliczyński, 2011). The development of industry, advances in technology and modern means of transport created ideal conditions for the development of obesity. Increased availability of food, more calorific value and increased size of meals are just some of those mistakes that are made (Wajszczyk, 2008). Computer games significantly reduce the physical activity of young people. Lack of exercise in the open air contributes to the development of overweight and obesity. Obese children are less physically fit, so even small effort can be troublesome for them (Chomicz, 2006). It is more and more often claimed that obesity is a "ticking time bomb" and that a generation of young and sick people will grow, who will die before their parents. There is an association between obesity and increased general mortality. The real objective of the fight against obesity is not just a normal body weight, but a reduction of body weight to the extent achievable for a patient (Sikorska-Wisniewska, 2007). Faced with the problem of overweight and obesity among children and youth, the first step should be to educate, since it is basic foundation of a healthy lifestyle. (Białosz-Kalinowska, 2010). Prevention of obesity should be promoted among parents/guardians and teachers by dissemination of the correct attitudes at school and at home. Also, the media should play an important role in changing lifestyles through a broad impact on society. Obesity of a child can be seen as a failure to exercise proper parental child care. More and more often the attention is drawn to the psycho-emotional aspects, including reactions to stressful situations (Żaczek, 2008). The health promotion and disease prevention programmes define multiple tasks based on the transferring knowledge to young people, shaping the skills or motivation to incite interest in health issues, to be maintain good health as long as possible as well as opportunities to improve it (Wójta-Kempa, 2011). A school nurse has special abilities and opportunities for such interactions, particularly with young people, because she spends more time with them than other health professionals. She has an opportunity to watch young people in a variety of situations. It is easier for her to assess their needs and willingness to learn and change their habits (Marcysiak, 2010).

Purpose of the paper:

The aim of this paper is to identify and determine the impact of the school nurse's prevention activities on changing the body weight among junior high school children.

Material and research methods:

The method, which was used to carry out own research was a diagnostic survey method. The advantage of this method is its anonymity, which allows the respondents to express their own opinions without any fear, and also facilitates gathering valuable material for research.

The technique was a survey, and the research tool was a questionnaire of our own design, which addressed the impact of socio-economic factors on overweight and obesity. The questionnaire was designed after reading the literature on factors determining overweight and comprised of 23 closed-end questions.

The questions pertained to: age, weight, height, waist circumference and hip circumference, diet, regularity of meals, ways of spending leisure time physical activity and knowledge about the causes of overweight and obesity. The survey was conducted twice, before and after the discussions on the impact of nutrition and physical activities on health of contemporary teenagers. The discussion was enriched by personally prepared project on the prevention of overweight and obesity. The discussion lasted 45 minutes.

The survey was conducted in January and February 2013, and then it was subject to statistical analysis. 64 randomly selected middle school students in Narol were involved in the survey.

The results were subject to statistical analysis.

Discussion of results

The survey on nutrition and physical activity was conducted among adolescents aged 15 years old, attending the junior high school [Gimnazjum im. Bohaterów Września 1939] in Narol. The study involved 64 people, including 34 boys and 30 girls. 16 people came from the town. The following measurements were taken: weight, height, waist and hip circumference. The diversity of the results shows different body structure and degree of development of fifteen-year olds. Among the smallest ones, there were very slim people, but also those with higher weight than the tallest ones. This trend was observed among both sexes (Table 1).

Tab. 1. Results of body weight and body measurements of the respondents

Boys				Girls			
Height (cm)	Weight (kg)	Waist circumference (cm)	Hip circumference (cm)	Height (cm)	Weight (kg)	Waist circumference (cm)	Hip circumference (cm)
158-170	41-60	56-78	65-85	150-160	46-55	71-74	90-97
170-175	52-84	60-100	70-109	160-165	40-51	60-71	75-91
176-185	55-92	61-133	59-125	166-176	50-69	67-76	86-94

When asked: “Do you think that your weight is normal?”, 46 people, including 24 girls and 22 boys answered ‘yes’. 15 people gave a negative answer, 5 of whom were girls, and 10 were boys. Three people admitted to be overweight: one girl and two boys.

Question: “Do you have breakfast before school ?” The answers to this question were very surprising. Although the 45 responses answered: “yes” (21 - girls, 24 - boys), but 11 people (6 boys and 5 girls) gave a negative answer. In addition, four girls and four boys answered that they have breakfast occasionally, 2-3 times a week. It appeared that 30% of junior high school students do not have breakfast - the most important meal of the day.

When asked: “How often is your diet dominated by vegetables?”, the responses were differentiated by gender. The results show a higher consumption of vegetables by girls. Boys pay less attention to this component of their daily diet (Table 2).

Tab. 2. Consumption of vegetables by respondents

Answers	Girls	Boys	Total
Once a day	18	11	29
2-3 times a week	11	18	
I usually do not eat vegetables	1	5	6

The next question was: “Do you eat fruit?” In this case, the responses were similar. 18 girls and 12 boys included in the survey have fruit once a day ,12 girls and 15 boys have fruit 2 - 3 times a week. Only two boys answered that they rather not eat fruit. When asked: “How often do you drink milk and eat dairy products?” 15 boys and girls answered: “Once a day”, 13 girls and 16 boys answered 2 - 3 times a week, and five people, including two girls and three boys do not like milk and diary products.

For the next question: “What do you drink most often when you are thirsty?”, most respondents answered that they drink water (18 girls and 20 boys). Beverages such as: Coca-Cola, Red Bull were chosen by 8 girls and 12 boys. 4 girls and 4 boys chose other beverages. This part of the question was open. Respondents chose juice and other sweetened beverages.

For the question, “What you are most likely to choose from the school store?”, the respondents chose one answer from several ones, with the option of their own response, incompatible with the suggested ones. Numerical results are presented in Table 3

Tab. 3. The products most often purchased by junior high school students in school stores

Answers	Girls	Boys	Total
Fruit	0	0	0
Bread	11	12	23
Crisps	2	11	13
Bars	14	10	24
Other, what kind?	3 sticks, candy	1-sweets	4

Choosing unhealthy food in school stores is connected to the product range, which contributes to the formation of unhealthy habits among children and adolescents. Nobody marked fruit, because they are simply not in stock in school stores.

The question "How much time do you spend on food consumption (provide the number of minutes)?" was a basis for the conclusion that a very large proportion of young people eat in a hurry. As many as 13 respondents (6 girls and 7 boys) eat meals for 1-5 minutes, which has an impact on the deterioration of the overall health of the body. 18 respondents of each sex responded that the duration of the meal is 6 - 11 minutes, and only 6 girls and 9 boys answered that the duration of the meal is 12 or more , which constitutes only 23% of respondents.

Another issue was: "In what position do you have meals most frequently?". There were three options to choose from: sitting, standing, lying position. They all said that they have meals in a sitting position.

Different answers were provided to the question: What do you do most often while having a meal? " One should choose one out of several options. It was possible to enter a student's own response, which was different from those proposed ones. As many as 66% of the respondents watch television while eating, which is undesirable and conducive to the overweight (Table 4).

Tab. 4. Activities of the respondents while eating

Answers	Girls	Boys	Total
I am reading	0	0	0
I am watching TV.	19	23	42
I am listening to the radio.	7	2	9
I am using my computer.	3	2	5
Other, what kind?	1- I am talking to my parents	7-nothing	8

Each student of junior high school knew that "Fast-Food products were: Burgers, fries, hot dogs". The question: "Do you know the expression 'Junk food'?". Not all the students could give an affirmative answer. Six girls and ten boys marked a definite "no", while seven girls and eight boys gave the answer "I heard something about it". This represents a total of 48% of respondents, and shows the need to raise awareness of this issue.

It was a similar case for the following questions: "Do you know that eating fast food leads to the development of diseases such as obesity, diabetes and cancer?" 100% girls responded: "Yes," the answers among boys were similar, only three answered: "I did not think about it." In case of question ("Overweight and obesity often causes:"), the responses were not consistent. While 72% of respondents answered that it was "overeating and low physical activity", however, four girls and three boys pointed to the disease, and 6 girls and 5 boys said that the reason were genes from their parents.

The question: "Do you know what a pyramid health is ?" did not cause any difficulties for the respondents. The vast majority said yes, only 8% (2 girls and 3 boys) answered: "I heard something about that." But not everyone can independently arrange the correct menu, which one can learn by following question: ("Can you arrange your daily menu? ').

Five girls and eight boys cannot do it, representing 20% of the group. When asked about bad fats; ("Unhealthy fats can be found in:"), all students provided the answer: "Chips, French fries" alternative answers were: "Fish" and "vegetable oil".

One major challenge for this study was the following question: "Do you think that being overweight has a psychological aspect?". The condition of psychological knowledge about being overweight needed to be completed, which was one of the priorities for prevention activities. Answer: "No" was given by 12 girls and 15 boys, representing 42% of the respondents.

The scale of physical activity and ways of spending free time was covered in the question: "Do you like to participate in physical education classes?" The majority of respondents answered: "yes". There is a group that does not like such classes for various reasons. This represents 17% of all respondents, including the majority of girls (8 negative replies). Two boys marked: "No". These are the boys declared to be overweight.

Preferences for leisure activities have been tested in the question:

"How do you prefer to spend time after school?". Among girls the most popular way of spending free time is sitting in front of a computer (19 responses), doing sports prevails among boys (22 people). However, eight girls do sports, three reads books, and among boys, 10 like to spend time at the computer, and the two like to read books. Despite, the undoubtedly educating effect of reading on the intellectual development, one should pay more attention to physical activity.

Having implemented preventive measures after a month, the survey was repeated among the same young people and the results of the survey were compared with the previous ones. During quantitative and qualitative analysis of the repeated surveys, substantial positive changes were observed in many aspects. Thanks to discussion and evocative wall project, junior high school students understood the importance of prevention to health, beauty and well-being. This resulted in tangible results in the responses. Currently, 92% of the respondents declared having breakfast before school, which is a 33% increase among girls and 29% increase among boys. 80% of students had vegetables once a day (previously 45%), the rest was convinced to eat these rich sources of vitamins 2-3 times a week. 81% of respondents declared eating fruit once a day (previously 47%), all others eat fruit 2-3 times a week. We managed to convince all students to eat these products so that no one said that they did not eat vegetables and fruit.

Less spectacular, but satisfactory results were achieved for the consumption of milk and dairy products. The rate of 47% of respondents who drink milk once a day, rose up to 76%. We were unable to convince two people who are allergic to drink milk. Students most often drink water: the 59% ratio increased up to 91%. The consumption of carbonated and sweetened soft drinks decreased.

Thanks to the promotional campaign organized with students, fruit appeared in school store stock so the demand for sweets, chips and other salty snacks decreased. Since then, 78% of respondents marked fruit, as the product that is purchased most often. Students learned how to eat healthy , slowly, without hurry , 16 girls and 17 boys said they spent 12 minutes or more for a meal . In comparison to the previous survey it is a huge improvement by 28%. We also taught the youth how to concentrate on a meal without concentrating on such things as: TV, computer, book, newspaper, etc. To eat

healthy, one must do it slowly, chew thoroughly and with full attention, so that the brain had a chance to receive a satiety signal. Out of the previously declared 88%, now 32% of respondents have meals doing other things. The result was improved by 56%.

One hundred percent success was achieved in the field of health education: everyone knows the meaning of "junk food" and the consequences of eating junk food, the students are able to enumerate the examples of unhealthy food. The students are able to make proper health-promoting menus in 100%, as they demonstrated during the practical exercises. In the category of great success, it is worth to note a full understanding of the psychological aspect of the tendency for overweight and obesity. Previously, only some of the respondents were aware of the scale of the problem, now we all agree that this is an important element in the prevention of this disease.

Physical activity of respondents was definitely increased. In the previous survey only 22% of girls dealt with sport in their free time. Currently,63% of them do sports. Among boys, the rate increased from 65% to 88%. In total, 77% of respondents preferred physical activity during their leisure time.

Given these data, we find that prevention efforts are needed in any educational institution. The role of a school nurse in this regard is invaluable. Prevention of overweight and obesity can save many people struggling from excessive weight gain.

Discussion

Improvement of nutrition habits among children and youth at school plays an important role in the prevention of obesity and chronic diseases. It also plays a role in preventing another negative phenomenon of malnutrition. One should have meals regularly 4-5 times a day, and the gap between the meals must not be longer than 3-4 hours. Many students do not have breakfast, which is the most important meal of the day and should be eaten before leaving home for school. Many students do not have lunch a hot meal at school, which complements the energy and nutrients throughout the day. Good habits are formed from an early age, so children should be taught how to eat properly (Jarosz, 2011). After the school starts, the diet often becomes worse. Probably because children spend more time out of their homes, they also become more independent. Irregular meals may not only cause shortages of some nutrients, but also a risk of a reduction in energy expenditure of the body. People who have meals irregularly have less effective thermogenesis, and therefore are exposed to positive energy balance and consequently, to an increase in body weight (Jodkowska, 2011).

Children and young people often buy food in school stores which offer many unhealthy products in terms of good nutrition patterns. Students most often choose candies and snacks such as chips, sweet fizzy drinks. They are not aware of the effect these products have on their body. These products suppress the feeling of hunger without providing the body with adequate amounts of nutrients. Sweet fizzy drinks limit healthy intake of dairy drinks and cause lower intake of calcium or vitamin C. In addition, they have high calorific and low nutritional value. These products are also more popular than other meals rich in beneficial health nutrients (Otto-Buczkowska, 2006).

At school, especially during physical activities, through perspiration, a child may lose 0.3-0.5 l of water per hour. The risk of dehydration and sodium loss as a result

of increased sweating is particularly high during physical education classes at high temperatures in summer. Dehydration impairs the functions of cells of the central nervous system, causing concentration of urine and bile, which can cause constipation, urinary stones, and bile ducts (Jarosz, 2011).

Regular physical activity of children and adolescents has many advantages in the prevention of diseases in adulthood. It stimulates respiratory and cardiovascular functions, especially the flow of blood to the cardiac muscle, helps to maintain muscle strength and flexibility of the joints. Regular physical exercise stimulate children growth. Physical movement improves fine motor skills and improves the condition of the body, helps to fight anxiety and nervous tension. Outdoor activities regulate appetite and contribute to efficient working and learning (Chomicz, 2006).

The obesity epidemic is a major reason to fight this disease from an early age. In this respect medical care representatives of the local area play an important role in fighting this disease. For school-age child a school nurse is such a person. Some of the nurse's tasks include systematic diagnosis and prevention activities as well as emergency assistance and referral to appropriate clinic when there is such a need. During a routine physical examination, BMI is determined for individual children, and the results indicate high risk of being overweight. One should take actions to help children to return to normal weight, which is not an easy task (Hannon, 2006).

That's why prevention is so important. To stay healthy and enjoy normal body weight, one should follow the recommendations given by a school nurse at the meetings with students. Meetings with the exchange of views and answering questions from the audience can be initiated during weekly class meetings, biology lessons or organized general meetings for the whole school community. Individual talks in the office, giving advice, recommending educational materials, providing contacts with nutritionists, and cooperation with parents, who shall be advised how to apply new rules to their family life are also very important. A pivotal role of the school nurse is to make the parents aware that that if there is a problem of overweight, treatment is long-lasting and the whole family must be included in it. Only on this condition there is a chance to achieve good results (Kułaga 2012).

It is also important to examine school environment of an obese child: position in the classroom, relationships with peers, teachers approach. School nurse should through discussion make other people realize the plight of such a child and to try to reduce potential tensions (Kułaga, 2012)

Cooperation between a school nurse and school staff consists of mutual support, complementation of school tasks in protecting and promoting healthy lifestyle among students and staff. Wherever the tasks of health promotion, disease prevention, health education and health education refers to the impact on the attitudes, beliefs, teaching youth, nurse participating in these programs function performs the task of education. For efficient implementation of these tasks school nurse needs comprehensive knowledge and pedagogical skills (Marcysiak, 2010).

Conclusions

1. Education is the basic foundation for the promotion of a healthy lifestyle.
2. School period is the time in which helps to develop a positive interest in the health, shape the skills, attitudes, behaviour and eating habits that contribute to strengthening and improving health.

3. Educational activities of a school nurse have a positive effect on the improvement of nutrition and increase physical activity among junior high school students.
4. Young people who apply the recommendations of the school nurse, enjoy health and good shape, which significantly increases self-esteem.

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Piaszczyk Diana, Sokołowska Barbara, Spisacka Stanisława, Aneta Stanisławek, Edyta Kawka

[1]Pope John Paul II State School of Higher Education in Biala Podlaska, The Health Institute
[1]Państwowa Szkoła Wyższa im. Papieża Jana Pawła II w Białej Podlaskiej, Instytut Zdrowia

The role of the nurse in prevention of complications of diabetes
Rola pielęgniarki w profilaktyce powikłań cukrzycy

Summary
Diabetes is one of the most serious diseases of modern civilization. This disease is the cause of many complications. The most important of these include: diabetic retinopathy, diabetic nephropathy, diabetic neuropathy (which are the clinical forms of the so-called microangiopathy), hypoglycemia and hyperglycemia. The role and responsibilities of nurses in the prevention of these complications, their diagnosis and treatment is very important. Law regulations give the nurse a significant range of independent powers. Own research conducted providing data on the structure of the examined group of patients diagnosed with diabetes, the incidence of complications, methods of treatment and knowledge possessed by patients on diabetes showed a significant role of nurses.

Key words: complications, nurse, prevention

Streszczenie
Cukrzyca jest jedną z najpoważniejszych współczesnych chorób cywilizacyjnych. Choroba ta jest przyczyną występowania wielu powikłań. Do najpoważniejszych z nich należą: retinopatia cukrzycowa, nefropatia cukrzycowa, neuropatia cukrzycowa (stanowiące postacie kliniczne tzw. mikroangiopatii), hipoglikemia i hiperglikemia. Rola i zadania pielęgniarki w zakresie profilaktyki przedmiotowych powikłań, ich diagnostyki i leczenia jest bardzo istotna. Przepisy prawne przyznają pielęgniarce istotny zakres samodzielnych uprawnień. Przeprowadzone badania własne dostarczyły danych w zakresie struktury badanej grupy chorych z rozpoznaną cukrzycą, a także częstości występowania powikłań, stosowanych metod ich leczenia, oraz posiadanej przez chorych wiedzy na temat cukrzycy wykazały istotną rolę pielęgniarki.

Słowa kluczowe: powikłania, pielęgniarka, profilaktyka

Introduction

The rapid urbanization and associated changes in the mode of social life, which have been especially clear for the last decades, have made it increasingly challenging for medical services to prevent, diagnose and treat the so-called civilisation diseases and complications associated with them. One of the most serious of these diseases is diabetes.

Epidemiological data are the evidence of large scale and seriousness of the problem of diabetes and complications associated with it. Complications of diabetes are dangerous and difficult to treat, and the chances of curing are uncertain. In extreme cases, complications of diabetes can lead to disability, and even death.

The nurse, in the prevention of complications of diabetes, performs an educational and educative role, undertakes actions which serve the prevention of acute and chronic complications of the disease. She is responsible for the patient's development of sense of security and control over their lives, prepares him for self-care and self-control, makes him realize how important it is to treat co-morbid conditions that can impair the quality of life and lead to serious complications of diabetes.

Material and methods

The survey was conducted among a group of 50 patients with diabetes, patients of the Local Clinic in □□Luk□The survey was conducted in October 2012 with the help of the questionnaire-survey consisting of 26 closed and semi-opened questions developed independently for research purposes. All patients agreed to participate in the survey.

Discussion of results

Based on the survey it was showed that almost half of respondents (46%) belonged to the age group of 46-60 years. Women (32%) were more frequent than men (14%). It was observed that 30% of respondents belonged to the age group of above 60 years. Men (16%) were here a bit more numerous than women (14%). Based on the results obtained it was found that 10% of respondents belonged to the age group of 36-45 years. There was a similar proportion of men to (6%) and women (4%) here. It was shown that the smallest group of respondents were those aged 26-35 years (6%). Only 8% of respondents belonged to the age group below 25 years, women (6%) were more frequent than men (2%) (Table 1).

Tab. 1. Age of responders - overall number of responders by gender

Age	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Under 25	3	6	1	2	4	8
26- 35 years of age	2	4	1	2	3	6
36- 45 years of age	2	4	3	6	5	10
46- 60 years of age	16	32	7	14	23	46
Above 60	7	14	8	16	15	30
Total:	30	60	20	40	50	100

The results of the survey showed that the largest group of respondents consisted of people with secondary education (44%). Among them there were 30% of women and 14% of men. It was observed that 18% of respondents had vocational training (16% of men and 2% of men). 16% of respondents were people with vocational education (2% of women and 14% of men). People with higher education accounted for 12% of the respondents (8% of women and 4% of men), and people with primary education accounted for 10% of patients (4% of women and 6% of men) (Table 2).

Tab. 2. The level of education of respondents - all respondents by gender

Education	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Primary	2	4	3	6	5	10
Vocational training	8	16	1	2	9	18
Vocational	1	2	7	14	8	16
Secondary	15	30	7	14	22	44
Higher	4	8	2	4	6	12
Total:	30	60	20	40	50	100

The data contained in Table 3 show that 56% of the respondents were economically active people. The group consisted of 40% women and 16% men. The second group in terms of numbers, of respondents were the retired (30%). This category included 14% women and 16% men. The group of pensioners accounted for 8% of respondents (2% of women and 6% of men). The category of the unemployed accounted for 6% of all respondents, 4% of men and 2% of men.

Tab. 3. Sources of income of respondents - all respondents by gender

Source of income	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Professional activity	20	40	8	16	28	56
Unemployed	2	4	1	2	3	6
Disability pension	1	2	3	6	4	8
Age pension	7	14	8	16	15	30
Total:	30	60	20	40	50	100

The data presented in Table 4 shows that 70% of people lived in the city. There were 46% of women and 24%of men among them. People living in rural areas accounted for 30% of the respondents (14% women and 16% men).

Tab. 4. Place of residence of respondents - all respondents by gender

Place of residence	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Rural areas	7	14	8	16	15	30
City	23	46	12	24	35	70
Total:	30	60	20	40	50	100

On the basis of the data in Table 5 it was showed that in 56% of all respondents, diabetes was diagnosed during a routine medical examination. Women were slightly more frequent (32%) than men (24%). Incidental diagnosis of diabetes affected 22% of the respondents, i.e. 12% of women and 10% men. 22% of responders - 16% of women and 6% of men pointed out to other circumstances of diagnosis of diabetes.

Tab. 5. Circumstances of diagnosis of diabetes - overall number of responders by gender

Circumstances of diagnosis of diabetes	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
During a routine medical examination	16	32	12	24	28	56
By accident during the stay in hospital	6	12	5	10	11	22
Other	8	16	3	6	11	22
Total:	30	60	20	40	50	100

Based on the survey conducted it was showed that 78% of respondents were people with type-2 diabetes. This group consisted of 50% women and 28% men. It was observed that 16% of those participating in the study were unable to identify the type of diabetes diagnosed. This group consisted of 6% women and 10% men. It was found that type-1 diabetes was diagnosed in those who were examined the smallest number of times. This form of the disease was diagnosed in only 6% of patients and it was women (4%) who twice as often as men (4%) had this disease (Table 6).

Tab. 6. Recognized type of diabetes in responders - all respondents by gender

Type of diabetes	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Type 1 diabetes	2	4	1	2	3	6
Type 2 diabetes	25	50	14	28	39	78
DN	3	6	5	10	8	16
Total:	30	60	20	40	50	100

Based on the survey it was showed that in more than half of the respondents (78%), diabetes was treated with medications. This treatment was more often indicated by women (48%) than men (30%). It was shown that 12% of all respondents (8% of women and 4% of men) indicated treatment based on medicines and injections of insulin. It was observed that injections of insulin were an independent basis of treatment in only 10% of respondents, i.e. 4% of women and 6% of men (Table 7).

Tab. 7. Methods of treatment of diabetes - all respondents by gender

Methods of treatment of diabetes	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Medicines	24	48	15	30	39	78
Injections of insulin	2	4	3	6	5	10
Medicines + injections of insulin	4	8	2	4	6	12
Total:	30	60	20	40	50	100

Based on the results contained in Table 8 it was showed that 10% of all respondents were not able to perform injections of insulin without assistance. There was a larger proportion of men (6%) than women (4%) here. Only 8% of respondents performed injection of insulin without assistance and women were for times more often to do it. Only 4% of respondents performed injections of insulin with the help of people close to them (2% of men and 2% of men). Based on the survey, it was observed that only two people (4%) of all respondents were unable to perform insulin injections alone (Table 8).

Tab. 8. Method of performing insulin injections - all respondents by gender

Method of performing insulin injections	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Injections performed without assistance	3	6	1	2	4	8
Injections performed with the help of relatives	1	2	1	2	2	4
Lack of ability to independently perform injections	2	4	3	6	5	10
Total:	6	12	5	10	11	22

Based on the survey it was showed that slightly more than half of respondents (54%) pointed to gaps in their knowledge about the complications of diabetes. This problem affected 32% of women and 22% of men. Having sufficient knowledge about the complications of diabetes, however, was declared by 46% of respondents, i.e. 28% of women and 18% men (Table 9).

Tab. 9. Knowledge of the complications of diabetes - all respondents by gender

Knowledge of complications of diabetes	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Yes	14	28	9	18	23	46
No	16	32	11	22	27	54
Total:	30	60	20	40	50	100

Based on the data in Table 10, it was showed that 56% of respondents did not observe any diabetes-related complications in themselves. This group consisted of 38% women and 18% men. The incidence of complications of diabetes at home was indicated by 44% of respondents, i.e. 22% of women and 22% of men.

Tab. 10. Incidence of complications associated with diabetes - all respondents by gender

Incidence of complications associated with diabetes	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
No	19	38	9	18	28	56
Yes	11	22	11	22	22	44
Total:	30	60	20	40	50	100

Studies carried out and the results obtained allow to show that the most common symptom of disease in subjects over the past three months was sweating. 54% of the respondents (32% women and 22% men) complained about it. Almost half of respondents (44%) notices symptoms on the part of the circulatory system, that is, palpitations. This symptom was reported more often by women (26%) than men (16%). It was observed that 30% of responders experienced blurred vision which was more frequently reported by women (16%) than men (14%). Trembling was present in 22% of patients and it affected women (14%) nearly twice as often as men (8%). It was found that the least common symptom which respondents noticed was tingling sensation around the mouth and tongue about which only 2% of women complained (Table 11).

Tab. 11. The symptoms occurring among respondents in the last three months - all respondents by gender

The symptoms occurring among respondents in the last three months	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Sweating	16	32	11	22	27	54
Trembling	7	14	4	8	11	22
Tingling sensation around mouth and tongue	1	2	0	0	1	2
Palpitations	13	26	8	16	22	44
Blurred vision	8	16	7	14	15	30

Based on the survey it was showed that the most common symptoms that occur on the feet of respondents were: pain, itching and numbness. These symptoms are related to 32% of those surveyed, more often women (20%) than men (12%). Cuts, bruises and other minor damage occurred in 26% of patients (12% women and 14% men), and ulcers and chronic wounds related to a total of 14% of respondents. To this group, 8% of women and 6% of men belonged. Changed colour of the skin of the feet occurred in 6% of patients and only in women (Table 12).

Tab. 12. The incidence of disease symptoms on feet - all respondents by gender

Incidence of complications associated with diabetes	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Pain, itching and numbness	10	20	6	12	16	32
Ulcers and chronic wounds	4	8	3	6	7	14
Changed colour of skin of feet	3	6	0	0	3	6
Cuts, bruises and other minor damage	6	12	7	14	13	26

Based on the survey it was showed that the most frequent complications were recurrent skin infections and skin fungal infections. The occurrence of these complications was declared by 22% of respondents. Another, in terms of frequency, skin complication was furunculosis and related problems affected 14% of responders, more men (8%) than women (6%). Only 4% of respondents named skin discoloration and scarring as skin complications. None of the respondents mentioned vitiligo as a complication associated with diabetes (Table 13).

Tab. 13. The presence of skin complications - all respondents by gender

The presence of skin complications	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Recurrent skin infections	8	16	3	6	11	22
Furunculosis	3	6	4	8	7	14
Fungal skin infections	6	12	5	10	11	22
Vitiligo	0	0	0	0	0	0
Skin discolouration and scarring	2	4	0	0	2	4

Based on the survey conducted it was found that hypertension was the most common disease associated with diabetes diagnosed among respondents. Its presence was indicated by14% of respondents (8% of women and 6% of men). Stroke affected 8% of respondents and the same number of women and men pointed out to this condition (4%). It was shown that the incidence of coronary heart disease was the same as myocardial infarction, and the existence of these diseases was reported by 6% of responders. It was observed that coronary heart disease often related to women (4%), and myocardial infarction was diagnosed in men more often (4%) (Table 14).

Tab. 14. The presence of diseases associated with diabetes - all respondents by gender

The presence of diseases related to diabetes among responders	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Coronary heart disease	2	4	1	2	3	6
Stroke	2	4	2	4	4	8
Myocardial infarction	1	2	2	4	3	6
Endocrine diseases	0	0	1	2	1	2
Hypertension	4	8	3	6	7	14

The data in Table 15 indicate that 22% of responders felt depressed in relation to diabetes. Men (12%) were slightly more likely to feel this state than women (10%). Among 12% of responders (8% of women and 4% of men) anxiety disorders were observed as a result of diabetes. The presence of depression and optimism was indicated by the 6% of patients, 4% of men and 2% of men (Table 15).

Tab. 15. Emotional reactions associated with diabetes - all respondents by gender

Emotional reactions associated with diabetes	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Depression	2	4	1	2	3	6
Anxiety disorders	4	8	2	4	6	12
Feeling depressed	5	10	6	12	11	22
Optimism	2	4	1	2	3	6

Based on the survey it was showed that the respondents measured blood glucose every day. This response was given by 46% of all respondents (26% women and 20% men). It was shown that 30% of responders measured glycemia twice each day, and women were twice as likely as men (20% and 10%) to do so. Periodic measurements of glycemia, depending on how they were feeling, were performed by 14% of respondents (8% of women and 6% of men). Only 10% of respondents measured glycemia several times a day, more often women (6%) than men (4%) (Table 16).

Tab. 16. Frequency of measurement of glycemia - all respondents by gender

Frequency of measurement of glycemia	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Several times a day	3	6	2	4	5	10
Every day, twice a day	10	20	5	10	15	30
Every day, once a day	13	26	10	20	23	46
Periodically, depending on how the responders were feeling	4	8	3	6	7	14
Total:	30	60	20	40	50	100

Based on the survey it was showed that 56% of respondents performed blood and urine tests in the laboratory only once a year. This group consisted of women (38%) more often than men (18%). It was observed that 20% of all respondents disregarded blood and urine tests. There was a larger proportion of men (12%) than women (8%) here. Blood tests and urine tests once every six months concerned 14% of all respondents. It were more often men (8%) than women (6%). Only 10% of respondents performed blood and urine tests once a month. Women (8%) were four times more often than men (2%) to do so (Table 17).

Tab. 17. The frequency of blood and urine tests in the laboratory-all respondents by gender

The frequency of blood and urine tests in the laboratory	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Once a month	4	8	1	2	5	10
Twice a year	3	6	4	8	7	14
Once a year	19	38	9	18	28	56
None	4	8	6	12	10	20
Total:	30	60	20	40	50	100

The data in Table 18 indicate that the control of blood pressure was conduced by 46% of all respondents. Women (32%) were more than twice as likely to control blood pressure (32%) as men (14%). It was observed that 22% of respondents (12% women and 10% men) claimed that they measure blood pressure occasionally and a total of 20% of the respondents, more women (12%) than men (8 %), claimed that they measured it when they were feeling bad. It was shown that 12% of respondents did not perform blood pressure measurements, men (8%) were twice as likely as women (2%) to do so (Table 18).

Tab. 18. Control of blood pressure by responders -all respondents by gender

Blood pressure control among respondents	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Yes	16	32	7	14	23	46
No	2	4	4	8	6	12
Occasionally	6	12	5	10	11	22
When feeling bad	6	12	4	8	10	20
Total:	30	60	20	40	50	100

Based on data contained in the table below it was showed that the most common method of self-control by the responders was independent measurement of glucose with the use of a glucometer. The use of this method was indicated by 76% of respondents (42% women and 34% men). A frequent method of self-control was running a diary of self-control. It was observed that a total of 46% of respondents ran a diary of self-control. In this group, the proportion of women (34%) was greater than the proportion of men (22%). Diabetes self-monitoring in the form of regular and healthy eating was detected in 16% of patients. This group accounted for 12% of women and 4% of men. Daily physical exercise was indicated by only 6% of respondents and men (4%) were more frequent than women (2%). Based on the results of the study, it was showed that the lack of self-control was declared only by men, and they accounted for 6% of all responders (Table 19).

Tab. 19. Self-control methods used by respondents - all respondents by gender

Self-control methods used by responders	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Running a diary of self-control	17	34	11	22	28	46
Independent measurement of glucose using a glucometer	21	42	17	34	38	76
Regular and healthy eating	6	12	2	4	8	16
Daily physical exercise	1	2	2	4	3	6
Lack of self-control	0	0	3	6	3	6

The data presented in Table 20 allow us to conclude that 60% of respondents cared about their feet by wearing comfortable shoes, women (40%) were more frequent than men to do so (20%). It was shown that 38% of responders examined (observed) their feet as part of the prevention of diabetic complications. It were women (28%) nearly three times more frequently than men (10%). The lack of any form of taking care of feet was indicated by 28% of all respondents (12% women and 16% men). It was observed that 24% of responders, but women were two times more often than men (8%), dried feet and interdigital spaces after washing. Only 6% of respondents, but more women (4%) than men (2%), cared about their feet by reducing their feet nails with a file, rather than a sharp tool.

Tab. 20. Methods of taking care of feet - all respondents by gender

Methods of taking care of feet	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Wearing comfortable shoes	20	40	10	20	30	60
Drying feet and interdigital spaces after washing feet	8	16	4	8	12	24
Viewing feet on a daily basis	14	28	5	10	19	38
Reducing nails with a file, not a sharp tool.	2	4	1	2	3	6
None	6	12	8	16	14	28

Based on the results of the study it was showed that 62% of respondents were not convinced of the need for control of eye-sight by an ophthalmologist as a result of diabetes. Such an opinion was expressed by 34% of women and 28% of men. The opposite view was expressed by 38% of the respondents, i.e. 26% of women and 12% of men (Table 21).

Tab. 21. Respondents' opinions on the need to control eye-sight by an ophthalmologist - all respondents by gender

Respondents' opinions on the need to control eye-sight by an ophthalmologist	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Yes	13	26	6	12	19	38
No	17	34	14	28	31	62
Total:	30	60	20	40	50	100

Based on the survey it was showed that the most frequent changes in lifestyle in conjunction with diagnosed diabetes were: reduction of smoking cigarettes and giving up drinking alcohol. A total of 20% of the respondents indicated such changes. The data collected showed that the above mentioned changes were indicated more often by women than men. It was observed that recognized diabetes was also a reason for the resignation from the previous job. This situation concerned 6% of responders and men were two times more frequent than women, respectively 4% and 2%. Based on the obtained results, it was observed that 4% of the respondents gave up driving in connection with diabetes, but in this group only men were present (Table 22).

Tab. 22. Lifestyle changes due to diabetes-all respondents by gender

Lifestyle changes due to diabetes	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Reduction of smoking	3	6	2	4	5	10
Giving up drinking alcohol	4	8	1	2	5	10
Resignation from the previous job	1	2	2	4	3	6
Giving up driving	0	0	2	4	2	4

The results contained in the following table showed that 60% of responders gained knowledge about diabetes through a variety of educational materials. It was observed that women used brochures, books, and other educational materials slightly more often than men (32% and 28%). It was observed that 36% of respondents received information about the disease from a nurse, and women (22%) used her advice two times more often than men (14%). The results showed that the Internet was also a popular source of information on diabetes. This source was indicated by 30% of all respondents, almost as often by men as by women. The knowledge provided by doctors concerned 28% of respondents, more often women (16%) than men (12%). Other sources of knowledge about diabetes were indicated by a total of 16% of the respondents (Table 23).

Tab. 23. Sources of information on diabetes-all respondents by gender

Sources of information about diabetes	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Doctor	8	16	6	12	14	28
Nurse	11	22	7	14	18	36
Educational materials (brochures, books)	16	32	14	28	30	60
The Internet	7	14	8	16	15	30
Other	5	10	3	6	8	16

It was shown that a personal conversation was the most effective form of education according to respondents. This response was given by 68% of respondents, and women (38%) gave it almost as often as men (30%). The effectiveness of self-help groups was indicated by 22% of respondents, i.e. 16% of women and 6% of men. According to the respondents, the least effective form of education were presentations for them and their loved ones. The effectiveness of this form of learning was indicated only by one in ten responders, but more often it were women (6%) than men (4%) (Table 24).

Tab. 24. Effectiveness of particular forms of education - all respondents by gender

Effectiveness of particular forms of education	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Personal conversation	19	38	15	30	34	68
Presentation for the patient and his relatives	3	6	2	4	5	10
Meetings with patients suffering from diabetes (self-help groups)	8	16	3	6	11	22
Total:	30	60	20	40	50	100

The vast majority of respondents felt that educational training is needed. Such an opinion was expressed by 46% of women and 14% of men surveyed. The lack of such a need was indicated by as many as 40% of respondents. In this group, the greater number of men (26%) rather than women (14%) (Table 25) was observed.

Tab. 25. The need to participate in the educational training - all respondents by gender

The need to participate in educational training	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Yes	23	46	7	14	30	60
No	7	14	13	26	20	40
Total:	30	60	20	40	50	100

Based on data contained in the table below it was found that 40% of respondents demonstrated only partial knowledge of the principles of nutrition in diabetes. The percentage of women and men (20%) was identical. Full knowledge of the principles of nutrition in diabetes was indicated only by 32% of respondents. Three times more often it were women (24%) than men (8%). It was observed that 28% of respondents admitted to the absence of any knowledge of the principles of nutrition in diabetes, there was a similar proportion of women and men (16% and 12%) (Table 26).

Tab. 26. Knowledge of the principles of nutrition in diabetes-all respondents by gender

Knowledge of principles of proper nutrition with diabetes	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Full knowledge	12	24	4	8	16	32
No knowledge	8	16	6	12	14	28
Partial knowledge	10	20	10	20	20	40
Total:	30	60	20	40	50	100

The results of the studies included in Table 27 show that 50% of all respondents had sufficient knowledge about medicines they use, it concerned 34% of women and 16% of men. It was shown that 50% of all respondents indicated the existence of gaps in knowledge in this field. The percentage of men and women was almost the same (respectively 26% and 24%).

Tab. 27. Assessment of knowledge about medicines taken - all respondents by gender

Having sufficient knowledge about medicines taken	Gender					
	Female		Male		Overall	
	L	%	L	%	L	%
Yes	17	34	8	16	25	50
No	13	26	12	24	25	50
Total:	30	60	20	40	50	100

Discussion

According to the researchers, in order for the life with diabetes to be easier and every day not to consist of problems only, the patient must have sufficient knowledge about the disease and how to deal with it. It is a necessary condition to avoid the complications of the disease, and if they occur, properly conducted education should ensure relatively normal functioning in the family, at work, in society and allow for "living life to the fullest" (Krzemińska, 2006). The studies have shown that as many as 28% of respondents did not have sufficient knowledge about the disease. It was also observed that 60% of patients with diabetes expected education on this topic, because only half of the respondents had sufficient knowledge of the principles of treatment of diabetes.

In light of the literature what is highlighted is the great importance the educational role of nurses regarding patients with diabetes (Drozd et al. 2010; Gumprecht, 2012). § 1. 1 pt 1 is the basis for the education conducted by a nurse. Regulations of the Minister of Health of 7 November 2007 on the nature and extent of the benefits of preventive, diagnostic, therapeutic and rehabilitation services provided by a nurse or midwife without a doctor's order. Preventive education for people with diabetes concerns the complications of diabetes, and among high-risk individuals (i.e. people with obesity, hypertension, dyslipidemia, etc.) is intended to prevent specific complications of diabetes (Krzemińska, 2006; Szymczyk, 2008).

Education of patients with diabetes, according to some authors, is to give theoretical and practical knowledge through personal interviews and meetings with other patients diagnosed with diabetes. According to researchers, a patient with diabetes needs to know about their disease, its treatment methods and practical skills (injections of insulin, operation of glucose meter and lancing device). Therefore, the task of the nurse is to motivate the patient to actively participate in the process of treatment and gaining of knowledge. A nurse, when working with a patient, should prevent the patient from being discouraged in the event of occurrence of difficulties. The nurse should educate not only the patient, but also their proximal and distal environment. Actions taken by the nurse convince the patient that in spite of diabetes he or she continues to be a full-fledged member of society, and through better education, accepts his or her illness (Krzemińska, 2006; Szewczyk, 2011). Based on the results of own research, it was observed that as many as 68% of the patients pay particular attention to the form of a personal conversation as part of educational activities carried out by the nursing staff. It was also found that 22% of all respondents mentioned the group training as a method of education. Based on the research material obtained, a highly disturbing trend among respondents was observed as only 36% of all respondents were informed about the disease by a nurse. For the vast majority of respondents (60%) the source of knowledge about diabetes were information materials (brochures and books), and 30% of responders were looking for knowledge about the disease on the Internet.

Among the main objectives of existing prevention programs described in the literature the flowing are mentioned: appropriate presentation of the disease, its complications and treatment, clarification of dietary treatment and provision of information about the disease(in the form of brochures, self-control diary, information on the acute and chronic complications, emergency diabetic card) (Szewczyk, 2004).

The purpose of nurses in the prevention of diabetes complications is to prepare the patient for self-control and self-care, so that it will improve outcomes, health and extend the life of the patient. The nurse should provide the patient with goals of self-management of diabetes: normoglycemia, proper assessment of the effect of different meals on blood glucose, increase of self-discipline in their lives, provision of the necessary assistance to the physician in making decisions about prescribed medicines, independent decisions about changes in insulin dose. According to the researchers, the right way to present the purpose of self-control allows the nurse to mobilize and encourage the patient to make independent assessments of the influence of lifestyles, diet, exercise, travel, stress and additional diseases on the level of glucose in the blood. According to the researchers, only thanks to the right attitude of the nurse it is possible that the patient will be able to conduct their own observations on the effects of insulin, risks of hypoglycemia, insulin injection technique, the effect of treatment with diet and oral medications (Szewczyk, 2011; Szymczyk, 2008).

Based on the available literature, it can be concluded that, by proper patient education in self-control, the nurse should point to the importance of the self-control for: maintaining proper blood glucose levels within the range of normoglycemia, removing the damage caused by the disease and the complications concerning eye-sight, kidney, heart, legs and improvement of overall efficiency and quality of life (Kornafel, 2008). On the basis of the analysis of research materials, it was shown that diabetes caused a change in the daily lives of patients. It was found that (10%) responders reduced cigarette smoking and alcohol consumption after diagnosis of the disease, and a small group of those studied, in connection with the disease, resigned from the job (6%) or driving (4%).

In working with patients with diabetes, the nurse should pay attention to the need to turn the patient's attention to the necessity of observation of symptoms suggestive of risks of complications. Huge importance is attached to convincing patient into performing regular check-ups (fundus examination, measurement of blood pressure, ECG, determination of blood lipids, renal function test, test of pulse in the feet and vibration in the lower limbs, neurological examination (Szewczyk, 2011).

According to some authors, the best results in terms of patient education are achieved if the nurse provides ongoing collaboration with: dietician, psychologist, family doctor, and education should be conducted not only individually, but also in the training group of patients with diagnosed diabetes (Krzemińska, 2006; Szymczyk, 2008).

It is true that only individual education allows for direct contact of the patient with the nurse who adjusts the scope of the knowledge to the needs of the patient and the condition of her success is to provide information in a simple and understandable language (Krzemińska, 2006).

According to Szewczyk, the diagnosis of diabetes is most often the result of routine check-ups, and a significant role in carrying out these studies is played by a nurse. For this reason, the study concerning patients with diabetes includes: urine, blood, blood pressure, examination of eye-sight and feet (Szewczyk, 2011).

In accordance with § 1 section 2 of the Ordinance of the Minister of Health of 7 November 2007 on the nature and extent of the benefits of preventive, diagnostic, therapeutical rehabilitation services provided by a nurse or midwife without a doctor's order, the nurse is

entitled to independently exercise diagnostic tests for the determination of glucose and ketone bodies in the blood and urine. In addition, the nurse can, on her own, without a medical order, refer the patient for diagnostic tests or collect materials for diagnostic tests, but the condition for using these powers is to obtain the title of specialist in the field of nursing.

According to Kapała, examination of eye-sight performed as part of preventive actions for people with diabetes is supposed to detect retinopathy and it includes ophtalmoscopie or photographs of the retina (Kapała, 2011). Own research shown that as many as 62% of respondents did not understand the need for more frequent ophthalmologic monitoring due to diabetes, as only 38% of responders carried these tests regularly.

Tasks of nurses concerning measuring blood pressure are evident according to researchers. In accordance with the principle of order and established procedures, the nurse takes measurements and stores the results in the relevant documents (Kapała, 2011). Our results have allowed to observe that 46% of responders controlled levels of blood pressure regularly, but as many as 20% did so occasionally, and 20% only when they were feeling bad.

Examination of feet of a diabetic patient by a nurse in the literature focused on the early diagnosis of diabetic foot syndrome. The nurse participates in the assessment of presence of the pulse in the feet (in the dorsal artery of foot) and if the pulse tested is reduced or absent, the nurse should instruct the patient about the risks and the need to take concrete action because this symptom can be the first symptom of neuropathy (Szewczyk, 2011). Based on the results of their research, it was observed that 28% of respondents did not pay attention to their feet during daily care. Other responders undertook various preventive measures to prevent diabetic foot syndrome. It was shown that as part of preventive activities they pointed out to wearing of comfortable shoes (60%) and daily viewing of feet (38%). Respondents indicated a variety of troubling symptoms that were observed on their feet. It was shown that it was most often pain, numbness and itching of feet (32%), minor injuries (26%) and ulcers and non-healing wounds (14%). It was found that due to diabetes the responders observed in themselves skin lesions in the form of recurrent infections (22%), fungal infections (22%) and furunculosis (14%).

According to Szewczyk, the purpose of curative actions undertaken in the field of medical complications of diabetes, not only by doctors but also by a nurse, is, in the first place, to alleviate their symptoms and inhibit the growth rate of complications (Szewczyk, 2004). It was observed that in the study group as much as 44% of people experienced complications of diabetes, but as many as 54% of respondents did not have enough knowledge on this subject. It also showed that the subjects experienced a variety of symptoms of complications of the disease. It was observed that the most common symptoms felt by the responders were: sweating (54%), palpitations (44%) and blurred vision (30%). Other symptoms that responders reported were trembling and tingling sensation.

The role and responsibilities of nurses in the treatment of diabetic complications also depends on their type. Based on recent reports in the literature, it is concluded that the most important way to treat nephropathy is to cure hyperglycemia with dietary treatment, medication, and physical exercises appropriately selected (Szewczyk, 2011; Szewczyk, 2008). In our study it was showed that 46% of all respondents measured blood glucose every day - once during the day, and 30% performed measurements daily - twice a day. It was observed that as many as 14% of the respondents evaluated glucose only when they were experiencing distressing symptoms.

The role and responsibilities of nurses in the prevention of complications become clearly apparent in the dietary treatment. According to § 1. 1 pt 3 of the Ordinance of the Minister of Health of 7 November 2007 on the nature and extent of the benefits of preventive, diagnostic, therapeutic and rehabilitation services provided by a nurse or midwife without a doctor's orders, the nurse can independently provide medical services including determining diet for patients based on existing guidance in this area. Our results revealed that 28% of respondents did not have sufficient knowledge of the principles of nutrition diet due to diabetes, and 40% of patients had only partial knowledge on the subject. The results obtained in this area clearly indicate the need to intensify educational activities of nurses on the principles of dietary nutrition.

According to most researchers, the principal aim of treatment of diabetic neuropathyis to alleviate the symptoms and control the progress of the damage to the nervous system. The basis of treatment is the prevention of pathological processes by maintaining a proper level of blood glucose, and this treatment is multi-faceted and is based on pharmacological and non-pharmacological methods (Koziarska-Rościszowska, 2008; Wróbel, 2008). In terms of pharmacological therapy, the tasks of the nurse are limited to the execution of medical orders and monitoring of the overall medical condition of the patient. Non-pharmacological methods of treatment of diabetic neuropathy include physical therapy and psychotherapy. On the basis of § 1. 1 point 3. of the Regulation of the Minister of Health on November 7, 2007 on the nature and extent of the benefits of preventive, diagnostic, therapeutic and rehabilitation services provided by a nurse or midwife without a doctor's order, the nurse is authorized to independently provide medical benefits in the form of basic psychotherapy and using elements of qualified psychotherapy provided that she underwent the educational specialist course (Szewczyk, 2004). Research results revealed that respondents need psychotherapeutic activities because as much as 22% of the respondents felt depressed in relation to diabetes, 12% had anxiety disorders and 6% depression. The collected research material confirms the need to include the elements of psychotherapeutic procedure into the treatment of diabetes.

According to experts, the treatment of diabetic foot syndrome should be performed by a diabetes specialist or surgeon (Hurej, Vithian, 2011; Kornafel, Mrozikiewicz-Rakowska, 2010). This treatment is of a multi-faceted nature, it includes pharmacological and non-pharmacological methods. Pharmacological methods include, among others, insulin therapy, medicines reducing coagulation of blood and analgesia (Kornafel, Mrozikiewicz-Rakowska, 2010). Regulation of the Minister of Health of 7 November 2007 on the nature and extent of the benefits of preventive, diagnostic, therapeutic and rehabilitation services provided by a nurse or midwife without a doctor's order authorizes the nurse to independent, casual modification of therapeutic dose of short-acting insulin (§ 1. 1 point 2.) and when injecting insulin the nurse must follow specific rules (abdomen or thigh should be the area of injection, when injecting she should avoid piercing muscles, to a prevent lipohypertrophy or atrophy from occurring, the area of injection should be changed because it prevents uncontrolled slow down of the absorption of insulin (Młynarczyk, 2010; Szewczyk, 2011). It was observed that as many as 10% of the respondents were not able to independently perform insulin injections, and 4% of respondents carried out the injection with the help of relatives.

Conclusions

Based on the survey, the following conclusions were formed:

1. Diabetes is often diagnosed during a routine medical examination in women aged 46-60 years with secondary education, economically active and living in the city.
2. The most common type of diabetes was observed among responders with type 2 diabetes, treated pharmacologically.
3. Symptoms of diabetes observed among respondents were the most frequently: sweating and skin lesions.
4. Diabetes was the reason for the change in the psyche of the test group.
5. Most of the respondents applied a variety of methods of self-control of diabetes.
6. The best source of information about diabetes in the opinion of the respondents were educational materials and personal conversation with the nurse.

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Elżbieta Bernaciak[1], Paulina Farbicka[2], Katarzyna Rzepka[2]

[1]Pomeranian Academy Institute of Theories about the Health in Slupsk
[1]Akademia Pomorska Instytut Nauk o Zdrowiu Słupsk
[2]10 Military Research Hospital with Polyclinic in Bydgoszcz
[2] 10 Wojskowy Szpital Kliniczny z Poliklinika Bydgoszcz

The awareness of informing the patient of his laws as the element of the work of the nurse of the system and the medical lifeguard

Świadomość informowania pacjenta o jego prawach jako element pracy pielęgniarki systemu i ratownika medycznego

Summary
Healthcare Centres belong to an organization, for which assurance like of the best quality of one's benefits is a priority value. A patient is an outside customer, for which he provides services. At present fight of the competition against the patient - of customer is very big. To its institution accreditation is one of forms of attracting clients. "Accreditation is a system of the voluntary, outside and direct evaluation being aimed at showing institutions ensuring the good level of benefits" (Maciąg A., Sakowska I. 2006). If it is about an area of patient's rights, accreditation standards include internal communications. Informing the patient of entitlements it being entitled to him is an important component of internal communications in the course of the stay in institutions of the health care.
According to WHO, it is possible to divide patient's rights on individual and social:
- social rights are this part of entitlements of the individual which results from the membership in the determined society e.g. right to the equal access to health benefits.
- individual rights, it this part of entitlements of the individual coming directly from laws and the freedom of the man e.g. the right to the respect of its person as the human person, the respect for the privacy.
Records concerning patient's rights are in a Polish law in:
- of constitution,
- acts (about the medical profession, nurses of both tissues for the midwife, about healing activity, about benefits of the health care financed from public means, about the protection of the mental health, about taking and transplanting cells, and organs, …)
- code of ethics.
In this issue a fact is an important thing so that patient's rights are obeyed and applied in institutions of the health care. All institutions from the area of the health care are obliged to ensure the accessibility to the Card of patient's rights.
The accessibility to information about patient's rights at institutions is being carried out by putting in the visible place the Card of patient's rights. Observing procedures associated with informing patients of their laws is as important at present awareness of the society associated with held laws and the high activity connected with pursuing one's rights in a court of law are growing. The accession to the European Union also widened the scope of these laws and the possibility more effective of enforcing them during the stay in medical facilities. For the medical staff, particularly for nurses and lifeguards which while treating the patient longest

are alert with it due informing the patient of his laws should become a priority and like most accurate following them in order to avoid mistakes which could in order to become pregnant in effects.

Key words: patient, nurse, medical lifeguard, patient's rights

Streszczenie
Zakłady Opieki Zdrowotnej należą do organizacji, dla których zapewnienie jak najwyższej jakości swoich świadczeń jest wartością priorytetową. Klientem zewnętrznym, dla którego świadczy usługi jest pacjent. Obecnie walka konkurencji o pacjenta – klienta jest bardzo duża. Jedną z form przyciągnięcia klienta do swojej placówki jest akredytacja.
„Akredytacja to system dobrowolnej, zewnętrznej i bezpośredniej oceny mający na celu wskazanie placówek zapewniających dobry poziom świadczeń" (Maciąg A., Sakowska I. 2006). Jeśli chodzi o obszar Praw Pacjenta, standardy akredytacyjne obejmują komunikację wewnętrzną. Najważniejszym elementem komunikacji wewnętrznej jest poinformowanie pacjenta o przysługujących mu prawach w trakcie pobytu w placówkach ochrony zdrowia. Według WHO, Prawa Pacjenta można podzielić na indywidualne i społeczne:
- prawa społeczne to ta część uprawnień jednostki, która wynika z przynależności do określonego społeczeństwa np. prawo do równego dostępu do świadczeń zdrowotnych.
- prawa indywidualne, to ta część uprawnień jednostki wywodząca się bezpośrednio z praw i wolności człowieka np. prawo do poszanowania swojej osoby jako osoby ludzkiej, poszanowanie prywatności.
W prawie polskim zapisy dotyczące praw pacjenta znajdują się w:
- konstytucji,
- ustawach (o zawodzie lekarza, pielęgniarki i położnej, o działalności leczniczej, o świadczeniach opieki zdrowotnej finansowanych ze środków publicznych, o ochronie zdrowia psychicznego, o pobieraniu i przeszczepianiu komórek, tkanek i narządów, …)
- kodeksie etyki zawodowej.
Najważniejszą rzeczą w tej kwestii jest fakt, by prawa pacjenta były respektowane i stosowane w placówkach ochrony zdrowia. Wszystkie placówki z obszaru ochrony zdrowia zobowiązane są zapewnić dostępność do Karty Praw Pacjenta.
Dostępność do informacji o Prawach Pacjenta w placówkach jest realizowana poprzez umieszczenie w widocznym miejscu Karty Praw Pacjenta. Przestrzeganie procedur związanych z informowaniem pacjentów o ich prawach jest o tyle ważne, że obecnie wzrasta świadomość społeczeństwa związana z posiadanymi prawami i większa aktywność związana z dochodzeniem swoich praw na drodze sądowej. Wstąpienie do Unii Europejskiej poszerzyło również zakres tych praw oraz możliwość skuteczniejszego ich egzekwowania podczas pobytu w placówce służby zdrowia. Dla personelu medycznego, a szczególnie dla pielęgniarek i ratowników, które podczas leczenia pacjenta najdłużej znajdują się w kontakcie z nim priorytetem powinno stać się właściwe informowanie pacjenta o jego prawach i jak najdokładniejsze ich przestrzeganie w celu uniknięcia błędów, które mogły by stać się brzemienne w skutkach.

Słowa kluczowe: pacjent, pielęgniarka, ratownik medyczny, prawa pacjenta

Admission

From the moment of health reforms and the formation of health-insurance funds which next was converted into the National Health Fund, healthcare centres in the destination of making profits and like of the most beneficial contracts with the fund must incessantly seek patients' services. It is forming not only with raising the level of provided services and obtaining certificates announcing the level of benefits, but also by due warning the Card of patient's rights and handing over for patients like the most information to this subject. To take effect it has with the fact that patients in the future, in case of the treatment will re-elect the given institution of the health care. Presumably, in relation to the professional service they will recommend other persons her as the credible, safe institution with the professional employee staff and consequently will let make profits and stay at the medical market.

Plants of the health care belong to an organization, for which assurance like of the best quality of one's benefits is a priority value.

To its institution accreditation is one of forms of attracting clients. For acquiring accreditation both private institutions and health cares national, providing services from the scope are trying.

"Accreditation is a system of the voluntary, outside and direct evaluation being aimed at showing institutions ensuring the good level of benefits". (Maciąg, Sakowska, 2006)

If it is about an area of patient's rights, accreditation standards include internal communications. Informing the patient of entitlements it being entitled to him is an important component of internal communications in the course of the stay in institutions of the health.

"According to the World Health Organization - WHO, patient's rights it is possible to divide on individual and social:

- social rights are this part of entitlements of the individual which results from the membership in the determined society e.g. right to the equal access to health benefits.

- individual rights, it this part of entitlements of the individual coming directly from laws and the freedom of the man e.g. the right to the respect of its person as the human person, the respect for the privacy " (Maciąg, Sakowska, 2006).

In Poland, patient's rights governing recordings were entered into in the constitution - of Constitution from 2 April 1997 (Journal of Laws No. of 78 pos. 483), which 68 is telling sec. 1 the Art., for that: "everyone has the right to a health care", and Art. 68 is telling sec. 2 about it, that: ", irrespective of their financial circumstances, official authorities provide the equal access to benefits of the health care financed from public means for citizens" on conditions and in the scope determined in the act. (the Polish constitution, 1997)

More specific information associated with patient's rights was entered into in acts:

1. act from 15 April 2011 about healing activity (i.e. 2013,217 Journal of Laws from later changed)
2. act from 27 August 2004 about benefits of the health care financed from public means (i.e. Journal of Laws 2008. 164.1027 as amended),
3. regulation of the Health Minister from 28 August 2009 about benefits guaranteed from the scope of the medical rescue (Journal of Laws 2009. 139.1137),
4. act from 6 November 2008 about patient's rights and the Spokesman of patient's rights (i.e. 2012,159 Journal of Laws from later changed),

5. regulation of the Ministry of Defence from 18 December 2009 on kinds and the scope of medical documentation in healthcare centres created by the National Defence minister and the way for her of processing (Journal of Laws 2009. 222.1765),
6. act on the medical profession and of doctor of the dentist from 5 December 1996 (i.e. Journal of Laws 2011. 277.1634 as amended),
7. act from day 15 of 2011r July about the competition of the nurse and the midwife (Journal of Laws 2011. 174.1039 as amended),
8. act from 8 September 2006 about the National Medical Rescue (Journal of Laws 2006. 191.1410 as amended),
9. regulation of the Health Minister from 28 August 2009 about benefits guaranteed from the scope of the medical rescue, and codes of ethics of nurses and doctors.

In this issue a fact is an important thing so that patient's rights are obeyed and applied in medical institutions. All institutions from the area of the health care are obliged to ensure the accessibility to the Card of patient's rights.

The accessibility to information about patient's rights at institutions is being carried out by putting in the visible place the Card of patient's rights.

Hospital accident ward (SOR) it is a branch which is showpiece of the hospital. He is an only branch in the current system of the health care which is admitting patients without a necessary referral to hospital. If the patient is feeling bad, thinks, that his basic bodily functions (breath, circulation, awareness) are deteriorating it is thriving alone, or is calling the ambulance which is transporting him to SOR. in the moment of the arrival of the sick person in SOR a procedure consisting in the electronic verification of entitlements of the beneficiary is starting (eWUŚ). The result of the verification isn't significant, if a patient means treating. Every patient in the state of the threat to life must have a given help in SOR.

Next established medical documentation is staying with applicable procedures at the hospital. Pursuant to applicable regulations it is in the moment of accepting the sick person to SOR a patient should be informed of entitlements it being entitled to him. The card of patient's rights in SOR according to the availability principle is in a point of the medical segregation, the registration and parties of patients which is the top one spot of the contact of the patient with the staff of the accident ward. This top one spot of the contact with KPP of patients which alone are reaching the SOR doctor is. Patients which are calling the Team of the Medical Rescue on should be in contact with KPP already in the moment of the contact with team members of the Medical Rescue (ZRM). It is they should inform sick persons of entitlements it being entitled to them, but with it is differently. Sick persons know "are paying contributions and they deserve the help how will only call her". They are satisfied how have a given help. The small group only apart from the given help wants to listen to sick persons about entitlements it being entitled to them resulting from KPP.

In opinion 15 (12.3%) of working lifeguards the first contact with the patient is "difficult". There are situations, in which it is hard to tell the patient directly about laws resulting from KPP, what he/she isn't marking, that they aren't followed by the lifeguard, nurse of the system during the performance of activities medical. A this obligation of

making properly, in harmony is a best practice and current with knowledge of medical rescue activities into SOR and ZRM there employed by the medical staff. The non-observance of fundamentals of the work is burdened with the responsibility of provisions of the law general (the penal code, civil, of work), of self-government law (act about the profession of the Nurse and the Midwife, about the self-government of Nurses and Midwives) and of code of ethics.

How he is saying the record "of International ICN code of ethics for Nurses" of year taken on by the Congress of Nurses in 1953 with his last search in 2005, that "the nurse at the work all the time is observing standards of professional proceedings which sustain the credibility of the entire occupational group and are increasing the public trust. Nurse taking care is assuring that he is using new technologies and acquisitions of the learning in way safe for people, following their laws and the dignity "(MKE ICN, 2007).

Standards - legal acts bringing the subject matter of patient's rights up in one's contents, are informing citizens that every patient has the right to information about patient's rights. In the process they will impose, to the entire staff of institutions providing medical services, the duty of informing patients of their laws, what how it results from conducted examinations not always is being followed. The act on the profession of the nurse and the midwife is saying, "that, the patient has the right to obtain information about his laws from the nurse and for the midwife" (Act on ZPiP, 2011). If they showed examinations, such a state of affairs doesn't result for lack of involving the staff in the implementation of the obligations, and from the lack of knowledge to this subject and of time.

Eleven nurses (9%) and 5 (4%) medical lifeguards working in the Hospital accident ward and in the Team of the Medical Rescue were granted, that didn't know records included in prescriptive documents associated with abiding by patient's rights. Simultaneously they are making no footsteps in order to change this state of affairs, thinking that in the form of legal documents they aren't using regulations performing medical activities. Institutions of the health care, through the race with the competition in getting certificates often forget about the basic staff training medical from provisions of law it is necessary to know which on a given workstation so that doesn't reach breaking patient's rights and accidents.

An attempt of the answer to a question with which nurses and medical lifeguards have a knowledge about the card of patient's rights, to obey these laws in the course of the discharge of one's duties was a purpose of this work as well as what step the evaluation is facilitating the medical staff in access for patients to information about the Card of patient's rights.

Materials and methods

In the destination of getting the better image associated with abiding by patient's rightsthey conducted research on the group of 122 persons (100%): 86 (70.5%) of nurses and 36 (29.5%) of medical lifeguards.

Findings

Analysis of conducted examinations is pointing, that 56 nurses (45.9 %) stated, that in entire personally never informed her previous job of sick persons about entitlements it being entitled to them, and of patient's rights arising from the Card. It didn't prevent them from performing everyday duties according to provisions of the law. The same nurses also stated that activities which could had taken none in order to change keeping them. All nurses (86) and medical lifeguards (36) they admitted that the Card of patient's rights was accessible at the institution of the health care, in which they are employed in visible places, but simultaneously notice that it doesn't cause good acquainting oneself of patient with these laws, since finding one's way to the institution of the health care patients are intending only about it to get the necessary assistance, and the staff on account of restrictions in the employment is focusing exclusively on the help for sick persons recognizing for unnecessary informing patients of their laws since they are available in the place, in which the patient can oneself to acquaint with them personally. The fact that the examination showed is alarming, that 11 (9%) of nurses and 5 (4%) in the profession doesn't know actively working lifeguards exactly contents of the Card of patient's rights, since didn't read to her. It appears from information included in questionnaire forms that at the stage of the apprenticeship in med schools the legal issues associated with the practising a profession are being omitted by listeners. It is tied up with the fact that we don't like to learn provisions of law. It is comforting, that nurses and lifeguards in the framework of the self-education, specialist training on the post-graduate education and courses and at the work is being acquainted with KPP.

He results from examinations, that as many as 78 (63.9%) regards all respondents, that since the Card of patient's rights was put in the visible place it is a sufficing way to make patients aware of their laws and there is no need to provide this information by the medical staff.

Such action can result in it, that in case of becoming known of complications associated with the stay of the patient in units of the health care and the treatment, the employee will be accused of the non-accomplishment of duties by ceasing contents associated with not-informing patients of laws from the Card of patient's rights in spite of putting her in visible for the sick person places on the area Health Care Centre, however the medical staff seems to underestimate this problem not realizing consequences they can carry which if a thing of which the patient wasn't informed happens. Examined persons in the amount of 12 (9.8%) of nurses and 3 (2.4%) they also stated lifeguards, that excessive making aware of patients as for their laws could in order to result in it, that both doctors and nurses and lifeguards had been so that exposed by this staff to the complaints of patients associated with the level of provided services. Moreover 21 nurses (17.2%) and 7 lifeguards (5.7%) stated that informing the patient of his laws was taking the time, in the course of which they could up in order to perform examinations commissioned to the patient. The examination showed that two methods of the transmission of information were usually applied in fingerings of the health care for patients about their laws: by putting in the visible place and by disclosing the card of patient's rights which is "in the desk by the counter of a nurse".

Observing procedures associated with informing patients of their laws is as important at present awareness of the society associated with held laws and the high activity connected with pursuing one's rights in a court of law are growing. The accession to the European Union also widened the scope of these laws and the possibility more effective of enforcing them during the stay in medical facilities. For the medical staff, particularly for nurses and lifeguards which while treating the patient longest are alert with it due informing the patient of his laws should become a priority and like most accurate following them in order to avoid mistakes which could in order to become pregnant in effects. Putting a lot of duties caused minimizing employing the staff at hospitals and consequently increasing the tiredness and reducing the concentration what in the end can lead to negligence and mistakes.

So that an improvement in abiding by patient's rights at medical institutions takes place directors of hospitals should not only focus on improving provided services and obtaining quality certificates, but also on the systematic upsizing what caused in order to a per cent of falling patients would reduce on one nurse, medical lifeguard, and hence let in order to it for better making aware of patients about entitlements it being entitled to them and better their realization by the staff of institutions of the health care. Perhaps it is worthwhile in order to make the work easier for nurses, for lifeguards and to prepare the press of authorizing the patient following the example of procedural entitlements and duties of the aggrieved party or the suspect in the form (Wędrychowska, 2009). Such a document one could give health cares after the arrival in the institution to the patient so that he can in the course of the stay fully get acquainted with laws it being entitled to him and let in order to it for the due realization of regulations applying to patient's rights in prescriptive documents and stopped deepening amongst the staff unaware breach of regulations resulting from not-acquainting patients with their laws. It was other better solution so that also acknowledged the patient's charter as the act by the legislative branch about standard character what let patients to better seeking its laws, but the medical staff it lighten patients' burden from the duty of announcing about their laws. He should it to be blend of all articles currently scattered in different acts, because at present through a maze of regulations the patient isn't able to find everyone of entitlements it being entitled to him, and the medical staff in the course of performing activities saving the life often isn't able to remember everyone of provisions concerning patient's rights (Wędrychowska, 2009; Maciąg, Sakowska, 2006).

Conclusions

1. All 122 (100%) persons participating in the examination admitted that the Card of patient's rights was accessible at institutions of the health care, in which they are employed.
2. Eleven (9%) of nurses and 5 (4%) doesn't know medical lifeguards exactly KPP contents, since alone didn't read to her.
3. It results from conducted examinations that at least a straight majority of nurses regards wrong its behaviour concerning not informing patients of their laws then it isn't preventing them from making the routine work under effective laws and regulations.

4. Twelve (9.8%) of nurses and 3 (2.4%) regards medical lifeguards informing the patient of his laws directly by the medical staff could in order to cause the patient would abuse them to the purpose of the achievement like the greatest benefits to oneself, and hence could in order to destabilize it work of the staff at institutions of the health care.
5. As a result of conducted examinations one should state that acquainting nurses and medical lifeguards with the Card of patient's rights should be one of main subjects of trainings inside ward sisters, and the new staff should read her plot on the day of hiring.
6. One should also pay special attention for the process of educating the new staff, peculiarly at handing those present over about legal documents to the knowledge in the health care.

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Ewa Rudnicka – Drożak[1], Justyna Natora[1,2], Ewa Dutczak[2], Robert Sambor[2]

[1]Department of Expert Medical Assistance Lublin
[1]Zakład Kwalifikowanej Pomocy Medycznej UM Lublin
[2]Workshop of Occupational Therapy by Blind and Sand –blind Children's Help Asssociation „Hope" Radom
[2]Warsztat Terapii Zajęciowej przy Stowarzyszeniu Pomocy Dzieciom Niewidomym i Niedowidzącym „NADZIEJA" Radom

The place and role of the nurse in a National Emergency Medical System

Miejsce i rola pielęgniarki w Systemie Państwowego Ratownictwa Medycznego

Summary
The place and role of the nurse in a public Emergency Medical System determines Act of 8th of September 2006 about a public Emergency Medical Services (Journal of Laws 2006, No. 191, item. 1410) which strictly specifies eligibility requirements.
The female and Male nurses had been connected with an emergency medicine before the term "emergency medicine" came into existence and became widely used.
Nursing is entered in the struggle for a patient in critical condition. It is an independent autonomous profession - but closely cooperating with all system's parties and links. We are able to observe rapid changes which have never been seen before. The nurses continue to improve their competences, start studies, obtain degrees, finish another specialization (Maślanka, 2012).
In the contemporary health care aiming to provide better aid to achieve good health nursing is becoming an increasingly important field. Complex activity is undertaken to provide professional nursing care for both single people and communities. There are run changes in nursing practice and education of nurses in all countries. There are also made efforts to strengthen the knowledge and scientific basis of nursing (Ślusarska at al. 2004).
An emergency nurse must be professionally trained in the field of general medical knowledge and has experience in dealing with life-threatening condition patients and also professional power gained in postgraduate education. In the integrated rescue system nurses can be employed in the base unit serving as a member of the team or a team leader as well as in a specialized team serving as a member of the emergency medical team in emergency departments (SOR), and in the air medical rescue team.

Key words: nurse, Emergency Medical System, nursing, competence

Streszczenie
Miejsce i rolę pielęgniarki w Państwowym Ratownictwie Medycznym wyznacza Ustawa z dnia 8.09.2006 roku O Państwowym Ratownictwie Medycznym (Dz.U. 2006r, nr 191 poz. 1410) określająca ściśle wymogi kwalifikacyjne.
Pielęgniarki i pielęgniarze byli i są związani z ratownictwem od początku zanim, termin „ratownictwo" powstał i stał się powszechnie używany.
Pielęgniarstwo jest wpisane w walkę o pacjenta w stanie zagrożenia życia. Jest ono samodzielnym autonomicznym zawodem – jednak ściśle współpracującym ze wszystkimi podmiotami i ogniwami systemu. Na naszych oczach zachodzą

w przyspieszonym tempie zmiany nieobserwowane nigdy wcześniej. Pielęgniarki wciąż podnoszą kwalifikację, studiują, uzyskują tytuły naukowe, kończą kolejne specjalizację (Maślanka, 2012).
We współczesnej opiece nad zdrowiem, zmierzającej do zapewnienia człowiekowi coraz lepszej pomocy w osiąganiu optymalnego stanu zdrowia, pielęgniarstwo staje się coraz bardziej znaczącą dziedziną. Podejmowana jest złożona działalność na rzecz zapewniania profesjonalnej opieki pielęgniarskiej zarówno pojedynczym ludziom jak i społecznościom. We wszystkich krajach prowadzone są zmiany w praktyce pielęgniarskiej i w edukacji pielęgniarek, podejmowane są również wysiłki na rzecz bogacenia wiedzy i umacniania naukowych podstaw pielęgniarstwa (Ślusarska et al. 2004).
Pielęgniarka ratunkowa powinna mieć dobre przygotowanie zawodowe w zakresie ogólnym, doświadczenie w opiece nad pacjentem w stanie zagrożenie życia oraz specjalistyczne uprawnienia uzyskane w trakcie kształcenia podyplomowego. W zintegrowanym systemie ratownictwa pielęgniarki mogą być zatrudnione w zespole podstawowym, pełniąc w nim funkcję członka zespołu lub kierownika zespołu, oraz w zespole specjalistycznym pełniąc w nim funkcję członka zespołu ratownictwa medycznego. W Szpitalnych Oddziałach ratunkowych (SOR), oraz w lotniczym zespole ratownictwa medycznego.

Słowa kluczowe: pielęgniarka, ratownictwo medyczne, pielęgniarstwo, kompetencje

Introduction

With the rapid development of medical science along with the parallel implementation of the daily clinical practice of standardised rules of rescue proceedings, proportionally increase also public expectations of more efficient actions in the health and life saving in situations.

In the structures of health care of leading European countries such tasks meet emergency medicine - independent medical specialization - rapidly developing since the early 70's of the last century. It is one of the most versatile and challenging medical specialization which requires great skills and experience. The emergency medicine in our country became a full-fledged independent medical discipline. The ordinance of Health and Social Welfare Minister of 25th of March 1999 placed it in a group of thirty basic medicine disciplines.

A special feature of this new discipline is a proper coordination and prioritization of conduct in an imminent life – threatening situations. Practically, it refers to the organizational and decision-making skills in the work team consisting of many experts. This applies particularly to periods before - and early hospitalisation, in which providing the required level of diagnostic decisions and actions from the first contact with the patient at risk for effective, specialist treatment is very important. The introduced regulations have enabled the organization of the Emergency Medical System and target network system station, which means hospital emergency departments (SOR).

The organizational changes resulted in the need to prepare the medical staff , which would be able to participate in the specialized life-saving medical activities (mobile teams and hospital emergency departments).

The training of doctors and nurses was started on the basis of post-graduate training programs developed in the specialization of emergency medicine and emergency nursing.

The current health care system assigns an important place to nurses, however, they are faced to other new tasks. The preparation for these tasks was begun with the introduction of post-graduate training qualification courses for nurses and rescue specialist. In 2007 was established the Polish Society for Emergency Nurses, the purpose of which is to promote the improvement of professional nurses skills, ensuring the high ethics of its members.

The efficient rescue is a partnership of all objects, from specialist doctors by nurses, emergency medical technicians, radiologists, blood donators, laboratory diagnostics, the volunteer fire-fighters who are at the place of action (Maślanka, 2012)

Today, nobody can imagine the emergency without the hospital emergency departments, well-equipped with modern ambulances, rescue helicopters and cooperation with Fire Brigade. To be successful it is necessary consistency in the operation of all emergency chain.

The female and male nurses working in emergency care must make an effort of scientific research, developing guidelines, contribution and organization from local units and rescue services, through education in various forms and levels to creation of a favourable legal work and professional development. Please tell straight - there is no modern medical rescue without emergency nursing (Maślanka, 2012).

Legal Aspects of nurses working in an emergency care

The National Medical Emergency in Poland was organized in order to fulfil one of the most important responsibilities of the state, which is to help anyone who finds themselves in a situation of health risks.

For this operation were entitled the doctors of system, nurses and paramedics of system. The The National Medical Emergency Act (Article 4) and the Penal Code (Article 162) say that every citizen has a duty to assist a person in danger of sudden health condition, regardless of their education under the threat of criminal sanction.

Article 7 of the Act on professions of nurse and midwife dated on 15th of July 2011 (Journal of Laws dated on 08/23/2011) says that the profession of a nurse can make a person with licence to practise a profession established or granted by the relevant regional nurses and midwives council.

A nurse of system with the title of specialist nurse or specialising in a field of emergency nursing, anaesthesia and intensive care, surgery, cardiology, paediatrics, as well as a nurse holding a qualifying course in the field of emergency nursing, anaesthesia and intensive care, surgery, cardiology, paediatrics and at least 3 years of work experience in the specialty units, emergency departments, emergency rooms or rescue services (National Medical Emergency Act Article 3 point 6).

The ordinance of Health and Social Welfare Minister of 11th of July 2007 § 2 enabled nurses upon completion of specialization being a nurse of system article 3, paragraph 6 of the Act of 8th of September 2006 National Medical Emergency (Journal of Laws No. 191, item 1410 and of 2007 No 89, item 590 and No. 166, item. 1172) execution any medical operations on their own without medical doctor's order.

Among other to give intravenous medicine in cardiopulmonary resuscitation, perform end tracheal intubation in cardiac arrest, perform manual and automated defibrillation. The administration of intraosseous medicines, vibrant pneumothorax decompression by

pleural puncture, execution of emergency tracheotomy provided additional educational specialist course, a sudden withdrawal of labour in the community, medical segregation within the meaning of Article 43 paragraph. 2 of the National Medical Emergency Act. Appendix 2 of the mentioned regulation provides a list of medicines administered to the patient by a nurse extemporaneously in an emergency without a doctor's order. However, Appendix 3 of this regulation provides a list of medicines which can be the administrated to the patient without doctor's orders by nurse and midwife.

In accordance with the Ordinance of the Minister of Health of 21st of March 2012 in the matter of post-graduate training centre for nurses and midwives with headquarters in Warsaw, the task of "centre" is the issue of diploma to nurses and midwives to obtain the title of specialist in the field of nursing after passing the state examination.

Professional nursing in the emergency medicine

In the current process of professional nursing it is vital to orientate it for its further progress and development on the basis of a common and clear knowledge of all professional nurses (Ślusarska, 2004).

Nurses of system carry out their tasks in units of the National Emergency Medical System – hospital emergency departments (HED), specialised and basic emergency medical teams, air medical rescue teams. A key role in the proper organization and functioning of the emergency play call centres.

The need for good preparation of nurses in the units of the system is due to the tasks aimed primarily at preventing the processes of early death in emergency threats (heart failure, acute respiratory failure and damage to the central nervous system).

In practice, the taken measures include:

- advanced life support procedures
- maintaining vital functions at risk
- limiting the extent of destruction and damage to various tissues and organs
- reducing the pain and suffering caused by the sudden threat

These activities are undertaken by teams of emergency medical units under the care before - hospital and hospital emergency units. The nurse performs them as an exit team member (basic, specialist), member of the air ambulance service and the emergency department at various workplaces such as nurses, ward nurses (Kózka et al. 2013).

A professional nurse performs following tasks.

- care-oriented tasks in relation to the subject of health
- for their own professional development
- of nursing defined as:
- organizational system
- education system
- branch of science

The nurse providing care to a person carries out the tasks assigned among other functions:

- preventive
- therapeutic
- care

- health promotion
- educational

Performing tasks for their own development and the development of nursing carries functions of:

- education
- management
- scientific research (Ciechaniewicz, 2001).

A range of tasks carried out by a nurse for a particular ward is conditioned by the objectives set in the caring plan, developed on the basis of an assessment of the status and situation of a patient. Of all the tasks and professional activities performed by nurses the most specific ones are determined as a function of caring and educating. They are the essence of the profession, the material content of professional nursing. In each occupational group there is a tendency to develop their own activities, to broaden the range of its activities, going beyond the traditionally defined role (Ciechaniewicz, 2001).

The nurse in an Emergency Medical System units carry out tasks arising from professional functions, these include:

- Providing patient care in a state of sudden life-threatening and health-threatening condition and health care management
- Health education
- Cooperation in multi-disciplinary teams (doctor, nurse, paramedic)
- Self development through continuous improvement of qualifications
- Profession development – emergency nursing as a kind of nursing discipline.

The first function, a nurse in an Emergency Medical System, realizes by providing professional patient care in life-threatening and health-threatening condition, that is supporting of vital functions using techniques and equipment, measurement and interpretation of the basic parameters: heart rate, RR, O2 Sat, administration of medicines.

Providing nursing care requires good preparation for the rapid assessment of life-threatening and health-threatening condition and self-determination, very good knowledge of theoretical assumptions algorithms by Resuscitation Guidelines 2010 Polish Resuscitation Council, which very clearly specifies the directions of action. The very important feature of emergency nurses are: high professional qualifications, manual skill, responsibility and resistance to stress.

When caring for a patient in critical condition, a nurse pulls to research, monitor the patient's condition, provide safe transportation, relieve pain, provide security and reduce fear and anxiety.

Educational activities include: assessment of knowledge and skills associated with maintaining the patient's health and giving back to health information tailored to the needs and abilities, prevention of injuries and accidents, teach first aid and participation in the training of nurses in other areas of nursing (Kózka et al. 2013).

Broadcasting of public access to defibrillation (AED), International Guidelines 2010 Cardiopulmonary Resuscitation emphasize: all emergency professionals to train, equip, empower to perform Automated External Defibrillation, as far as possible to implement a program of local public access to defibrillation (PAD). The purpose of this program is to improve access to defibrillation, especially in situations where:

- reach medical services in a short time is impossible
- in one place a single stage gathered a large number of people (sports stadium, shopping malls, airport) (Andres, 2011).

The educational activities of nurses has also disseminate courses. European Resuscitation Council of BLS (Basic Life Support), ALS (Advanced Life Support), EPLS (European Pediatric Life Support), NLS (Newborn Life Support). ERC (European Resuscitation Council) is a team of experts for resuscitation and emergency care. The purpose of the Council is to strive for continuous improvement of knowledge about CPR, first aid improvement of methods and monitoring of training in CPR (Andres, 2011).

Training children and young people in first aid. Implementation of the training is essential to prepare people to take action to rescue before the arrival of rescue teams.

Activities of nurses to develop their own and the profession include: self-directed learning, lifelong learning - continuous upgrading of skills, qualification courses, specializations, bringing changes to practice, work in scientific societies such as the Polish Society of Emergency Nursing (PTPR), co-creation of new and better ways to achieve better results , highlighting areas for research, research to improve the quality of patient care in emergency. Nursing research problem must relate to the improvement of nursing, because nursing is the domain of nursing. Research that do not conduct to change, do not make a difference in nursing care, are not nursing research (Lenartowicz, 2011) .

It should be noted that the cooperation of emergency nurses in the team is of particular importance in the Emergency Medical System. In this area, the common wish of all members of the team to achieve a common aim which is to save endangered life is a priority. Collaboration allows for optimal clinical solution and is essential for the improvement of patient care. The team in emergency care above all is formed by: doctors, nurses and paramedics.

An important element of teamwork is the professional responsibility of each member of which is determined by: responsibility, knowledge and authority. In accordance with the code of ethics, a nurse during the work is responsible primarily to the patient, the employer and their profession. The liability related to a specific range of actions taken, different levels of completed training and privileges. Awareness of professional liability is a source of confidence and mutual recognition of independence. Peace of mind can connect with skill, very important in emergency as well as a sense of importance as a member of the team (Kózka et al. 2013). The basis of the professional practice of specialists in the field of emergency nursing is to understand clinical decisions related to participation in the treatment of the patient, the provision of care in accordance with established and applicable standards, solving problems in the management of the care and safe use of equipment (Kózka et al. 2013).

Tasks of a emergency nurse

The nurse working in the emergency should have a predisposition to providing health care services using invasive methods of diagnosis, treatment, diagnosis of life-threatening condition, maintenance and medical monitoring equipment and interoperability of the therapeutic team. Emergency nurse performs diagnostic tasks, therapeutic - participate in treatment, prevention and care.

Diagnostic tasks

- assessment of the patient's life-threatening condition, qualification, depending on the severity of the clinical condition and, if necessary, the implementation of advanced life support
- assessment of injury according to ATLS (Advanced Trauma Life Support)
- performance of medical segregation (TRIAGE) in the event of disasters or mass events
- interpretation of study results
- medical records maintaining

Treatment tasks

- performance or participation in advanced life support procedures, defibrillation, airway instrumented
- cannulation of peripheral veins or intramedullary access and assist in setting up of a central line
- administration of medicines intravenously or intramedullary, drip transfusion fluids
- set up of emergency tracheotomy, conicotomy, decompression of tension pneumothorax
- taking oxygen
- bleeding and external bleeding control
- set up of catheter into the bladder, the stomach probe

Organizational tasks

- cooperation with a team of therapy, with the Emergency Response Centre, Medical Rescue Teams, the Air Ambulance (HEMS - Helicopter Emergency Medical System)
- coordinating the activities of subordinate unit (designation of a leader)
- ensure efficient and safe transport of patients
- preparation of personal protective equipment
- documentation of the patient's condition and course of action
- provide the resources needed to carry out the diagnostic process (diagnostic equipment, monitoring, resuscitation kits).

Nursing tasks

- maintenance and support of basic vital functions
- providing support to the family (parents of the child support)
- help in solving problems of an individual patient's response to participation in the treatment process
- informing the patient about the action, the type of surgery.

The debate on the role of nurses emergency system (Emergency Nurse Practitioner) also runs on other continents. In other countries, emergency medical systems arose much earlier than in Poland. In the UK, since the early 90's, the role of emergency nurses increased, while in New Zealand the discussion about a medical emergency nurse runs since 1998. In the UK, the educational path of nurses wanting to work in the emergency

is either complete courses or further education courses in schools of nursing and hold a minimum of 2 years of clinical internship, and the Antipodes is required at least four years of service (Frydrysiak et al. 2009).

Results

Nursing is recognized as a distinct field with specific knowledge and practice. It is an autonomous profession based on legal regulations. Professional emergency nursing requires the use of that knowledge, continuous improvement and verify it in the process of acquiring practical experience. Basic skills and responsibilities of a nurse are the same and the result of its being. Development of science justifies and enhances the scope and competence of professional activities of nurses in the Emergency Medical System, introduces the practice of new methods and techniques that require additional skills to master. Nursing is a profession with clearly defined roles, the specific needs of society, is a branch of practical and constantly evolving scientific discipline. Each team member should know their duties, have substantive expertise in the field of trauma, hemodynamic mechanisms of cardiac arrest and breathing, how to adequately conduct. The team which provides support performs several tasks at the same time, so to define the tasks for each of its members is extremely important for efficient operation.

The emergency nurse's role is to demonstrate a separate nursing diagnosis, determining the action plan (specifying how to deal with the problem), the final evaluation (comparison between assumptions and achievements). The described course of action requires continuing professional development, self-education and good cooperation in the therapeutic team. This is the only way to acquire much more of occupational independence. Perform tasks of nursing as well as the need to use a special apparatus, is associated with the continuous improvement of professional skills of nurses in postgraduate education. This allows to gain additional skills required to work on a patient in an emergency health treatment. The more doctors will be able to see that their work associates with "professional nurse", the more likely, in their beliefs, they will collaborate on the same level with emergency nurses. Over the years, the role of professional nurse has changed. Nursing of the XXI century tends to perform autonomous actions, focused on the entity care, expands the scope of powers and independence of nurses, thereby increasing the responsibility for decision-making.

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Anna Ślifirczyk[1], Katarzyna Snarska[2]

[1] John Paul II State School of Higher Education in BiałaPodlaska
Department of Emergency Medicine
[1]Państwowa Szkoła Wyższa im. Papieża Jana Pawła II w Białej Podlaskiej, Zakład Ratownictwa Medycznego
[2] Department of Clinical Medicine, Medical University of Bialystok
[2]Zakład Medycyny Klinicznej, Uniwersytet Medyczny w Białymstoku

Knowledge of epileptic patients about the disease
Wiedza chorych z padaczką na temat schorzenia

Summary
Introduction: The history of views on epilepsy and its treatment is a reflection of the mental development of mankind: the level of knowledge, culture and social relations. In ancient times, people suffering from epilepsy were considered to be possessed, and thus subject to different spells, rituals and to an exorcist in order to get rid of the demon from their bodies. Many other methods were also usedthen that do not apply today.
Aim: The aim of this study was to determine the level of knowledge of epilepsy patients about their disease.
Material and Methods: The study was conducted within 2 months of 2007, among patients of Outpatient Regional Specialist Hospital in Bialystok, using a questionnaire especially prepared for the construction of the work objectives.
Results: The study group consisted of 30 patients diagnosed with epilepsy. Almost half of the respondents (43.4%) were granted adisability pension because of epilepsy. Among the 76.6% of the respondents, there were no cases of epilepsy in the family. The vast majority (63.4%) of respondents identified as sufficient their level of knowledge about the procedure at the time of an epileptic seizure. The respondents gave the correct answer on the proceedings at the time of a seizure. Among the respondents, 76.6% of people informed their families how to behave during an epileptic seizure. Half of the respondents felt that the biggest problem in the functioning of daily life of patients with epilepsy is a limited contact with others, and 46.6% of people pointed out other problems, among others fear of an attack in a public place.
Clinical Implications: The level of knowledge among respondents about epilepsy is satisfactory, and patients expect from nurses mainly support and tips about living with epilepsy. The lifestyle of patients with epilepsy has not changed much, despite the fact that most patients are afraid of an epileptic attack in a public place.

Key words: epilepsy, knowledge

Streszczenie
Historia poglądów na padaczkę i jej leczenie jest odbiciem rozwoju umysłowego ludzkości: poziomu wiedzy, kultury i stosunków społecznych. W dawnych czasach ludzie chorzy na padaczkę uważani byli za opętanych, a co za tym idzie poddawani różnym zaklęciom, rytuałom i egzorcyście, aby pozbyć się demona z ich ciał. Stosowano też wiele innych metod, które nie mają zastosowania w dzisiejszych czasach.
Celem pracy było określenie poziomu wiedzy pacjentów z padaczką na temat ich choroby.

Badania przeprowadzono w okresie 2 miesięcy 2007 roku wśród pacjentów Poradni Padaczkowej w Wojewódzkim Szpitalu Specjalistycznym w Białymstoku za pomocą kwestionariusza konstrukcji własnej sporządzonego dla celów pracy.
Grupę badawczą stanowiło 30 pacjentów ze zdiagnozowaną padaczką. Prawie połowa badanych (43,4%) przeszło na rentę z powodu padaczki. Wśród 76,6% ankietowanych, nie występowała padaczka w rodzinie. Znaczna większość (63,4%) badanych określiła jako wystarczający poziom posiadanej wiedzy na temat postępowania w czasie napadu padaczkowego. Ankietowani udzielali poprawnej odpowiedzi odnośnie postępowania w czasie napadu padaczkowego. Wśród badanych 76,6% osób, poinformowała swą rodzinę jak należy postępować w czasie napadu padaczkowego. Połowa ankietowanych uznała, że największym problemem w funkcjonowaniu w życiu codziennym chorych z padaczką jest ograniczenie kontaktu z innymi, a 46,6% osób wskazało na inne problemy m. in. obawę przed wystąpieniem ataku w miejscu publicznym
Poziom wiedzy, wśród ankietowanych na temat padaczki jest zadowalający, a chorzy oczekują w głównej mierze od pielęgniarki przede wszystkim wsparcia oraz porad dotyczących życia z padaczką. Styl życia pacjentów z padaczką nie uległ większym zmianom, pomimo,iż pacjenci w większości obawiają się wystąpienia ataku padaczkowego w miejscu publicznym.

Słowa kluczowe: padaczka, wiedza

Epilepsy is one of the most difficult neuro-epidemiological problems. It is estimated that approximately 50 million people worldwide suffer from epilepsy. In Poland, epilepsy occurs in about 1% of the general population. The rate of new cases in Poland amounts to 50-70 patients in 1000, 000 in a year. This means that every year, there are between 20 000 and 28 000 new cases of epilepsy (Drazkowski, 2004).

A seizure is an expression of altered reactivity or modified physiological state for the whole or part of the brain. One attack is not an epilepsy. The condition can develop in people of all ages, formed as a result of one-or multifocal lesions at various sites and has diverse etiology and morphology of seizures and electroencephalographic recordings and other intricate and controversial classification (Drazkowski, 2004), (Ryglewicz, Kuran, 2003).

Some environmental, genetic and physiopathological factors foster the creation of epileptic seizures, but some reasons for acting in adult patients do not occur at a younger age (Ryglewicz, Kuran, 2003).

One of the goals of treatment is to reduce the number of epileptic seizures or their complete elimination (Zubiel, 2006). Therefore, a number of newer pharmacological or surgical methods increases, and also some alternative therapies like homeopathy and aromatherapy.

Patients with epilepsy suffer from mental health problems. They fear the risk of seizure in public. They have difficulties in dealing with the environment, studying, getting work, they feel uncomfortable in interpersonal relations, etc. (Kłos, Zielinska, 2006; Koncewicz, 2006). Patients may have certain occupations, and their way of life requires some sacrifices. Therefore, it is also necessary to educate patients and their families concerning the avoidance of factors triggering seizures, the procedures during seizure and health behaviours (Pizzini et al. 2001; Drazkowski, 2004).

The aim of the study was to determine the level of knowledge of epilepsy patients about their disease. The following specific objectives were formulated:

1 Assessment of the level of knowledge of epileptic patients about the disease.

2 Defining expectations of epileptic patients towards nurses.

3 Defining changes in daily life of patients with epilepsy.

4 Defining problems in patients with epilepsy

Material and Methods: The study group consisted of 30 patients (of both sexes diagnosed as epileptic) of Epilepsy Counselling Clinic in Regional Specialist Hospital in Bialystok, at the age of 18 -75 years. The conducted study was based on the original questionnaire. Questions related to demographics, social and living conditions of patients with epilepsy, the problems of patients with epilepsy, the scope of knowledge and the level of demand for education.

Results

The study group consisted of 30 people diagnosed with epilepsy, of which 18 (60%) were male and 12 (40%) women. Respondents' age ranged between 18 and 75 years of age. Persons under 30 years of age accounted for 50% of patients. Most patients, 14 (46.7%) live in towns more than 10. 000, 11 (36.7%) of people lived in villages, while the remaining five (16.6%) patients, lived in towns of less than 10 000 inhabitants.

The largest group of respondents consisted of patients with secondary (46.7%) and vocational education (30%). 13.3% had primary education and 6.7% higher education. Only 3.3% of respondents had special needs education. 36.6% were learners, while those working professionally accounted for 20%. Almost half of the respondents (43.4%) got disability pension because of epilepsy. Among the 76.6% of the respondents, there was no epilepsy in the family. In the majority (60%) of patients the first seizure occurred at the age of six years, between the ages of 3 -5 years of (30%) patients. In only 10% of people the first seizure occurred before 2 years of age. 90% of respondents have been treated for more than 6 years because of epilepsy. Only 6.7% have been treated for 3-5 years (Table 1).

Tab. 1. Diagnosis and treatment of epilepsy

Range	**First seizure**		**Diagnosis period**		**Treatment period**	
	N	**%**	**N**	**%**	**N**	**%**
0-2 years	3	10	23	76,7	1	3,3
3-5 years	9	30	7	23,3	2	6,7
Above 6 years	18	60	0	0	27	90
Total	**30**	**100,0**	**30**	**100,0**	**30**	**100,0**

Only 23.4% of people know what type of epilepsy was diagnosed in them (Figure 1).

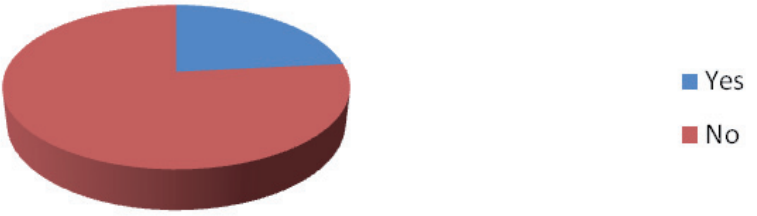


Fig. 1. The knowledge of the type of seizure by the respondents

Respondents asked about the factors conducive the occurrence of seizures most frequently mentioned the lack of sleep (53.3%), anxiety (50%), watching television (20%), excessive sleep (6.6%), strobe light (6.6%), and 43.3% of people reported other reasons (Figure2).

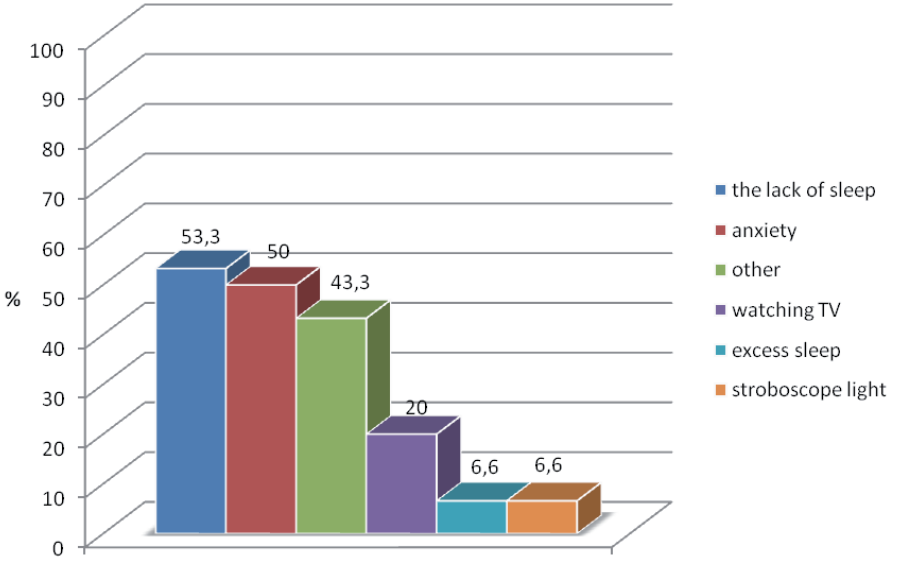


Fig. 2. Factors contributing to the occurrence of seizures.

According to most respondents medicine must be taken regularly (93.4%). Only one person said that only at the time of the seizure, and 3.3% did not know how to take medicine.

Once within two months 76.6% visit the outpatient epileptic clinic, 16.7% once a month, and 6.7% every six months (Table 2).

Tab. 2. Visits to the epileptic clinic

The frequency of visits	**N**	**%**
Once w week	0	0
Once a month	5	16,7
Everysixmonths	2	6,7
Once a year	0	0
other(everytwomonths)	23	76,6
total	**30**	**100,0**

The vast majority (63.4%) of respondents identified as sufficient the level of knowledge about the procedure at the time of seizure, while 36.6% of people said they did not have any knowledge on this subject. Respondents asked about the treatment at the time of seizure, in the vast majority (96.0%) mentioned that the patient should be placed in a safe position, something should be put under his/her head, and do not hold the patient's body during an attack. However, 4.0% of respondents reported that one should not hold the patient during an epileptic seizure and seek specialist help. Among the respondents, 76.6% people informed their families how to behave during an epileptic seizure.

Half of the respondents (50.0%) stated that the occurrence of epilepsy did not affect their working life, because either they do not work or did not inform the employer about the disease. The disability pension because of epilepsyhave over 40.0% of individuals and 6.7% of the respondents have given up their jobs, only 3.3% of respondents changed jobs (Table 3).

Tab. 3. Impact of the disease on working life

the impact of the disease on professional life	**N**	**%**
Job changing	1	3,3
Resignation fromwork	2	6,7
Getting a disability pension	12	40
Others	15	50
Total	**30**	**100,0**

Only 20.0% of people carry a tag with information about the disease.

Only 10.0% of respondents attend meetings of organizations of patients with epilepsy. However, 90.0% of respondents do not use the help of any associations. The majority (93.3%) patients obtain information about their disease from doctors and nurses, (13.3%) from television, (10.0%) from newspapers, (20.0%) from the Internet (30.0%) (Figure 3).

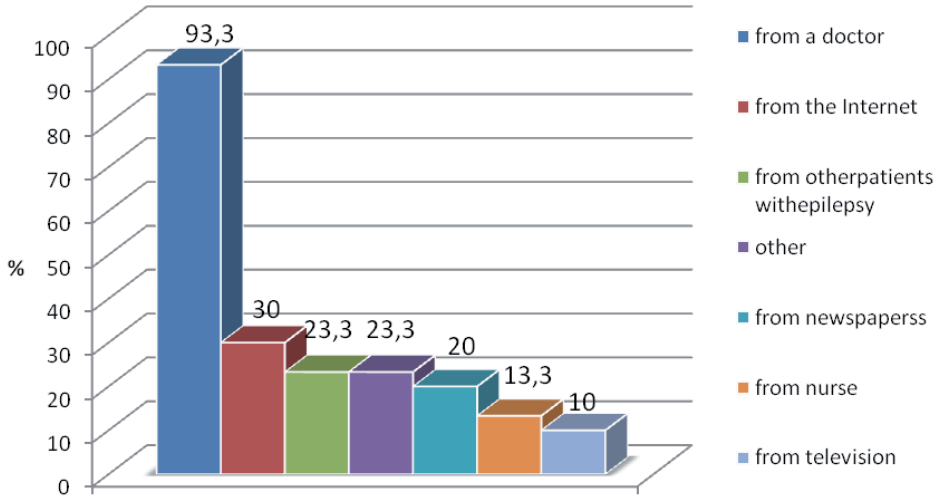


Fig. 3. Sources of information about epilepsy.

The desire to raise awareness about their condition was expressed in more than half of the respondents, only 13.3% of people believe that they have sufficient knowledge on the subject. The majority of respondents (73.3%) expected advice and support from a nurse (63.3%). 36.6% wants to get information on job opportunities, and information on opportunities for practicing sports is expected by 26.6% of patients with epilepsy. However, 16.6% of people expect information on existing associations of patients with epilepsy (Figure 4).

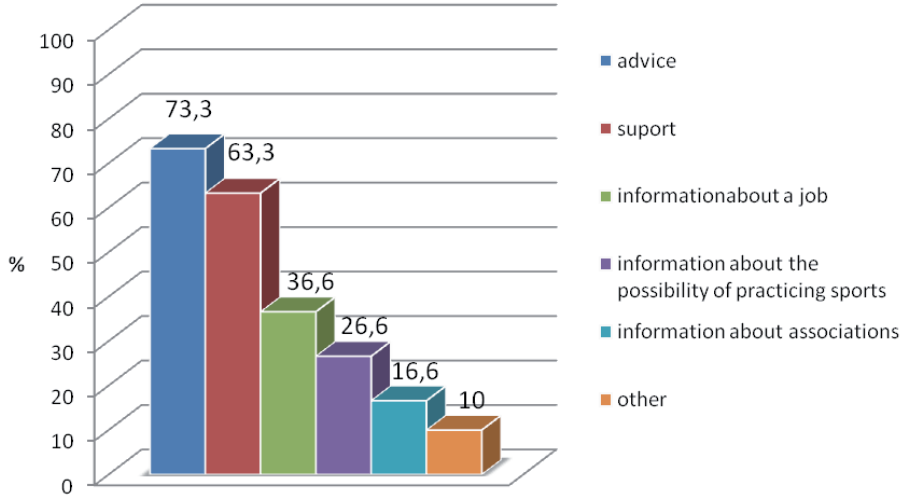


Fig. 4. Information sought from nurses.

Half of the respondents felt that the biggest problem in the functioning of daily life associated with the disease is a limited contact with others. The need to comply with medical recommendations was a problem for 13.3% of people. However,46.6% indicated other problems, among others occurrence of an attack in a public place and the lack of awareness of the environment for the conduct of patients with epilepsy during the attack (Figure 5).

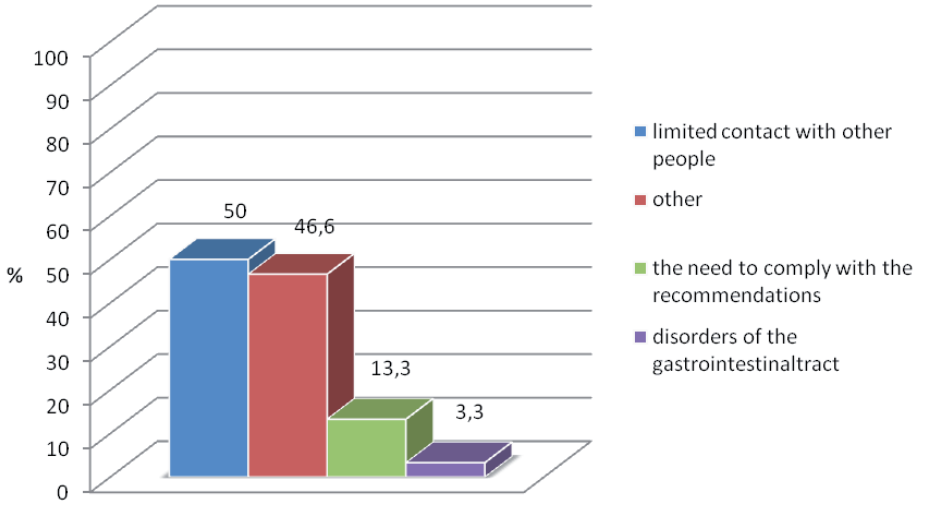


Fig. 5. Problems of patients with epilepsy

Discussion of results

The level of knowledge of patients is an important factor in the treatment of patients with epilepsy. Patients with epilepsy experience a range of psychological, physical and social problems, and therefore the increase of the level of awareness among patients and the closest surrounding can help to optimize care of this population of patients, allowing to single out patients who require help of a psychologist, nurse, etc.

Literature does not provide unambiguous triggers of epilepsy. Zyski and Prusiński show that anxiety, alcohol, lack or excess of sleep, stress, hormonal changes, injuries, perinatal, family and birth defects of the brain, metabolic defects are all causative agents of a seizure (Owczarek et al. 2007; Ryglewicz, Kuran, 2003). In our study, patients found the lack of sleep (53.3%), anxiety (50%) and watching television (20%) as the main factors favoring the occurrence of seizures.

In our study, it was found that the first seizure occurred before the age of two in 10% of the cases, while in the remaining 60.0% of patients, the seizure occurred above 6 years of age. The results confirm the findings of other authors (Malińska et al. 2007; Drazkowski, 2004).

The consequence of the disease in many cases is the constant application of drug therapy to prevent the occurrence of seizures (Kapinos et al. 2006). In their own studies it was found that the majority of respondents (93.4%) take medication regularly but older people cannot remember the names of medications .

In recent years, the approach to undertaking work by people with epilepsy is changing. The results of comparative studies in the U.S. show that in 1994 only 45% of the Americans thought that people with epilepsy should work professionally, but in 1997 the proportion had risen to 79% (Owczarek et al. 2007).

The feelings of patients due to the fact of seizures are usually very hard. People with epilepsy experience fear of seizure, shame, they fear that the attack may occur in a public place. They are often accompanied by a sense of being "different", being a subsidiary to others. Living with the awareness of the possibility of an attack and in a kind of "waiting" for a seizuremeans that the patient has no sense of control, has reduced efficiency and even the state of frustration, a sense of complete submission to the disease (Wilusz, Landowski, 2007; Zielińska et al. 2006).

In the study of Kapinos et al. 77.5% of the respondents felt that people with epilepsy should inform their milieu about their disease, but only 52.1% of respondents would tell their friends about the disease in their family. In the same study, 51% of the students said that people with epilepsy can have the same job as healthy people, but 14.8% of respondents would dismiss such a person if a seizure occurred during working hours (Kłos, Zielinska, 2006; Owczarek et al. 2007). Analyzing the research it has been shown that the occurrence of epilepsy did not significantly influence the respondents working life. However, the pension because of epilepsy got 40.0% of people, while the others changed job or quit.

The research shows that people have insufficient knowledge about epilepsy in order to assist patients during seizures. People with epilepsy are also concerned about public response to their illness. Therefore they often hide this fact. This is confirmed by studies carried out in a group of middle school students by Zielinska et al., in which, young people do not have knowledge about the first aid during a generalized epilepsy seizure and the level of knowledge depended on the age of the respondents, place of residence and knowledge of a person suffering from epilepsy (Malińska et al. 2007). In a study conducted among students of the Silesian universities, most indicated that they would help a sick person during a seizure, but up to 69.8% of these people would make it wrong (Zielinska et al. 2006).

Patients with epilepsy often suffer the consequences of a negative attitude. The media have a major impact on an attitude of the society towardspatients with epilepsy. Therefore publications about epilepsy should be monitored by the medical societies. In the analysis of articles made in 2002-2005 in the press there was no article on first aid during an epileptic seizure. Therefore there is a need to educate the public on the treatment at the time of seizure (Jarzębska, 2006; Kłos, Zielinska, 2006).

Kłos states that young people suffering from epilepsy in the majority is accepted by their peers at school and the disease does not affect much on their leisure time. The youth can also choose a future profession ensuring independent living in adulthood (Zielinska et al. 2006). In the study it was showed that the subjects often have dilemmas as to which sports and jobs they can undertake.

In adapting to the disease a very important role plays the presence of such external sources of support as a family, friends, colleagues, self-help groups. Governmental and non-governmental organizations are important, they can significantly help the chronically

ill to adapt. In Poland, there are organizations for people suffering with epilepsy in professional or social matters, including Polish League Against Epilepsy, Polish Association of People with Epilepsy (Zielinska et al. 2006). Analyzing the own research it was found out that only 10% of people with epilepsy are assisted by associations, which may be due to the fear of disclosure of their disease in their environment or ignorance.

A nurse fulfills a number of tasks in relation to patients to help them recover, for example forms the sense of responsibility for their own health, prepares a patient to make and implement activities to promote health and to prepare a patient for self-care. Therefore one can conclude that a nurse acts as a teacher, educator, educator and also helps him/her solve problems, performs medical orders, and many other activities that are to help improve the health of the patient (Kapinos et al. 2006). The study showed that patients, above all, expect from nurses support and advice, and information about the possibility of practicing sports and the type of profession that can take. One should keep in mind that the purpose of therapeutic interventions is to improve the quality of life of the patients. It is therefore important to meet their needs on an individual basis.

The knowledge that you have about various limitations that are caused by the disease is certainly helpful in accepting the disease and its treatment by patients as one of their features (Kapinos et al. 2006; Koncewicz, 2006). Patient should be encouraged to take up new forms of activities in the workplace, home and school.

Coping with epilepsy is the ability of patients to use their abilities to overcome limitations and difficulties resulting from their disease occurring in everyday life. Therefore, it should be remembered that the purpose of educational activities is to improve the quality of life of the patient.

Conclusions

1. The level of knowledge among respondents about epilepsy is satisfactory. Most patients know the factors conducive to seizure and rules of conduct during it.
2. Patients expect from nurses support and tips about living with epilepsy, particularly doing sports and career opportunities.
3. Lifestyle of patients with epilepsy has not undergone much change, however, the biggest problem in the daily life is a limited contact with others and the need to adhere to medical recommendations.
4. Patients are mostly afraid of epileptic seizures in public, which is caused by the fear of public reaction

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Anna Ślifirczyk[1], KatarzynaSnarska[2]

[1] John Paul II State School of Higher Education in BiałaPodlaska, Department of Emergency Medicine
[1]Państwowa Szkoła Wyższa im. Papieża Jana Pawła II w Białej Podlaskiej, Zakład Ratownictwa Medycznego
[2] Department of Clinical Medicine, Medical University of Bialystok
[2]Zakład Medycyny Klinicznej, Uniwersytet Medyczny w Białymstoku

Knowledge of nurses about rehabilitation treatment to patients with ischemic stroke

Wiedza pielęgniarek na temat postępowania rehabilitacyjnego wobec pacjentów z udarem niedokrwiennym mózgu

Summary
Stroke is the leading cause of disability in the adult population. Among patients who have suffered a stroke, rehabilitation is an important part of the healing process in which a nurse plays an important role. Rehabilitation is an active and ongoing process that begins during hospitalization and continues even after the patient's return home.
The aim of this study was to evaluate nurses' knowledge about rehabilitation treatment to patients with ischemic stroke.
A total of 30 nurses working in departments of neurology in the region of Podlasie in 2011. The research material was collected by diagnostic survey, by means of a questionnaire of our own design.
The age of the respondents ranged from 25 to 54 years old (average 36,3). 21 respondents (70%) had medical education. One in ten has been working 21 - 30 years in the department of neurology. Most respondents (70%) said that passive exercises should be started within 24 - 48 hours after stroke occurred. The most common methods of rehabilitation were the change of body position (80%), back percussion (60%), and every third person performed passive exercises. Half of the respondents did not know any of the methods applied to the rehabilitation of stroke patients.
1 Nurses, despite having a basic knowledge of rehabilitation methods applied to patients after ischemic stroke, take action to support the rehabilitation process and to improve the health of the patient.
2 In order to improve the rehabilitation process and improve the quality of life of patients after he stroke, it is necessary to extend the scope of nursing education and alsoextend medical equipment of the hospital ward.

Key words: ischemic stroke, knowledge, rehabilitation

Streszczenie
Udar mózgu stanowi główną przyczynę niesprawności w populacji osób dorosłych. Wśród pacjentów, którzy doznali udaru mózgu, rehabilitacja stanowi ważny element w procesie leczenia, w którym dużą rolę odgrywa pielęgniarka. Rehabilitacja jest czynnym i ciągłym procesem, który rozpoczyna się w czasie hospitalizacji i trwa również po powrocie pacjenta do domu.
Celem pracy była ocena wiedzy pielęgniarek na temat postępowania rehabilitacyjnego wobec pacjentów z udarem niedokrwiennym mózgu.

Badanie przeprowadzono wśród 30 pielęgniarek pracujących w oddziałach neurologii województwa podlaskiego w 2011 roku. Materiał badawczy zebrano drogą sondażu diagnostycznego, za pomocą kwestionariusza własnej konstrukcji.
Wiek respondentów wahał się w granicach od 25 do 54 roku życia (śr.36,3) Wykształcenie medyczne zawodowe posiadało 21 osób (70%). Co dziesiąta badana pracuje 21 – 30 lat na oddziale neurologii. Najwięcej osób (70%) stwierdziło, że ćwiczenia bierne należy rozpocząć w ciągu 24 – 48 godzinach od wystąpienia udaru. Najczęściej stosowanymi metodami rehabilitacji były: zmiana pozycji ułożeniowej (80%), oklepywanie (60%), a co trzecia osoba wykonywała ćwiczenia bierne. Połowa ankietowanych nie zna żadnej metody rehabilitacji stosowanej wobec pacjentów z udarem mózgu.
Implikacje praktyczne:
1. Pielęgniarki pomimo posiadania podstawowej wiedzy w zakresie metod rehabilitacyjnych stosowanych wobec osób po udarze niedokrwiennym mózgu, stosują działania wspierające proces rehabilitacji i poprawiające stan zdrowia pacjenta.
2. Celem usprawnienia procesu rehabilitacji i poprawy jakości życia chorych po udarze mózgu, niezbędne jest rozszerzenie zakresu edukacji pielęgniarek jak i wyposażenia sprzętowego oddziału.

Słowa kluczowe: udar niedokrwienny mózgu, wiedza, rehabilitacja

Introduction

Stroke is the third leading cause of death and the leading cause of disability in people over 40 years old. In the world each year about 4.5 million people in developed countries die from stroke, it is the third most common cause of death in the adult population. The incidence of stroke in Poland is the European average (around 170/100.000 people / year), while the death rate is one of the highest (80/100.000 people / year) (Członkowska, 1999). Stroke is also one of the most common causes of disability (Guidelines of Expert Group of the National Program for Prevention and Treatment of Cardiovascular Disease POLKARD, 2008; Adamczyk, 2003). Approximately 50% of patients suffering from stroke remain disabled and until the end of their livesare dependent on their caregivers. The second half of stroke patients recover almost fully and can function independently in their community of residence (Nowacki, 2003; Malczewski, 2005). Among patients who had a stroke, about 22% of people do not move on their own, 24 - 53% require assistance with activities of daily living, 12 - 18% are patients with impairment of speech (aphasia), while 32% of patients experience depression. Disability resulting from stroke leads to serious social, economic and psychological problems (Pałka et al. 2007). Therefore, it is important to carry out rehabilitation, which efficiently restores physical and mental patients after stroke. It is an active and ongoing process that begins during hospitalization and continues even after the patient's return home. In the process of rehabilitation one should consider:

- prevention of complications of immobility of a patient - treatment of comorbidities,
- improvement of patient's self-assessment,
- strengthen the motivation to participate actively in rehabilitation,
- education of family members and their active involvement in the rehabilitation process (Klimaszewska 2006).

According to Helsingborg Declaration of 2006, the purpose of rehabilitation of patients after stroke, which should be achieved by 2015, is obtaining by more than 70% of patients independence in daily life activities three months after the stroke . Rehabilitation should be carried out by an interdisciplinary rehabilitation team, which also includes a nurse (Guidelines for National Experts Group on the Prevention and Treatment of Cardiovascular Disease POLKARD, 2008). Negligent care during hospital treatment and early rehabilitation impede and move away in time special improvement treatments and have a negative effect on the final result of any treatments and rehabilitation (Kozera, 2007).

Aim: The aim of this study was to evaluate nurses' knowledge about rehabilitation treatment to patients with ischemic stroke.

Material and Methods: The study was conducted during three months in 2009, among 30 nurses working in the department of neurology. The research material was collected by means of a diagnostic survey in a form of an anonymous questionnaire designed especially for this purpose.

The test results

The study was conducted among 30 nurses working in the neurology ward. Respondents' age ranged from 25 to 54 years old (average 36, 3) The largest group of respondents (70%) had professional medical training. Table 1

Tab. 1. Education of respondents

Education	N	%
Medical professional	21	70
Diploma with specialization	6	20
Higher vocational (BA)	2	6,7
Higher (MA)	1	3,3
Total	30	100,0

In a nursing profession 40% of nurses have worked for 11 - 20 years, the remaining have worked 21 -30 years (20%) and (30%) less than 11 years. Only three people (10%) worked in the profession for 31 - 40 years. Among the respondents, only 6.7% of people over 31 - 40 years. One in ten has worked in the neurology ward for 21 - 30 years, others have work experience of 11-20 years (16.7%) in the neurology ward, while 66.7% of respondents have worked in the department of neurology from 1 day to 10 years. In the majority the surveyed nurses (46.6%) have completed various courses and specializations (6.7%), and trainings. Figure 1

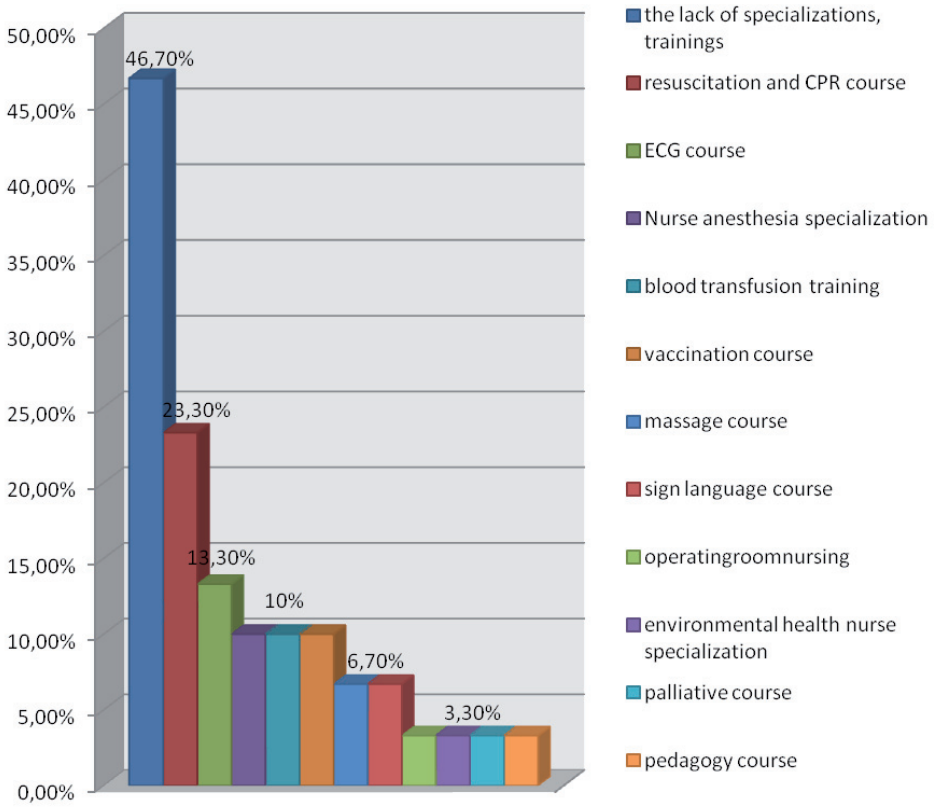


Fig. 1. Finished specialization courses for nurses.

The vast majority of respondents (80%) defined that this is a nurse who performs passive exercises. According to 70% of the respondents, passive exercises should begin after 24 - 48 hours after the occurrence of a stroke. Another period for starting passive exercises in the opinion of 23.3% of the respondents were three days after a stroke, or a week (6.7%). More than half of the respondents said that they should be performed two times a day, for 5 - 10 minutes. However, according to 40% of respondents 2 - 3 times a day for 10 - 15 minutes of passive exercises, and 6.7% stated that the frequency should be 7 - 8 times for 15 - 20 minutes. Figure 2

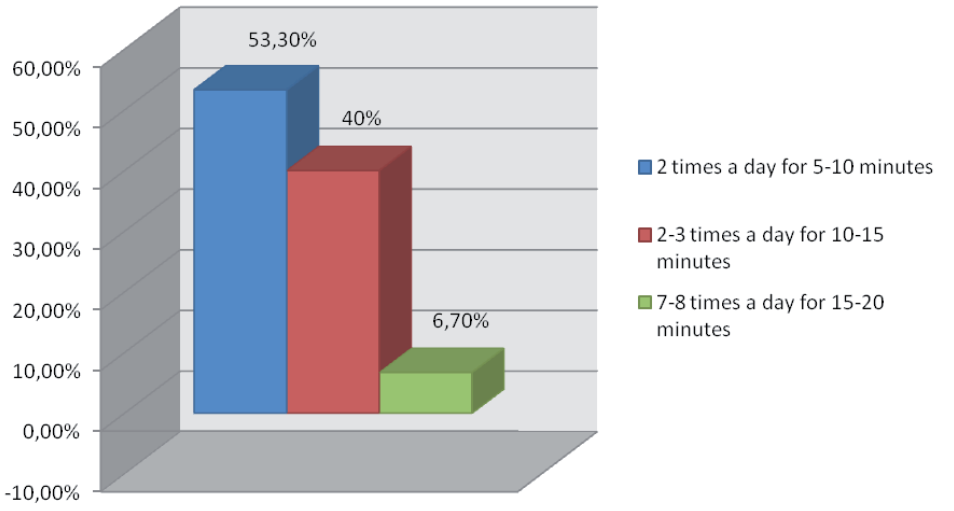


Fig. 2. Exercise training in patients with ischemic stroke.

As a contraindication to passive excercises , respondents listed mainly acute inflammation of periosteum and muscles (80%). Other reasons for discontinuation or not taking exercise was thrombosis, fixed restriction of movement in the joints and the patient's unconscious state. Figure 3

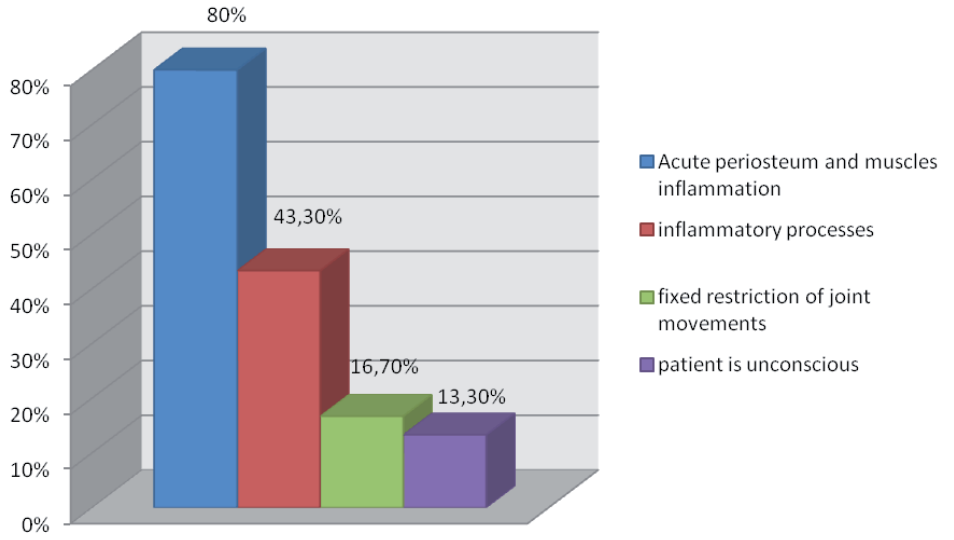


Fig. 3. Contraindications to passive exercise in ischemic stroke.

The vast majority of patients (90%) responded that active exercise are exercises performed by the patient under the supervision of a nurse, and 60% of themidentified active exercises as exercise done by the patient using different equipment. Active exerciseswere also identified by 13.3% of respondents as exercise increasing muscle strength or as a range of exercises carried out by the nurse resulting from the function of rehabilitation (6.6%).

Contraindication, in the opinion of the respondents, to active exercises in patients with stroke most often (83.3%) were unstable fractures, acute inflammatory arthritis (73.3%), bed rest treatment (33.3%), and no doctor's consent (3.3%).

Half of the respondents did not know of any method used in the rehabilitation of stroke patients. Every fourth respondent knows the Bobathmethod , 13.3% knows constraint –induced movement therapy, 6.7% of respondents knows Edmund Jacobson's method and 3.3% the Kabat method PNF. Figure 4

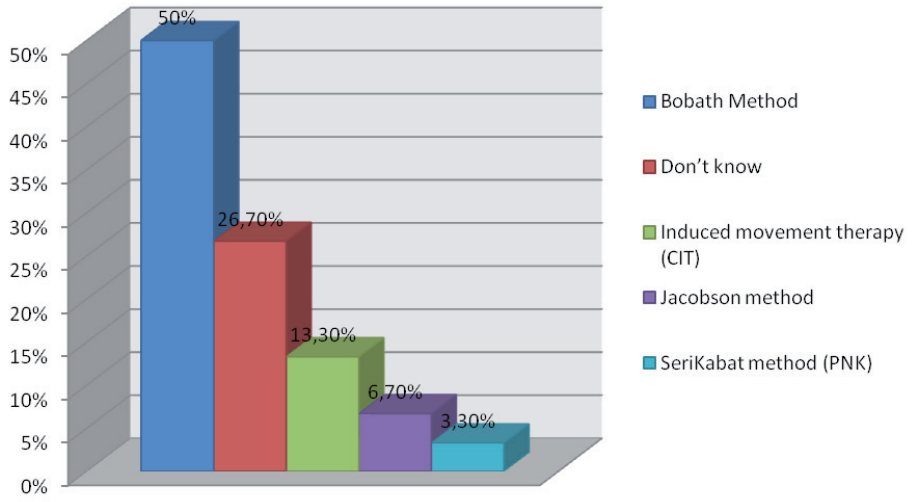


Fig. 4. Knowledge of methods of rehabilitation.

More than half (60%) of respondents did not answer the question about the assumptions of methods of rehabilitation, and 26.7% did not know the rules. Only 13.3% of respondents indicated activation in order to prevent complications arising from the disease entity, as a basic premise of the methods of rehabilitation of patients after stroke.

The majority (90%)of nurses responded that they do rehabilitation exercises as a physician's recommendation. Only 10% said that it is an independent decision of a nurse.

The vast majority (80%) of respondents in the course of rehabilitation repositionpatients in bed or do back percussion (60%). Every third person performs passive exercises, and 16.7% of the respondents perform massages. (Figure 5). 60% respondents does breathing exercises in patients with stroke.

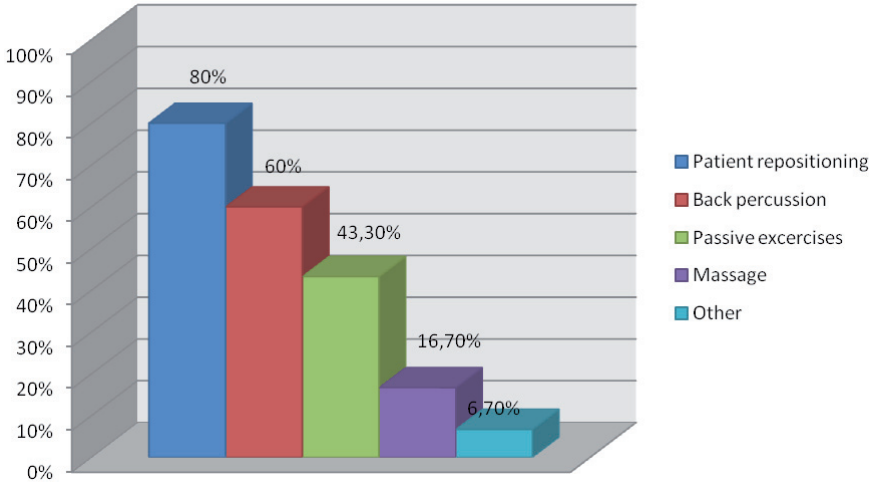


Fig. 5. Activities performed in the rehabilitation of patients with ischemic stroke.

Among the equipment used in the rehabilitation of patients after stroke, 80%of respondents listed anti-bedsore mattresses , rolled up blanket and support (73.3%). However, 6.7% of nurses do not use any equipment. Figure 6

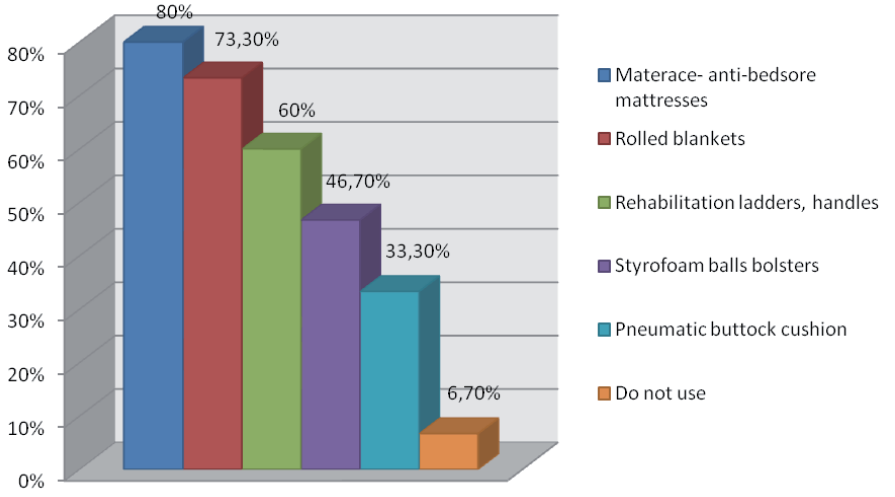


Fig. 6. Facilities appropriate for rehabilitation of patients after a stroke used by respondents.

Dressing-up the patient after a stroke, starting with the paralyzed limb will start 90% of the nurses. However, putting patients with hemiparesis on the healthy side and the change of position is used by 86.7% of respondents. Other responses were: laying the sick according to their preferences or mostly on the back. Only 3.3% of nurses will place a patient with a stroke on a side of paresis. (Figure 7).

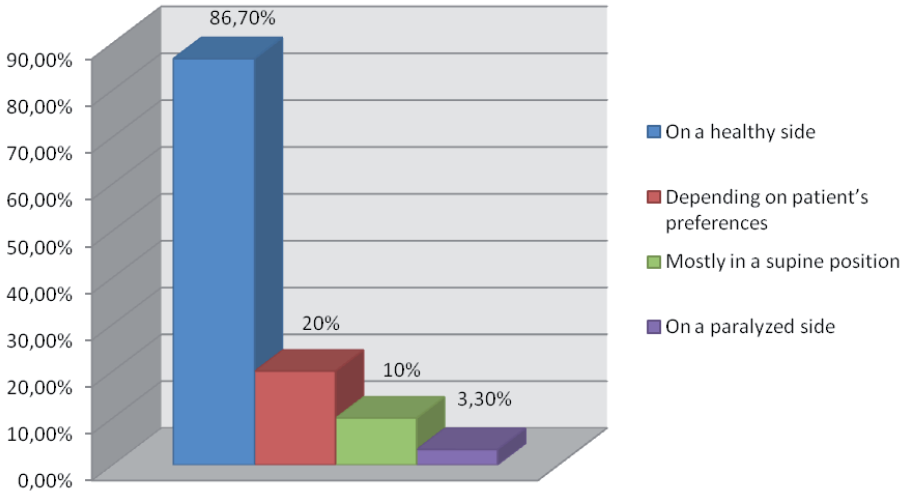


Fig. 7. The rules of positioning patients with hemiparesis.

The majority (76.7%) of respondents reposition a patient with stroke with different frequency, every 2-3 hours . While, 20% of respondents change the position 3 - 4 times a day, 3.3% change position less frequently.

During the speech rehabilitation of patients after stroke, 60% of nurses prompts the initial letters or syllables. 46.7% use repetition and writing of words acquired by the patient. Figure 8

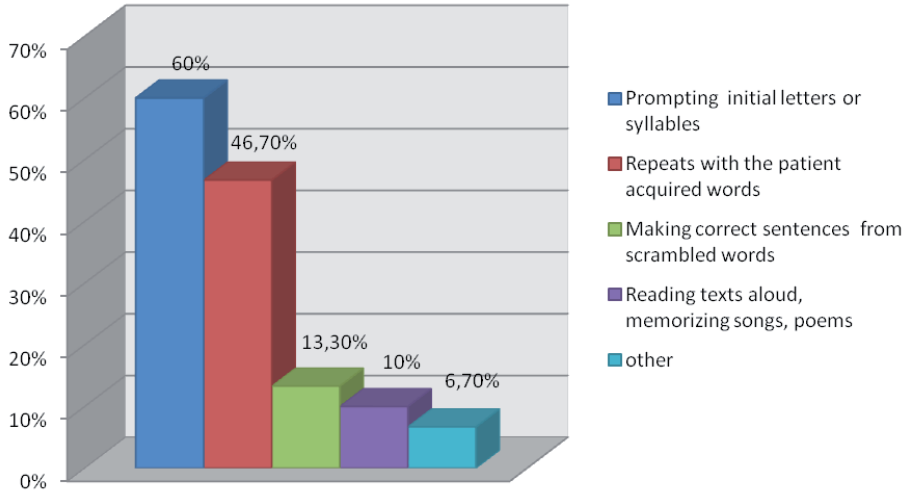


Fig. 8. Methods for speech rehabilitation.

Presentation of results and discussion

Stroke is one of the most serious problems of modern medicine, due to the high mortality in the early period and the long process of treatment and rehabilitation. Other complications after stroke such as paresis, speech disorders, cognitive disorders cause in a majority of patients permanent or partial disability, and even the inability to live independently (Domka, 2005). That is why it is so important that in the process of complex rehabilitation of patients after stroke these universal priorities are taken into consideration: striving to achieve the highest possible degree of independence in carrying out the patient's daily life and locomotion and reduce mortality in the early post- stroke period (Opara, 2002).

Helsingborg declaration assumes that all patients in the early stages of stroke should undergo rehabilitation. This means that the rehabilitation should be initiated, and the method of its implementation are set in the first 24-48 hours. after the occurrence of stroke, provided that the patient's condition is stable. However, the optimal period of rehabilitation of the patient should be about 3 months (Guidelines for the National Expert Group for Prevention and Treatment of Cardiovascular Disease POLKARD, 2008). Nurses, in our study, in the vast majority (70%), also identified a period of 24 - 48 hours as the start time of the passive exercises in patients with stroke.

Rehabilitative care should be provided to such an extent that the patient requires to recover , especially since clinical trials provide more and more evidence that the intensity of exercise has a beneficial effect on the functional status of patients (Gresham, 1997). According to Malczewski, exercise and rehabilitation methods should be selected according to the patient's individual ability. They should be started from the side affected by the paralysis. In the first days or weeks after the stroke passive exercises should be carried out at least 2-3 times a day (Malczewski, 2005). Most benefits bring exercises carried out six times a day for about 10 - 15 minutes, but a set of exercises should not be less than 45 minutes (Kulczycki, 2001). Our study showed that 53.3% of the subjects will perform exercises 2 times a day for 5 - 10 minutes.

According to Ryglewicz, rehabilitation treatment of stroke patients require the use of special methods. This is due to the nature and course of movement disorders in patients with focal brain damage (Ryglewicz, 2000). According to Opara, the basis for the rehabilitation of patients with hemiparesis is physiotherapy. The most commonly used methods of improving the patient's condition areBobath method, PNF method, the method of Jacobson and the method of Kabat (Mikołajewska, 2007; Klimaszewska, 2006). However, one of the entries of the Helsingborg Declaration says that no method (rehabilitation) cannot be recommended as the only one(Guidelines for National Experts Group on the Prevention and Treatment of Cardiovascular Disease POLKARD, 2008). In our study it was showed that 26.7% of nurses do not know any method of rehabilitation. The best-known method of rehabilitation of patients with stroke was Bobath method (50%) and the induced movement therapy (CIT).

Providing adequate care in the first hours and days will allow a faster recovery and better prognosis for the future (Adamczyk, 2003). According to Klimaszewska improving patient'c condition after stroke is synonymous with extensive nursing and medical care (Klimaszewska, 2006). Rehabilitation has a major impact on the course of the disease and the patient's condition. Among the rehabilitation activities carried out by a nurse the author gives the correct positioning of the limbs, changes in body position, passive and active exercises, breathing exercises and help in self-management (Rosińczuk – Tonderys, 2005). Proper patient position is the start of

rehabilitation. Besides that, the aim of rehabilitation is to prevent complications of immobility, and development of procedural memory (Kulczycki, 2001). Our own research has shown that during patient's rehabilitation after ischemic stroke, 80% respondents uses patients repositioning, 60% back percussion,(43.3%) passive exercises and massages (16.7%).

Many authors emphasize that early introduction of rehabilitation and its good conduct gives benefits to the patient. Nurse should encourage and motivate patients to self-care (Rosińczuk – Tonderys, 2005). The tasks of nurses should also be properly set up limbs and the right rest position. In order to maintain this effect, it is preferable to place the leg rolls, wedges or sand bags (Kozera, 2007). According to Klimaszewska, it is also important that the patient's bed was easy to adjust the height. It is also important to set the bed in such a way that the medical team has always access to the patient from the paretic side (Klimaszewska, 2006). The present study shows that 80% of respondents in the rehabilitation of stroke used anti-bedsore mattresses, and 73.3% used a rolled up blanket support. Only 6.7% of respondents did not use any help.

According to Adamczyk, the processof improvement should be implemented simultaneously by a nurse and physiotherapist. The main goal of rehabilitation of patients who have suffered from stroke, is to restore function in the most complete way, in accordance with capacity, skills and abilities of the patient or the compensation of functions irretrievably lost. To achieve this goal it is advisable to lay a patient with frequent changes in body position. However, it is not recommended to lay the patient on his/her back, because this position increases spasticity and intensifies reflex position of a paretic limb (Palka, 2007). Changing the position of the patient should be performed every 2 - 3 hours including position on a healthy and paralyzed side, prone and supine position (Kulczycki, 2001). The majority of nurses (86.7%) in our study positions the patient on a healthy side with the change of position. More than half (76.7%) respondents used patient repositioning every 2 - 3 hours. Only 3.3% change position according to a physician's recommendations.

A stroke can cause dysfunction called higher nervous functions or behavioral functions. This type of dysfunction impairs the patient more than sensorimotor deficits because they impair mental, emotional and communicational interaction with the environment (Rosińczuk – Tonderys, 2005). A nurse, for nursing purposes, must communicate with the patient, use psychotherapy interaction and apply appropriate selection of techniques, which can also support neuropsychological treatment(Członkowska, 1999). Our study showed that 60% of nurses prompt initial letters or syllables in the rehabilitation of speech.

To prevent the occurrence of stroke education plays an important role in education of both patients and their families. Anurse, because of the very broad function in a contact with the patient, is one of the main determinants of the educational process. In accordance with the designated professional function a nurse activates all educational and therapeutic activities in secondary prevention of stroke. Therefore, recommendations for appropriate changes in this area should be included in the after-stroke education of the patients and their families, especially during hospitalization.

Conclusions

1. Nurses, despite having a basic knowledge of rehabilitation methods applied to patients after ischemic stroke, take action to support the rehabilitation process.
2. In order to improve the rehabilitation process and improve the quality of life of patients after stroke, it is necessary to extend the process of education of nurses.

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Aleksandra Skarul, Natalia Skarul

University School Of Physical Education in Wrocław
Akademia Wychowania Fizycznego we Wrocławiu

State of preparation for the role of a health educator in the opinion of students – research report

Stan przygotowania do pełnienia roli nauczyciela zdrowia w opinii studentów – raport z badań

Summary
Educational transformation in the education system conducted in the last few years requires on-going training and improvement of PE teachers' competence in. Expectations towards the contemporary teacher are focused not only on the area of equipping young men with indispensable knowledge and skills, but primarily on preparing them for active and creative management of their own development and providing them with means ensuring that proper and valuable (coinciding with axiology) goals in life are taken in the future. An innovative look at a problem of physical education is aimed to increase the effectiveness of activities in the area of developing one's system of values and pro-health behaviors in children and adolescents. The teacher of the 21st century should be one of the leading promoters and creators of physical culture at school as well as its outcomes relating to health.

Key words: teacher, health educator, physical education, physical culture, education

Streszczenie
Przeprowadzane na przestrzeni ostatnich lat przemiany edukacyjne w szkolnictwie wymagają ciągłego kształcenia i doskonalenia kompetencyjnego nauczycieli wychowania fizycznego. Oczekiwania wobec współczesnego nauczyciela ogniskują się już nie tylko w obszarze wyposażenia młodego człowieka w niezbędną wiedzę i umiejętności, ale przede wszystkim przygotowania go do aktywnego i kreatywnego kierowania własnym rozwojem oraz wyposażenia go w środki zapewniające podejmowanie w przyszłości właściwych, wartościowych (zbieżnych z aksjologią) celów życiowych. Innowacyjne spojrzenie na problem fizycznej edukacji ma na celu przede wszystkim zwiększenie skuteczności działań w zakresie kształtowania systemu wartości i zachowań prozdrowotnych dzieci i młodzieży. Nauczyciel na miarę XXI w. powinien być jednym z głównych promotorów i kreatorów szkolnej kultury fizycznej oraz jej zdrowotnych efektów.

Słowa kluczowe: nauczyciel, nauczyciel zdrowia, wychowanie fizyczne, kultura fizyczna, edukacja

Introduction

Modern, high quality education of the young generation focused on pupils' development is becoming one of the most important social and individual values as well as a precondition for social development. Active teachers should supplement their

knowledge in a creative manner and become more and more competent, thus absorbing subsequent acquisitions of expertise and continuously modernized principles and methods of teaching. Not only should they be able to use the cultural and scientific achievements provided to them by modern civilization, but also they are to transmit this knowledge and the manner of using it to their pupils. Thus, teacher training should be the continuation of a self-education process commenced during the first year of study programmes and should last for the entire period of teacher's work (Szempruch, 2000).

Educational transformation in the education system conducted in the last few years requires on-going training and improvement of PE teachers' competence in. A creative teacher, according to Maszczak "(…) should take upon him/herself the burden of responsibility for acquiring competence by pupils in terms of the individualized impact on biological development of the body as well as obligations implied by culture in relation to health and physical fitness of children and adolescents (Maszczak, 2009).

Expectations towards the contemporary teacher are focused not only on the area of equipping young men with indispensable knowledge and skills, but primarily on preparing them for active and creative management of their own development and providing them with means ensuring that proper and valuable (coinciding with axiology) goals in life are taken in the future. These expectations are addressed to all educationalists of various professions and subjects, and in particular to PE teachers.

Physical education in the era of consumption takes on a whole new dimension. The phenomenon of physical activity in Polish society that is permanently decreasing, referred to by such scientists as: Drygas, Bielski, Chromiński, Drabik, Osiński (according to: Wolińska, 2000) causes the subject to face new challenges and complete actualistic and prospective objectives contained in the current Core Curriculum. Presently, physical education at school is going through a decline. These classes are perceived as unproductive with hardly any significance for the pupil's future.

An opportunity to reconstruct today's physical education, according to Sulisz (…) is to improve the process of educating teachers for physical culture in various institutions established for this purpose (Sulisz, 2003).

One should also give some thought to programs and curriculum content to be transmitted and put into practice in the course of the prospective teacher's stay within the confines of the university. A reflection might be helpful the consequence of which should be an attempt to answer the questions posed by Demela (1998):

- What would (they) prepare for?
- What should be taught?
- How it should be taught?

Since September 2009 a new model of PE realization has been introduced to schools pursuant to the Ordinance of the Minister of National Education dated 23 December 2008 "on core curriculum for pre-school education and general education in individual types of schools" (Journal of Laws 2009 no 4 item 17). An innovative look at a problem of physical education is aimed to increase the effectiveness of activities in the area of developing one's system of values and pro-health behaviors in children and adolescents. The changes that are particularly significant to pupils are introduced in the realization of Physical Education, through combination of physical education with health education.

This means that a PE teacher, by making his students aware of the direct relationship between physical activity and health should be the creator of pro-health attitudes in them.

The importance of these activities is reflected by the fact that in the Preamble to the new Core Curriculum for all types of schools, the following provision has been contained: an important task for the school is also health education, the objective of which is to develop in pupils a habit (attitudes) of caring about one's own and other people's health as well as the ability to create a health-friendly environment (Core Curriculum 2009, Volume 8). New proposals for solutions to a great extent make a pupil become the creator of the educational curriculum offer but one should emphasize the fact that the current core curriculum faces PE teachers with new tasks and is a great challenge to them.

The paradigm of a Physical Education Faculty graduate created in the privacy of research studies is only a theoretical postulate. To make this model come true, academic teachers must play a significant role. The fluctuating role of an educationalist in education cannot omit the highest stage of human education. They should become initiators, who stimulate, encourage and help students to learn. Consequently, the process of education will be based on partnership and cooperation, thus provoking a double-subjective situation (Krajewska, 2004).

The objective of the study presented in this paper is to find out students' opinions concerning the quality of education in their higher education schools and preparation for the role of a health educator in their future professional work. The diagnostic material gathered may be used for the purpose of assessing and restructuring the curricula with a view to better preparation of students for the role of competent teachers.

Materials and methods

The investigated group consisted altogether of 203 students. The study covered 105 students of the 3rd year full-time programme of the first cycle at University School of Physical Education in Wrocław (Faculty of Physical Education) (51 women and 54 men) and 98 students of the 3rd year 1st cycle full-time programme at the University of Physical Education and Sport in Gdańsk (Faculty of Physical Education) (38 of whom are women and 60 men). The study was carried out among students of the final year and final semester of first cycle studies and thus a significant part of the respondents listed in the survey questionnaire has already completed the subjects in question or the completion of these subjects was about to finish, and the students were preparing for the licentiate thesis defense at the end of June and the beginning of July 2012. In accordance with the applicable regulations, all the respondents were included in the same course of study. The investigation was carried out at the end of April and the beginning of May 2012. Selection of investigated groups was made at random with the use of systematic random sampling (Frankfurt-Nachmias, Nachmias, 2001).

Respondents have been informed about the nature and objective of the study and the manner of using the results and about the fact that the answers are anonymous. Each of the respondents had the opportunity to refuse to participate in the research project. The time allocated for completing the questionnaire was unlimited, which enabled the respondents to give well-thought-out answers and in accordance with their beliefs.

For the purpose of the study, the diagnostic survey method was applied and as part of it the questionnaires were used. A survey questionnaire S-NS/ML/2012 developed by the authors was used as a basic research tool. The questionnaire consisted mostly of cafeteria-style questions with closed, half-open but also open questions. The questionnaire was anonymous and its construction was focused on studying the level of student preparation for the role of prospective PE teachers in terms of a health educator.

Discussion of results

The analysis of results in the form of answers to questions listed in the survey questionnaire was carried out while maintaining the division into four reference groups, namely according to gender (women and men) and location of the higher education institution selected by the respondents (Wrocław and Gdańsk). Results presented in this research report constitute a part of a larger research project diagnosing the effectiveness of the curricula in preparation of the potential PE teachers for their professional work.

Tab. 1. Distribution of answers to the question: What were you inspired (guided) by when selecting your course of study?

Possible answers	AWF Wrocław				AWFiS Gdańsk			
	F		M		F		M	
	n	%	n	%	N	%	n	%
Willingness to work with children	51	100	50	92,5	32	84,2	41	68,4
Interest in sports	24	47,0	34	63,0	25	65,7	40	66,7
Family traditions	14	27,5	3	5,6	6	16,0	3	5,0
Coincidence	4	7,8	17,3	31,5	11	29,0	20	33,3
Other	4	7,8	4	8,4	6	16,0	5	8,3

The analysis of results shows that in all investigated groups the most frequently indicated motivation to study is willingness to work with children and adolescents and this factor was marked by 51 female respondents studying in Wrocław, which accounts for 100% of respondents. Such choice may be observed at a similar level in the group of students from Wrocław University School of Physical Education, as 92,5 % of the respondents stated that upon selection of the programme of study they were inspired by willingness to work with children and adolescents. As regards female students from Gdańsk, such factor has been declared by 84,2 % respondents, yet the lowest percentage of respondents showing interest in working with children may be observed in a group of malerespondents from Gdańsk and it is equal to 68,4 % of the investigated group. In response to these questions all respondents had a possibility to match another factor they have been guided by when selecting their field of study and in this case characteristic consensus may be observed as well. It is the factor that has been defined as "interest in sports". The highest percentage of matches for this motive is observable in the group of students from Gdańsk and amounts to 66,7 %. At a similar level "interest in sports" was the key element when taking up a course of study for 65,7 % of female respondents from Gdańsk and 63,0% respondents from AWF Wrocław. In the

group of female students from Wrocław, the factor in question referred to 47% women, which means that it is the lowest of all the observed groups. A part of these students reported also that the determining factor upon selection of the field of study pertained to family traditions and such factor was stated most frequently by female respondents from AWF Wrocław (27,5%), whereas family traditions occurred to be least significant in the male group from the Gdańsk school (5%). Considering the fact that graduates after having successfully passed their Licentiate examination acquire their teaching qualification and thus they have a possibility to work with children and adolescents, what might give rise to concern may be the fact that a considerable percentage of respondents reported that the selection of their course of studies was coincidental. This fact pertains particularly to the investigated male groups, both from the university in Gdańsk (33,3%), and Wrocław (29%). An insignificant percentage of respondents stated also other reasons for taking up a study programme at the universities in Gdańsk and Wrocław and among those the most frequently enumerated are: (as) the second (alternative) field of study, willingness (or imperative) to be a member of Academic Sports Association (AZS), a possibility /to be qualified as an instructor or coach (tab.1)

Tab. 2. Distribution of answers to the question: Where are you planning to start working after you have completed your studies?

Possible answers	AWF- Wrocław				AWFiS - Gdańsk			
	F		M		F		M	
	n	%	n	%	n	%	n	%
Primary school	16	31,4	13	24,1	16	42,1	3	5,0
Secondary school	6	11,7	4	7,4	7	18,4	3	5,0
Sports club	14	27,5	19	35,2	7	18,4	14	23,3
Fitness club	5	9,8	5	9,3	4	10,5	6	10,0
Unknown	3	5,9	5	9,3	1	2,6	17	28,3
Other	7	13,7	8	14,8	3	7,9	17	28,3

All respondents who have taken up a course of studies in teaching at the Faculty of Physical Education and after having passed their Licentiate examination obtain the qualification authorizing to work with children and adolescents as a teacher. Considering the fact that generally the most matches to the question (What inspired you to choose your field of study?) pertained to the option: "willingness to work with children and adolescents", it should be expected that a primary or secondary school will be indicated far more often by respondents as their future workplace. The analysis of obtained results proves however, that most frequently women from both universities are planning to work at school. Most often, female students from Gdańsk indicate their workplace as a PE teacher at a primary school and it refers to 42,1 % respondents. Among the female students from Wrocław, such statement has been given by 31,4 % (primary school), yet by far less, that is only 24,1% of male respondents from AWF Wrocław, declared their willingness to work as a PE teacher. As regards students from the University of Physical Education and Sport in Gdańsk, 5% made a declaration to work at school and this applies to both stages of education. Both investigated groups of men (35,2% - Wrocław and 23,3% - Gdańsk) and women from AWF

Wrocław (27,5%) mentioned also sports clubs as their future workplace. The alarming fact is that a considerable part of respondents does not know where they would like to work in the future and this is the case in 28,3 % students from Gdańsk included in the survey. For this question respondents had an opportunity to mark another workplace (besides the listed ones) and most frequently the following employers have been mentioned: uniformed services (police, army), own sports and business activity, a high school, a job in self-government and political structures (Tab.2).

Tab. 3. Distribution of answers relating to evaluation of one's preparation for a teaching job as a PE teacher at two stages of education: at primary school and secondary school

I assess my preparation for a teaching job as a PE teacher as:	AWF - Wrocław				AWFiS – Gdańsk			
	F		M		F		M	
	Primary School	Sec. School	Primary School	Sec. School	Primary School	Sec. School	Primary School	Sec. School
	%	%	%	%	%	%	%	%
Very good	6,7	0,0	0,0	0,0	13,3	13,3	4,2	10,3
Good	6,7	13,3	0,0	0,0	26,7	6,7	16,7	2,2
No opinion	0,0	6,7	5,0	25,0	6,7	6,7	12,5	12,5
Sufficient	40,0	66,7	75,0	45,0	46,7	66,7	20,8	45,8
Insufficient	46,6	13,3	20,0	30,0	6,7	6,7	45,8	29,2

The respondents were requested to make self-assessment of their preparation for the role of a PE teacher at the two stages of education, namely in the primary and secondary school. A detailed analysis of results shows that in the investigated group of respondents the majority of answers concerning the issue in question indicated a sufficient or insufficient level. In this group, female students from Wrocław consider themselves insufficiently prepared for the role of a teacher (46,6%), so is the case with men studying in Gdańsk (45,8%). The remaining groups most frequently claimed that they were prepared sufficiently for the role and as regards women from the university in Gdańsk, so was the case in 46,7 % of subjects, whereas in the group of respondents from Wrocław the percentage is 75%. The biggest number of matches pertaining to "very good" preparation for the role of a PE teacher in primary school has been observed among female respondents from Gdańsk and it equals 13,3 %, yet in the other groups, this figure is definitely lower (6,7 % women from AWF Wrocław and 4,2 % students from AWFiS Gdańsk) or even equals 0 % (similarly to students from Wrocław). As for self-assessment at a "good" level, in two groups, a similar distribution of matches has been noted (so was the case for a "very good" level) and it pertains to male and female students from Wrocław and equals 6,7 % and 0 %, respectively.

Respondents from Gdańsk graded their preparation as definitely higher (in the analysed category), since women declare their self-assessment at 26,7 %, whereas among men good preparation for the teaching job as a PE teacher in primary school has been indicated by 16,7 % subjects (Tab.3)

All respondents have been requested to assess their preparation for the role of a PE teacher at the third stage of education, namely in the secondary school. A detailed analysis of results shows that in all four groups included in the survey characteristic consensus of opinions may be observed. All four groups declare most frequently that their preparation falls into the accepted category referred to as "sufficient" and the number of matches is similar considering the gender of the respondents. In both investigated groups of women, in terms of statistics, a similar percentage of female respondents declared most often that their preparation for the PE teaching job in a secondary school is ranked by them as sufficient and it equals 66,7%. A similar level in relation to each other has been indicated by men as well, as students from Wrocław constitute a group representing 45%, whereas students from Gdańsk - 45,8%. Students (both male and female) from AWF Wrocław, rate their preparation for the job in a secondary school as very low (as for primary school, likewise), since none of the respondents assessed their preparation as very good (0 % matches). Only the women from the University in Gdańsk (13,3 %) stated that they were very well-prepared and slightly fewer matches may be observed in the group of male students from Gdańsk, as this percentage amounts to 10,3%. Surprisingly, the considerable part of male students included in the survey (and it pertains particularly to men 25% - Wrocław and 12,5% - Gdańsk) claim that they do not have any opinion concerning their preparation. It is worth mentioning, that in a few months they are likely to acquire their qualification to work as PE teachers and from the perspective of this role, it may be a source of concern. Analysing the level of "insufficient" preparation, far more matches can be observed in male groups than in female groups. As many as 30% students from AWF in Wrocław declare the lowest level of preparation and also students from Gdańsk classify themselves at a similar level of matches (29,2 %) in this respect. Both groups of female respondents seem to be by far less critical in this regard, as 13,3 % women from the university in Wrocław assessed their preparation as "insufficient", whereas in the group of female respondents from Gdańsk this figure is equal to 6,7 % (Tab.3).

Tab. 4. Assessment of usefulness for individual academic subjects for the role of a health educator in the opinion of respondents.

Subjects helpful for the role of a HEALTH EDUCATOR	men AWF - Wrocław		men AWFiS - Gdańsk		women AWF - Wrocław		women AWFiS -Gdańsk	
	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s	$\bar{x}$	s
Anatomy	3,22	0,81	3,23	1,37	3,63	1,15	3,65	1,21
Anthropology	3,43	1,10	3,43	1,25	3,16	1,09	2,70	1,18
Biochemistry	2,12	1,36	3,33	1,39	2,61	1,07	3,39	1,17
Biomechanics	2,32	1,43	3,48	1,28	3,09	0,97	3,32	1,25
Physiology	3,61	1,16	3,63	1,31	3,77	1,02	3,28	1,25
Psychology	3,04	1,14	3,36	1,44	3,41	1,39	3,07	1,38
Pedagogy	2,27	1,16	2,08	1,08	2,30	0,95	2,53	1,10
Health education	**4,02**	**0,83**	3,26	1,41	**4,23**	**0,68**	3,49	1,37
Theory of physical education	3,07	1,19	2,81	1,29	3,35	1,27	3,42	1,30
Methodology of physical education	3,74	1,03	3,45	1,17	**4,25**	**1,07**	3,02	1,26
Sports games	3,66	1,05	3,36	1,19	**4,03**	**0,89**	3,42	1,51
Eurythmics and dancing	2,83	1,19	2,73	1,11	3,17	1,27	3,26	1,42
TEAM SPORTS GAMES-basketball	3,49	1,03	3,76	1,12	3,44	1,27	3,26	1,55
TEAM SPORTS GAMES-volleyball	3,51	1,01	3,35	1,58	3,47	1,30	3,15	1,48
TEAM SPORTS GAMES-handball	3,49	0,94	3,38	1,46	3,47	1,27	3,28	1,41
TEAM SPORTS GAMES-football	3,74	1,20	3,41	1,31	3,41	1,29	2,47	1,36
Athletics	3,81	0,99	3,41	1,27	3,78	1,18	3,31	1,52
Physical exercises	3,79	1,03	3,63	1,22	3,76	1,27	3,73	1,44
Physiotherapy exercises	4,13	1,06	4,61	1,09	4,37	0,97	4,36	0,88

Legend:

s – value of standard deviation
$\bar{x}$ – arithmetic mean

xxx – value showing very high rank of the subject on the accepted scale

xxx – value showing high prestige of the subject on the accepted scale

xxx – value showing low prestige of the subject on the accepted scale

The applied survey questionnaire contained a list of academic subjects which constitute the essential minimum curriculum and are carried out in a similar number of hours at Wrocław University School of Physical Education [AWF we Wrocław] and University of Physical Education and Sport in (AWFiS) in Gdańsk. Respondents have been requested to identify the subjects and the extent to which they helped them to acquire knowledge and skills useful or even indispensible to play the role of a health educator. The students undergoing the interview assessed how useful these subjects and classes are by assigning a grade on a scale from 1 to 5 to individual subjects (where 5 is the highest grade whereas 1 – is the lowest grade). In this part, for the purposes of analysing the obtained results, two indicators were used, that is the arithmetic mean ($\bar{x}$) and coefficient of standard deviation(s). In the accepted grading scale of specific subjects "0" has not been included, which means that each of the enumerated subjects will have its grade expressed by means of a specific numerical value. For the accepted grading scale, the mean value assigned to a given subject fluctuates between $\approx$ 3 and 3,5 (for value of standard deviation not exceeding 1,0). This means that to all subjects, which have been given a grade close to or exceeding 4,0, the respondents have given a high and very high grade, whereas the subjects which obtained mean value not exceeding 3,0, have been given a low value with regard to the analyzed issue.

The analysis of obtained results was carried out with a view to indicating those subjects which, according to the respondents, to a greatest and lowest extent contributed to dissemination of knowledge and practical skills enabling the performance of the health educator role in the future. Analysis of statistical calculations collected in the Table proves that for three subjects all three groups of respondents are unanimous. The subjects which have been graded highly among all respondents, both from the higher education institution in Wrocław and Gdańsk University are physical exercises (gymnastics) and physiotherapy exercises. In all groups of respondents the arithmetic mean assigned to physical exercises exceeded 3,5, whereas value of standard deviation is between 0 - 1,5. The highest grade in all groups included in the survey was given to physiotherapy exercises, as values of the arithmetic mean in this case are by far more than 4,0 and values of standard deviation remain within the range from 0,88 to 1,09. In the analysed case, the highest grade was given to physiotherapy exercises within the group of students from Gdańsk university, since value of the arithmetic mean calculated for this group is 4,61, yet standard deviation for this mean is 1,09. The subject which does not meet the criteria imposed according to all the respondents is pedagogy (teaching). This subject was rated by respondents below the arithmetic mean of the accepted grading scale and it pertains to all groups included in the survey irrespective of gender and university.

A detailed analysis of results shows that considering one of the assumed criteria of the division into experimental groups, such as gender of the respondents, consensus is observed with regard to two subjects. Both groups of female students value highly anatomy, placing it above the accepted mean arithmetic value, yet male groups indicated eurhythmics and dance as the subject which in their opinion, does not fulfill their role in the process of preparing them for the future work as a health educator.

Considering the other criterion, that is the location of the university, partial consensus may be deduced only with regard to students from Wrocław and it pertains to a few subjects, namely: health education, methodology of physical education, sports games and light athletics. The respondents from AWF Wrocław evaluated all these subjects highly, thus

confirming the fact that the contents / knowledge transmitted as part of these classes and skills they acquire during those classes, considerably contribute to the role of a health educator in the future. From the above mentioned subjects, only health education in both groups of respondents from Wrocław school was rated at more than 4,0. With regard to women, the arithmetic mean of grades in the analysed subject equals 4,02, whereas coefficient of standard deviation is 0,83, thus confirming considerable consensus pertaining to the grade given. In the group of men from Wrocław school, the arithmetic mean concerning the grade given to health educations is 4,23, yet coefficient of standard deviation remains at the level of 0,63. In the other subjects, namely methodology of physical education and sports games, the arithmetic mean of the grade given is slightly higher in the groups of women included in the survey and is equal to 4,25 (s = 1,07) and 4,03 (s = 0,89), respectively. The last of the subjects highly graded by both groups representing Wrocław University is light athletics and in this case the arithmetic mean of the grade is at a level of 3,81 (s=0,89) in the group of male students, yet among women it is 3,78 with coefficient of standard deviation equal to 1,18.

A detailed analysis of the obtained results shows that among male and female respondents, from AWFiS [Gdańsk University of Physical Education and Sport] in Gdańsk, such consensus of opinions in evaluation of individual subjects is non-existent. (Tab.4).

Discussion

The dilemma of the contemporary pedagogy pertains to questions on the meaning and sense of education in the contemporary world. Should education maintain its original purpose of supporting humans, developing their talents and emotions, building the world of human values, where another man is seen not as a rival but as a partner, and with whom they create not an organization but a community? For many years a pedagogic objection has been intensified against the culture of competition which contributes to the image of our morals, imposes the rules of individual proceedings and creates the methodology of education from the kindergarten to university studies. Such questions (and attempts to answer them) are posed in their studies by such authors as: Bereźnicki 2006, Denek 2003, Koszczyc 2007, Lewandowski 2001 and others. Pedagogy is tossed between doubts: whether it should serve the man or the idea of progress? These objectives are not consistent, but how to combine them, on what foundation of truths and values?

The teacher of the 21st century should be one of the leading promoters and creators of physical culture at school as well as its outcomes relating to health. A broad and at the same time new understanding of the PE teacher's role was contained in his novel concept of physical culture by Pawłucki, who perceives this culture as the culture of the body. In view of physical culture perceived and understood in this manner – a teacher of body culture is supposed to be an expert of various meanings of the value of the body (Pawłucki, 1994, p.8). A teacher who entirely becomes a part of his idea, is referred to as an axioteacher by Pawłucki (Pawłucki, 1994, p.92).

The model of educating PE teachers proposed by Pawłucki is udoubtedly the project of the future. This model presents a whole range and variety of professional roles to be taken by an axioteacher. Consideration for this concept and full acceptance of such dimension of perceiving the PE teacher's role was the basis of and reason for the present study and for the report based on it.

The analysis of results provides concrete answers to the posed research questions, which in most part will be formulated as final conclusions, but a part of the answers given by respondents may provoke reflection and sometimes astonish or even concern.

The higher education schools selected by the subjects (and the field of study in particular) are teaching studies and therefore the majority of respondents might be expected to indicate willingness to work with children and adolescents as their basic motivation for such choice of their professional career. Research results show that these expectations turn out to be true to a great extent but only among women. Male respondents have been inspired more frequently by their interests in sports thus treating the university as a place where they could improve their motor skills or acquire new skills. The fact that a significant number of respondents (which refers to both male groups) declares that they selected this field of study by chance and at the same time they claim that they are not going to combine their professional career with working at school is even more alarming.

Considering the fact, that soon these persons (after they have passed their licentiate examination) acquire teaching qualifications and thus they will have a possibility to work with children and adolescents, there may be hope that years spent at university are not wasted and these persons will be aware of the responsibility that potentially rests with them. The results of the research show however, that future teachers do not feel well-prepared for the role of a PE teacher, which implies that without self-education or a properly –selected curriculum in the course of the complementary master degree studies, they will never feel fulfilled in the contemporary roles of a PE teacher.

Conclusions

1. Respondents asses their preparation for the role of a PE teacher at the stage of primary and secondary school at a low or very low level. Some of them even claim that they are not prepared for this role. As for the discussed issue, none of the mentioned factors (location of university and gender) diversifies the subjects.
2. From the list of proposed subjects which have been considered useful or even indispensible by the respondents in the process of preparation for the role of a health educator, all four groups of respondents selected two of them, namely physical exercises (gymnastics) and physiotherapy exercises. Physiology was ranked equally high in three groups (except for the women from Gdańsk who evaluated this subject at a medium level).
3. Complete consensus of opinions in all investigated groups has been achieved in relation to pedagogy/ education, the subject that was low-rated in the context of playing the role of a health educator.
4. In the groups included in the survey diversity at an insignificant level was reported in the assessment of subjects with a view to the assumed factor, as only groups of men indicated eurhythmics and dancing as a subject which does not meet the accepted criteria. If the factor connected with the location of university is taken into consideration, it should be emphasized that both women and men from University School of Physical Education in Wrocław referred to health education and methodology of physical education as subjects meeting the assumed criteria at a high and very high level.

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Justyna Krzepota

Szczecin University, Faculty of Physical Education and Health Promotion
Uniwersytet Szczeciński Wydział Kultury Fizycznej i Promocji Zdrowia

Health behaviors of female students of the University of the Third Age in the light of body mass index

Zachowania zdrowotne słuchaczek Uniwersytetu Trzeciego Wieku w świetle wskaźnika masy ciała

Summary
The aim of the present paper was to analyse the proper nutritional habits (PNH), preventive behaviours (PB), positive thinking (PT) and health practices (HP) in the light of general index of intensity of health behaviours of elderly women including body mass index.
Research was conducted on a sample of 67 women in the University of the Third Age (UTA) in Wałcz.
The methodological basis for this investigation was Z. Juczyński's (2001) Health Behaviour Inventory (HBI). General index of intensity of health behaviours (GIIHB) was calculated by adding the results of all the 24 statements included in HBI. According to the guidelines the respondents were grouped into three groups: with a high GIIHB (H), average GIIHB (A) and low GIIHB (L). Four categories of health behaviours were analysed separately: proper nutritional habits, preventive behaviours, positive thinking and health practices.
The largest percentage of examined UTA listeners received inadequate (49.3%) and 34.3% higher general index of intensity of health behaviours (GIIHB) in response to the questions included in the Health Behavior Inventory. The highest average point values were recorded for proper nutritional habits ($\overline{x}$ = 3.8). In the light of the test body mass index the overweight women received the highest point values in each separately analysed category of health behaviours.

Key words: Health behaviors, BMI, the elderly, University of the Third Age

Streszczenie
Celem niniejszej pracy była analiza oceny zachowań zdrowotnych (prawidłowe nawyki żywieniowe, zachowania profilaktyczne, pozytywne nastawnie psychiczne oraz praktyki zdrowotne) wśród dojrzałych kobiet w świetle wskaźnika ogólnych zachowań zdrowotnych z uwzględnieniem wskaźnika masy ciała badanych. Przebadano 67 kobiet będących słuchaczkami Uniwersytetu Trzeciego Wieku w Wałczu.
W badaniach wykorzystano kwestionariusz Inwentarz Zachowań Zdrowotnych (IZZ) opracowany przez Juczyńskiego (2001) W analizie zgodnie z wytycznymi autora kwestionariusza uzyskano podział na badanych o OWNZZ wysokim (W) przeciętnym (P) i niskim (N). Odrębnie zanalizowano cztery kategorie zachowań zdrowotnych tj.: prawidłowe nawyki żywieniowe, zachowania profilaktyczne, pozytywne nastawnie psychiczne oraz praktyki zdrowotne.

Największy odsetek badanych słuchaczek UTW uzyskało przeciętny (49,3%), a 34,3% wysoki ogólny wskaźnik nasileń zachowań zdrowotnych w zdeklarowanych odpowiedziach na pytaniach zawarte w Inwentarzu Zachowań Zdrowotnych. Najwyższe średnie wartości punktowe odnotowane zostały dla kategorii Prawidłowych Nawyków Żywieniowych ($\overline{x}$=3,8). W świetle wskaźnika masy ciała badane z nadwagą zdeklarowały najwyższe wartości punktowe w każdej odrębnie analizowane kategorii zachowań zdrowotnych.

Słowa kluczowe: Zachowania zdrowotne, BMI, starzenie się, Uniwersytet Trzeciego Wieku

Introduction

With the increase in the length of human life, a key aim of the state policy becomes prevention and promotion of health in adulthood and old age. Health-promoting programs increase health awareness and preventive behaviors of older people (Chao et al. 2012, Goetzel et al. 2007, Huang et al.2002). In turn, the increase in health awareness can be an effective strategy to improve health, thus reducing health care costs and improving the quality of life of elderly people (Cho et al. 2008). Also, with the civilization progress a rapid development of societies creates opportunities for continuous education of elderly people. In addition, the main challenge of successful aging is to create opportunities for an active social life for retired people (Grzanka-Tykwińska, Kędziora-Kornatowska 2010; Kozieł, Trafiałek 2007).

In that respect numerous Universities of the Third Age are of great importance. They enable further education and acquiring knowledge and skills according to their individual needs and intellectual interests (Tomczyk, 2012; Bielawska et al. 2012).

An important dimension of successful aging is also a positive mental attitude. Participation in activities organized by the Universities of the Third Age appears to be important in this regard (Orzechowska et al. 2008; Zielinska-Więczkowska et al. 2012). The research results indicate (Jachimowicz, Kostka, 2009) that the family situation affects the presence of emotional problems and social alienation.

One of the important aspects of aging is to maintain health and functional efficiency. Scientific studies show that in maintaining health of older people a proper diet plays an important role. The diet should be modified accordingly, with emphasis on the special dietary needs of an aging body (Posner et al. 1993; Gacek, 2010; Jabłoński, Kaźmierczak, 2005; Kałuża et al. 2004).

Nutrition, physical activity, connected with them the body mass index and the quality of life are also important determinants that affect life expectancy. The main issue that has gained importance in the light of the recent numerous global research is to analyse the connection between BMI (underweight, overweight and obesity) and mortality in elderly patients (Kulminski et al. 2008, Ringbäck Weitoft et al. 2008, Berraho et al. 2010, Flegal et al. 2013, Zamboni et al. 2005).

The aim of the present paper was to analyse the proper nutritional habits (PNH), preventive behaviours (PB), positive thinking (PT) and health practices (HP) in the light of general index of intensity of health behaviours of elderly women including body mass index.

Material and method

Research was conducted on a sample of 67 women in the University of the Third Age (UTA) in Wałcz. The BMI categories were established according to the guidelines put forward by WHO: 18.5-24.9 kg/m^2 – normal; 25.0-29.9 kg/m^2 – overweight, and ≥ 30 kg/m^2 – obese (WHO/NUT/NCD 1997).

The research plan was approved by the Bioethics Committee of the Pomeranian Medical University in Szczecin. The methodological basis for this investigation was Z. Juczyński's (2001) Health Behaviour Inventory (HBI). General index of intensity of health behaviours (GIIHB) was calculated by adding the results of all the 24 statements included in HBI. The obtained GIIHB oscillated between 24 and 120 points. The results were then converted to standard units, and interpreted in terms of the Sten score system (Juczyński 2001). According to the guidelines presented by the author of the questionnaire, the respondents were grouped into three groups: with a high GIIHB (H), that is 7-10 stens, average GIIHB (A): 5-6 stens, and low GIIHB (L): 1-4 stens.

Four categories of health behaviours were analysed separately: proper nutritional habits, preventive behaviours, positive thinking and health practices.

Results

The analysis of obtained results (Fig. 1) shows that nearly half of the respondents (49.3%) had an average GIIHB, 34.3% were characterised by a high GIIHB, and the GIIHB of 16.4% of the women was low.

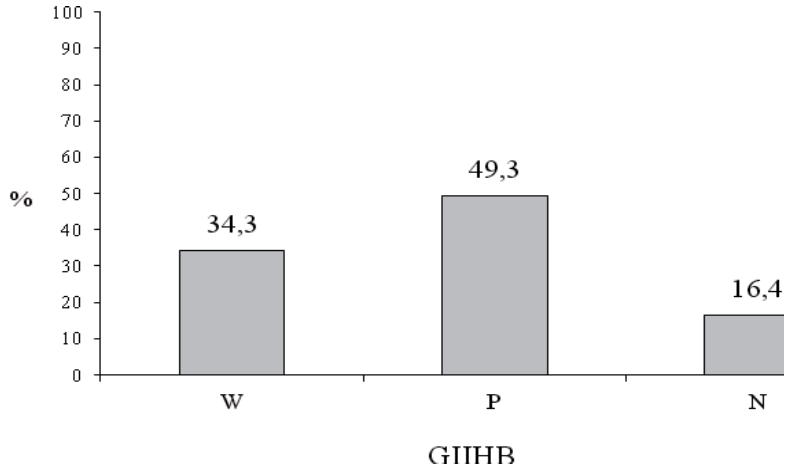


Fig.1. Percentage of women with a high (H), average (A) and low (L) general index of intensity of health behaviours

In the following analysis of the various categories of health behavior it has been reported that the respondents received the highest average point values ($\overline{x}$=3.8) in the category of proper nutritional habits and the lowest ($\overline{x}$= 3.5) in the category of health practices. However, it is worth noticing that the mean score differences among the results of the three categories were insignificant. Detailed figures were shown in Figure 2.

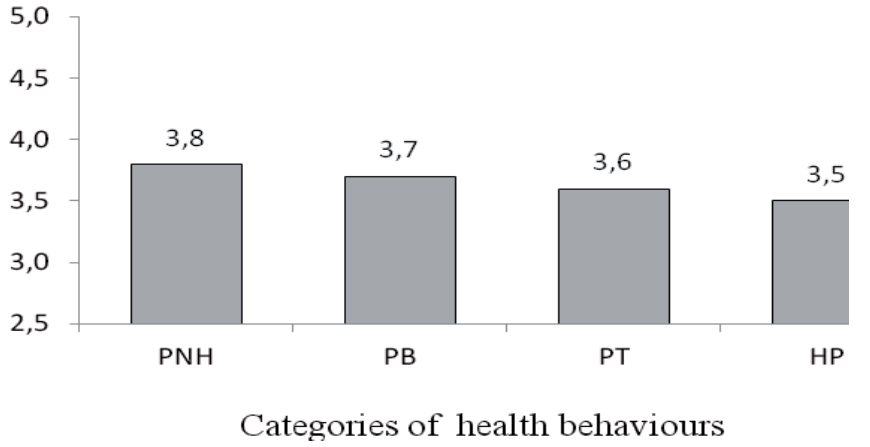


Fig. 2. Average point values of the results obtained by female UTA students for each category of health behaviors: proper nutritional habits (PNH), preventive behaviours (PB), positive thinking (PT) and health practices (HP)

Any attempt to answer the question of how to differentiate respondents for each category of health behaviors depending on the general index of intensity of health behaviours (GIIHB): high (H), average (A) and low (L) a detailed analysis was performed, separately for each group. The results are presented in Figure 3.

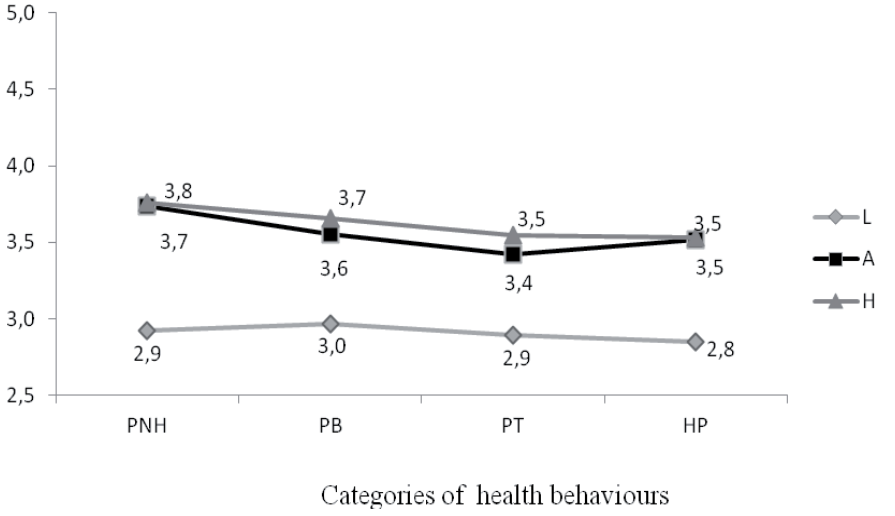


Fig. 3. Mean values of health behaviors categories: proper nutritional habits (PNH), preventive behaviours (PB), positive thinking (PT) and health practices (HP), depending on the GIIHB: high (H), average (A) and low (L)

It can be seen from the data illustrated in Figure 3 that the subjects who received high and average general index of intensity of health behaviours obtained the highest values for proper nutritional habits (high $\overline{x}$=3.8 and $\overline{x}$=3.7 average). In turn people with an average general index of intensity of health behaviours obtained the lowest value for positive thinking ($\overline{x}$ = 3.4), and those with a high GIIHB): for positive thinking ($\overline{x}$=3.5) and health practices ($\overline{x}$ =3.5). However, it is worth noticing that the results for each category are similar. It has not been reported that within each group of female UTA students high (H), average (A) and low (L) general index of intensity of health behaviours would assess one category much higher or lower than another, which would affect the overall score. Research data show that within each group in all categories the obtained results are on the same level.

Taking into consideration the relationship between the health behaviour and BMI, results, BMI (normal, overweight, obese) were analysed in the light of the three GIIHB groups (high, average, and low). For details see Figure 4.

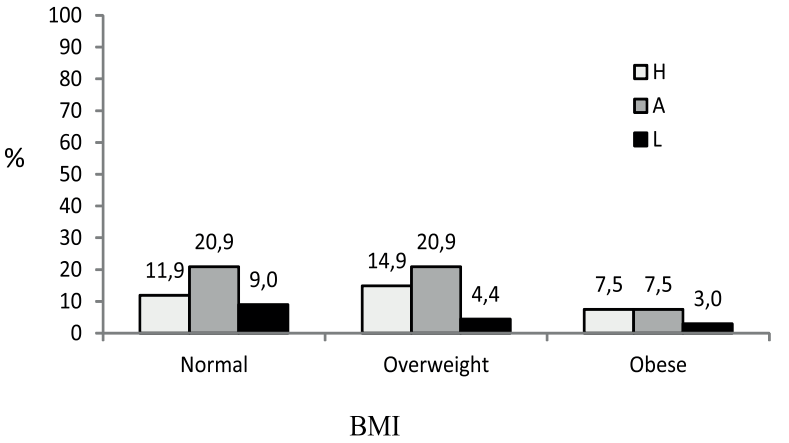


Fig. 4. Percentages number of UTA listeners high, average and low GIIHB in different groups according to BMI (normal, overweight, obese)

The data presented above show that the largest percentage of women (41.8%) had normal weight, 18.0% were obese and 40.2% overweight. Both in the group of women with normal body weight and overweight women with the highest percentage of respondents showed the overall average rate of health behaviors (20.9%).

Out of the total number of all subjects, including those with high GIIHB 14.9% of the respondents were overweight and 11.9% were characterized by normal weight. The total number of UTA listeners high and average GIIHB who reported obesity accounted for 7.5%.

Further analysis was conducted to compare and differentiate the respondents answers for each category of health behaviors depending on what the body mass index (normal, overweight, obese) was. The detailed results for each group are illustrated in Figure 5.

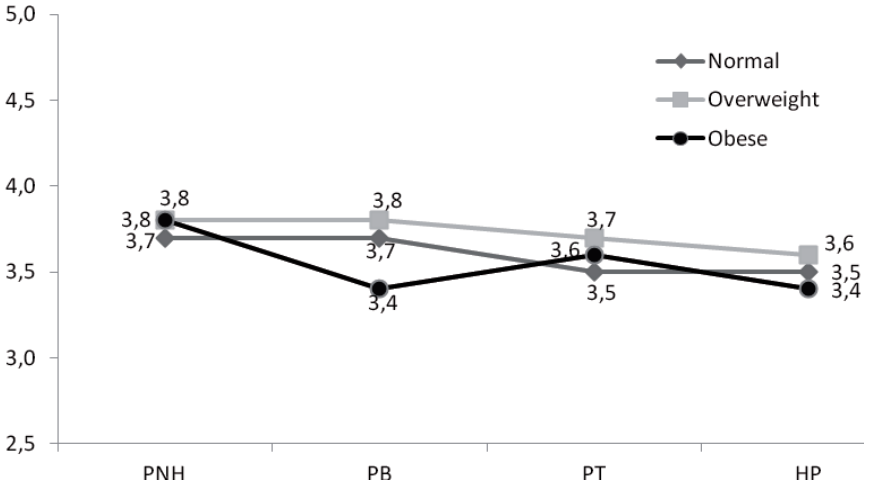


Fig. 5. Mean values of health behaviors categories: proper nutritional habits (PNH), preventive behaviours (PB), positive thinking (PT) and health practices (HP) according to BMI (normal, overweight, obese).

Analysing the data presented in Fig. 5, it was observed that tested overweight women received the lowest mean values for health practices ($\overline{x}$=3.6), obese women in the category of health practices and preventive behaviours ($\overline{x}$=3.4), and women with normal body weight for positive thinking and health practices ($\overline{x}$=3.5).

Interestingly, women who are overweight and obese gained in responses to questions about the proper eating habits the highest point values ($\overline{x}$ = 3.8). However, it was found that the declared health behaviors analysed separately for each category of listeners at the University of the Third Age in the light of body mass index indicate the highest point values obtained by the women who reported being overweight. In turn the women of normal weight showed values slightly lower ($\overline{x}$ = 3.7 for PHN and PB and $\overline{x}$ =3.5 for PT and HP). Contrary to expectations, this analysis found no significant differences. All the results oscillate at a very similar level and it has not been proved that any BMI group obtained significantly different results in any category.

Discussion

In the present study, almost half of the respondents (49.3%) is characterized by the average general index of intensity of health behaviours, 34.3% higher and 16.4% lower. Very similar results obtained Dębska et al. (2012) UTA students (51% high, 34% average and 14% lower).

These results are slightly different from the data obtained by Smoleń et al (2011), who pointed out that as many as 43.2%. UTA students examined in Sanok has a high level of health behaviors, and 39.7% reported an average. In comparison to the data reported by Smoleń et al (2011) the percentage of students tested in Sanok, who have declared low GIIHB is 17.1% higher than in the surveyed students in Wałcz 16.4.%.

The best values obtained from the answers were recorded for health practices. Health practices include daily sleep habits, recreation and physical activity (Juczyński 2001). This study suggests that health practices belong to the category of health behaviors that among UTA listeners in Wałcz remain at an average level ($\overline{x}$=3.5).

Interestingly, these results do not differ much from some of the published studies and are generally consistent with previously presented studies ($\overline{x}$=3.6 Muszalik, Kedziora-Kornatowska 2007; $\overline{x}$=3.6 Maćkowska, Basińska 2010; $\overline{x}$=3.17 Ślusarska, Nowicki, 2010; $\overline{x}$=3.4 Dębska et al 2012; $\overline{x}$=3.6 Smoleń et al 2011). However, in this study, the highest mean score was obtained in the proper nutritional habits ($\overline{x}$=3.8). This category takes into account primarily the kind of consumed food (such as whole wheat bread, vegetables and fruit). It is worth noticing that despite the small point discrepancies there are similarities between the declared eating behaviors expressed by UTA students in this study, and the results obtained by other researchers ($\overline{x}$=3.6 Dębska et al 2012; $\overline{x}$=3.6 Muszalik, Kedziora-Kornatowska 2007).

In addition, it should be stressed that a certain difference was observed by Maćkowska and Basińska (2010) in the analysis of healthy eating behaviors and people with type 1 diabetes and Graves' disease. The results of this study showed higher mean values in sick ($\overline{x}$=3.6) than healthy people ($\overline{x}$=3.6). In turn, Kurowska i Figiel (2009) reported in patients with type 2 diabetes, the lowest mean score of healthy eating habits, and the highest in preventive behaviors.

Preventive behaviors in this analysis relate to compliance with health recommendations and obtaining information about health and disease (Juczyński 2001), which in this case explains the results. For the tested by Muszalik i Kedziora-Kornatowską (2007) also preventive behaviours with a positive mental attitude is the most scoring category ($\overline{x}$=3.8), while for UTA students surveyed by Dębska et al. (2012) it is a positive mental attitude ($\overline{x}$=3.8), which includes psychological factors such as avoiding too strong emotions, stress and tension or depressing situations (Juczyński 2001).

Review of the published studies indicates that the analyses concerning the relationship between the declared health behavior and the age and place of residence of the respondents, (Ślusarska, Nowicki 2010) did not show significant statistical dependencies, in contrast to the level of education of respondents ($p < .05$). In the present study such dependencies were not analysed and accordingly it is not possible to compare the results.

The studies were designed to evaluate the declared health behaviors among women being UTA listeners according to BMI. Surprisingly overweight woman obtained the highest point value in the declared behaviours (analysed separately for each category). Undoubtedly, the weakness of the analysed material is a small research group, therefore the results should be interpreted with caution. Therefore, it seems necessary to conduct further and more extensive research in this area, which will contribute to a better understanding of the issues and will be analysed to draw conclusions relevant to making future practical measures.

Conclusions

1. The largest percentage of examined UTA listeners received inadequate (49.3%) and 34.3% higher general index of intensity of health behaviours (GIIHB) in response to the questions included in the Health Behavior Inventory. The highest average point values were recorded for proper nutritional habits($\overline{x}$ = 3.8).

2. In the light of the test body mass index the overweight women received the highest point values in each separately analysed category of health behaviours.

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Chapter IV

Physical activity and the quality of life at all ages

Aktywność fizyczna a jakość życia w różnym wieku

Marta Luiza Stępień-Słodkowska , Elżbieta Sieńko-Awierianów

University of Szczecin
Faculty of Physical Education and Health Promotion
Uniwersytet Szczeciński
Wydział Kultury Fizycznej i Promocji Zdrowia

Influence of physical activity to improve quality of life women after 55 years of age

Wpływ aktywności fizycznej na poprawę jakości życia kobiet po 55 roku życia

Summary
Objective of the study. The aging of the organism is irreversible and inevitable, but by appropriate dosage of physical activity can slow down this process, and thus prolong youth. The aim of this study was to examine what place of women in the life of over 55 year old takes physical activity, what are the motives of its making and how it affects their quality of life.
Materials and methods. The material consisted of data obtained from women practicing Nordic walking, practicing in the Szczecin fitness clubs and regularly use the pool. The study was conducted from April 2011 to February 2012, using a diagnostic survey, questionnaire technique. A total of 286 anonymous questionnaires filled women. For the data analysis, were selected 62 respondents who have completed 55 years.
Results. Each of the respondents achieved at least one of the intended effects. The vast majority of respondents felt the physical improvements (89%), and almost 26% loss of body weight.
Conclusions. The women who have completed 55 years take mainly physical activity for health reasons. Physical activity has improved the quality of life of all respondents, and the effects of exercise were achieved depending on the length of practice selected forms of physical activity. It was found that the motives of physical activity are not dependent on the level of education and professional activity of the respondents.

Key words: physical activity of women, the aging of the organism, quality of life

Streszczenie
Cel badań. Starzenie się organizmu jest procesem nieodwracalnym i nieuniknionym, lecz dzięki odpowiednio dawkowanej aktywności fizycznej proces ten można spowolnić, a tym samym przedłużyć młodość. Celem pracy było zbadanie jakie miejsce w życiu kobiet po 55 roku życia zajmuje aktywność fizyczna, jakie są motywy jej podejmowania i jak wpływa ona na ich jakość życia.
Materiał i metody. Materiał do badań stanowiły dane uzyskane od kobiet uprawiających Nordic Walking, ćwiczących w szczecińskich klubach fitness oraz korzystających regularnie z pływalni. Badania prowadzono od kwietnia 2011 roku do lutego 2012 roku metodą sondażu diagnostycznego, techniką ankiety. Łącznie anonimowe kwestionariusze wypełniło 286 kobiet. Do analizy danych, wytypowano 62 respondentki, które ukończyły 55 lat.

Wyniki badań. Każda z badanych osób osiągnęła przynajmniej jeden z zamierzonych efektów. Zdecydowana większość respondentek odczuła poprawę kondycji fizycznej (89%), a prawie 26% utratę masy ciała.
Wnioski. Badane kobiety, które ukończyły 55 lat podejmowały aktywność fizyczną głównie z powodów zdrowotnych. Aktywność fizyczna wpłynęła na poprawę jakości życia wszystkich respondentek, a osiągnięte efekty ćwiczeń były zależne od długości uprawiania wybranej formy aktywności ruchowej. Stwierdzono, że motywy podejmowania aktywności fizycznej nie są zależne od poziomu wykształcenia oraz aktywności zawodowej respondentek.

Słowa kluczowe: aktywność fizyczna kobiet, starzenie się organizmu, jakość życia

Introduction

Physical activity is one of the fundamental characteristics of human functioning. The information contained in the genes impinge on the ability to move condition and psychological ground motion needs, which can be seen especially in young children. Satisfying this need is necessary for the proper development of the physical, motoric, mental and social development. It is also part of the prevention of many disorders arise at all stages of human ontogeny (Żołnierczyk-Glass, 2002).

Perspective development function physical activity is valid from birth to the age of adulthood. It involves stimulation of favorable physical development. This is done by forming functional and morphological characteristics of an organism that determine its ability to adapt to changing conditions, generating results in subsequent phases of life (Lipowski, 2005).

Motoring organism is dependent on everyday life, which leads man. Maximum motor capabilities is for approx 30 years old and over the years decreases reduced levels of coordination, speed and endurance and muscle strength (Wysocka, 2003). In adulthood, physical activity helps maintain an appropriate level of motor skills, compensate for the burden of professional work and helps maintain balance psychophysical. At the age of late adulthood physical activity plays the an anti involutional role, which slows the aging process and contributes to the health and well-being. The role of activity in this period is to maintain fitness and psychophysical efficiency, improve locomotor system through its better blood circulation and protect against degeneration. The movement has a positive effect on the function of the brain, heart, lungs, liver and other organs. Activity also stimulates the psyche, increased life satisfaction, serenity of spirit, which is essential for the optimal experience of old age (Lipowski, 2005).

Motoric period of old age is a consequence of living maintained in earlier periods ontogenetic. Physical activity during this period is an important factor in delaying the inevitable process of aging. The aim activity is to increase the physiological efficiency the organism, improve the heart, to improve the efficiency of the senses, and brain blood circulation. Followed by a process involution motor, or a decrease in muscle strength and reduced exercise capacity. Speed is reduced, the flexibility and fluidity of movement as a result of decrease in the number of active cells in the brain and muscle. The result is a reduced ability to make every effort, especially endurance. At this age, the human body is not sufficiently prepared for high-intensity effort and intensity, and the whole system osteo-articular-ligament is susceptible to all kinds of injuries and concussions (Wysocka, 2003).

Declining birth rate and a gradual lengthening of the human life means that people in Europe, including the Polish aging. Currently in Poland, people aged over 60 represent 17% of the total population (CSO, 2012), and according to forecasts, in 2030 every fourth Pole reaches the threshold of old age. Therefore, the state health policy will have to meet the expectations and needs of an aging population. People not only want to live longer, but also to maintain into old age a good quality of life. Allow it above all relatively good health (Osinski, 2002). Human health depends on many factors, among which the most important role plays lifestyle. Proper nutrition and regular physical activity tailored to the individual needs of man are the basic elements of a healthy lifestyle (Cendrowski, 1993). Resolution of the 57th World Health Assembly on 22 May 2004 with the adoption of the Global Strategy on Diet, Physical Activity and Health calls on member states to programming, implementation and evaluation of measures to improve the the health of communities by promoting proper diet and increased physical activity (Jarosz, 2009).

Increased physical activity in old age could biologically "rejuvenate" the man as much as a dozen years. Studies have shown that exercising in the elderly may increase the physiological efficiency, improve heart function, increase the flexibility of vessel walls, improve the efficiency of the senses such as sight and kinesthetic sense and improve the brain blood supply (Osinski, 2000). Regular physical activity also helps maintain a healthy body weight and an obstacle to senile joints stiffnes and reduce the range of motion (Smith, 2009).

The results of population studies show that women are less physically active than men. This regularity is particularly evident especially in girls and older women, because they are taking less exercise than their peers of the opposite sex (Bidle et al. 1998). Decreased activity in older women may be a warning signal associated with the deterioration of health.

The aim of this study was to examine what place in the life of women over 55 years of age takes physical activity, what are the motives of its making and how it affects their quality of life.

Material and methods

The studied material consisted data obtained from April 2011 to February 2012, using a diagnostic survey, survey technique (Pilch, Bauman, 2001). Anonymous questionnaires were distributed among women practicing Nordic walking, exercising in the fitness clubs in Szczecin and swimming pools regularly visiting. A total of 286 women were examined, from which the data for further analysis, 62 were selected respondents who have completed 55 years.

Filled by them questionnaire consisted of two parts. The first concerned the socio-demographic characteristics such as age, education, family structure, financial situation and economic activity, and the other - reasons for physical activity and its impact on the types and quality of life of patients. Filling in the questionnaire survey was voluntary and respondents had unlimited time to respond.

The collected empirical material became the basis for a simple test of statistical dependence and allowed the qualitative and quantitative analysis of the results. For some nonparametric characteristics were calculated test c^2. It was used to check the presence of the relationship between the variables studied in the qualitative survey and those that cannot be quantified (Stanisz, 2006).

Results

The study group in the majority of the respondents were women with secondary and higher education. They accounted for 45% and 30% (Table 1). Twenty-four percent of the women stated the professional education, and in the study group was not women with primary education. Most of the respondents are married - 46% and single people - 35%, among which a significant proportion constituted widows and divorced - almost 21%. Women living in an open relationship was 18%. Fertility rate of the women were as follows: 42% declared to have one child, two children, 26%, 15% - three, nearly 10% had no children, and 8% had more than three children. Respondents also made a subjective assessment of the material of his family. The vast majority, almost 68% identified their financial situation as good, bad - almost 18% and a very good 15% of the respondents. Analyzing women's economic activity has shown that the majority - 52% is pensioners. A group of working women was 29%, while women not working and persons who are on a pension is, respectively, 11% and 8%.

Most surveyed women in old age exercise regularly over 4 years (37%) and from 2 to 4 years (35%). Shorter periods of 1 - 2 years declared 15% of the respondents. Shortest, for less than a year practicing less than 10%. It is widely recognized that the best results are obtained by taking physical activity 3 times a week (Cendrowski, 1993). This rule applied only less than 13% of the respondents. Ladies most participated in physical activities two times per week (40%) and 1 week (31%). Every day practicing 6% of the respondents, and nearly 10% of women practiced only occasionally. The majority of women (66%) participated in only one form of physical activities.

Considering the preferred form of physical exercise, opinions were divided - 52% of respondents preferred to individual sessions, and 48% more likely to participate in organized activities. A very important aspect of the study were the motives of making physical activity. For all the ladies aspect of health was the most important. Over 82% of respondents practiced to reduce weight and improve their fitness. Nearly 70% of practicing because she liked to move. Aesthetic considerations are important for almost 31% of women, and social considerations prevailed in nearly 18%. Fifteen percent of the surveyed women has been the fashion for physical activity.

Physical activity had a positive impact on the quality of life of all surveyed women. Each of them has reached at least one of the desired effects. The vast majority of respondents felt the physical improvements (89%), and almost 26% reduced weight. Nearly 21% of women have not observed the desired weight loss but have noticed improvement in well-being. Over 11% of respondents treat physical activity as the perfect relaxation after work.

Tab. 1. The results of survey research conducted among women over 55 years of age, practicing Nordic Walking, fitness and recreational swimming

No.	Question in the survey	Answers	N	[%]
1	2	3	4	5
1.	Education	Primary	0	0%
		Vocational	15	24.19%
		Secondary	28	45.16%
		Higher	19	30.64%
2.	Marital Status	Single	9	14.51%
		Married	29	46.77%
		Single (divorced, widow)	13	20.97%
		Cohabitation	11	17.74%
		Other	0	0%
3.	Number of children	0	6	9.68%
		1	26	41.93%
		2	16	25.81%
		3	9	14.51%
		Over 3	5	8.06%
4.	The financial situation of the family	Bad	11	17.74%
		Good	42	67.74%
		Very good	9	14.51%
5.	Professional Activity	Work	18	29.03%
		Not work	7	11.29%
		Annuity	5	8.06%
		Pension	32	51.61%
6.	How long do you practice Nordic walking / fitness / recreational swimming?	less than 1 year	6	9.68%
		1 – 2 lat years	9	14.51%
		2 – 4 lat years	22	35.48%
		Over 4 years	23	37.09%
		Inne Other	2	3.22%
7.	How many times a week practicing Nordic walking / fitness / recreational swimming?	Daily	4	6.45%
		3 times in a week	8	12.90%
		2 times in a week	25	40.32%
		Weekly	19	30.64%
		Other	6	9.68%
8.	What forms of activities you are most involved?	Indyvidually	32	51.61%
		Orgaised	30	48.39%

9.	Do you take other forms of physical activity?	Yes	21	33.87%
		No	41	66.13%
10.	Motives of practicing nordic walking / fitness / recreational swimming	For health	62	100.0%
		Loose weight	51	82.25%
		Good locking	19	30.64%
		Because I like	43	69.35%
		To improve conditions	51	82.25%
		It's trendy	9	14.51%
		Because friends practice	11	17.74%
		Other	0	0.0%
11.	What effect have you already reached practicing Nordic walking / fitness / recreational swimming?	Lost weight	16	25.81%
		Do not lost weight, but I'm feeling better	13	20.97
		I have a better condition	55	88.71%
		Relax after work	7	11.29%
		None	0	0.0%
		Other	2	3.22%

To check whether there is a relationship between physical activity motives of women who are at least 55 years of age and their level of education and professional activity, and length of practice chosen form of recreation and achieved effects were calculated chi-square (c^2) (with Yates' correction - the expected number <5). The calculated value of c^2 for the adopted hypotheses zero, allow to conclude that motives for physical activity does not depend on the level of education of the respondents with a probability of type I error equal to 0.05 (value of chi-square was 17.827, a reference value of tables 21.026 for 12 degrees of freedom) (Table 2). Motives for physical activity does not depend on the professional activity of the respondents with a probability of type I error equal to 0.05 (value of chi-square was 28.300, a reference value of tables 28.869 for 18 degrees of freedom) (Table 3). Achieved effects of exercise depends on the length of the chosen form of sports recreation (value of chi-square was 107.963, the reference value tables of 26.296 for 16 degrees of freedom) (Table 4).

Tab. 2. Motives for physical activity and education

EDUCATION	MOTIVES OF PHYSICAL ACTIVITY									
		Health	Loose weight	Good looking	Because I like	Improve conditions	It's trendy	Because friends practicing	Other	SUMMARY:
	Primary	0	0	0	0	0	0	0	0	0
	Vocational	15	15	7	5	9	4	6	0	61
	Secondary	28	23	9	23	24	3	5	0	115
	Higher	19	13	3	15	18	2	0	0	70
	SUMMARY:	62	51	19	43	51	9	11	0	246

Tab. 3. Motives for physical activity and education

PROFESSIONAL ACTIVITIES	MOTIVES NORDIC WALKING, FITNESS OR RECREATIONAL SWIMMING									
		Health	Loose weight	Good looking	Because I like	Improve conditions	It's trendy	Because friends practicing	Other	SUMMARY:
	Work (employed)	18	13	7	14	17	4	4	0	77
	Not work (not employed)	7	7	6	3	5	2	5	0	35
	Annuity	5	4	3	2	4	1	1	0	20
	Pension	32	27	3	24	25	2	1	0	114
	SUMMARY:	62	51	19	43	51	9	11	0	246

Tab. 4. Length of practice chosen form of recreation and achieved effects of exercise

		WHAT EFFECT HAVE YOU ALREADY REACHED PRACTICING NORDIC WALKING, FITNESS OR RECREATIONAL SWIMMING?						
HOW LONG HAVE YOU PRACTICING CHOOSEN FORM PHYSICAL RECREATION		Lost weight	Do not lost weight, but I'm feeling better	I have a better condition	Relax after work	None	Other	SUMMARY:
	Less than 1 year	3	1	5	3	0	0	12
	1 – 2 years	4	2	7	2	0	0	15
	2 – 4 years	7	3	20	1	0	0	31
	Over 4 years	2	7	23	1	0	0	33
	Other	0	0	0	0	0	2	2
	SUMMARY:	16	13	55	7	0	2	93

Discussion

The phenomenon of movement accompanied man throughout his life. Adequate physical activity is a factor in prolonging youth and prevent aging of the body (Zołnierczyk-Glass, 1999). In old age, often after retiring man has more free time that can be spent on leisure, entertainment, personality development. Prophylactic particular importance in this period is physical activity, which may be limited to walks and early morning exercise. Using the available forms of movement, optimism and desire for all kinds of works are good symptoms aging. Habits age of post-production, pro-health attitudes is a result of behavior shaped the earlier stages of life. Determinant of physical activity is mobility, which is essential for independent coping in everyday life. As shown, the benefit of exercise in the elderly is better mood, increased self-esteem and, consequently, increase the quality of life.

Aging is a natural stage of human life, and people are aging in a differentiated manner. About this, what will be the age of man, depends on many factors, among which very important role plays health, to a large extent conditioned by physical activity and diet (Chrapkowska-Zielinska, Wolf 2007). The effects of reduced physical activity in the elderly are comparable to the effect that causes high blood pressure, smoking, obesity, etc. (Osinski, 2002).

Despite the undisputed role of the positive effects of regular undertaken physical activity by the elderly, still there is no information of the motivation mechanisms and barriers and long-term programs for the elderly. That is why it is extremely important

study motives seniors to participate in physical activities (Siekanska, Wojcik, 2009). Work carried out for the purposes of the study are encouraging. For all respondents, the main motive for inducing physical activity was the health aspect. In addition, 82% of women practicing to lose weight and improve their fitness.

A very important aspect of old age is quality of life. Currently a lot of research has been aimed at reducing morbidity and increasing the length and quality of life. The test is carried out, in particular, by the influence of physical activity on the reduction of heart disease, obesity, diabetes, etc. (Osinski, 2002). Analyzing the results of the research work we found that physical activity had a positive impact on the quality of life of all surveyed women. Each of them has reached at least one of the desired effects. The vast majority of respondents felt the improvements physical condition, large group of women observed lose weight and feel better.

Decline in performance and physical fitness with age is inevitable, but it runs at different rates in different people. On the slowdown affects largely maintain into old age physical activity. Research shows a direct link between low physical activity and premature death (Osinski, 2002). Should therefore make every effort to ensure that at all stages of ontogeny society was prepared to take enough physical activity, in order to live in accordance with the principle to add life to years, not years to life.

Conclusions

Based on the study the following conclusions can be drawn:

1. Women who are over 55 years undertake physical activity, mainly for health reasons.
2. Physical activity has improved the quality of life of all surveyed women, and the effects of exercise are achieved depends on the length of the chosen form of sports recreation.
3. It was found that the motives of physical activity are not dependent on the level of education of the respondents, the motives for physical activity are not dependent on the professional activity of the respondents and achieved effects of exercise are related to the period chosen form of sports recreation.

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Agnieszka Surynt

Department of Humanities and Health Promotion University School of Physical Education in Wroclaw
Katedra Nauk Humanistycznych i Promocji Zdrowia Akademii Wychowania Fizycznego we Wrocławiu

The issue of physical activity among students of high schools in Wrocław in the opinion of the physical education teachers

Problem aktywności ruchowej wśród uczniów szkół wrocławskich w opinii nauczycieli wychowania fizycznego

Summary
The aim of the paper is to gather teachers' opinion on children willingness to do sports, their participation in various sport and recreation activities, and in school and interschool competition. Its objective is also to obtain information on the preferred forms of physical activity and the level of physical fitness among children.
To meet the aim of the study a diagnostic survey was used and the technique applied was a questionnaire, which included 6 questions. 464 questionnaires have been analysed, which were filled by teachers from 10 primary schools from Wrocław.

Key words: children , sport activities, sport, teacher of physical education

Streszczenie
Celem pracy jest zebranie opinii nauczycieli wychowania fizycznego na temat chęci dzieci do uprawiania sportu, ich udziału w różnych zajęciach o charakterze sportowo-rekreacyjnym oraz w zawodach szkolnych i międzyszkolnych a także uzyskanie informacji na temat preferowanych form aktywności ruchowej i poziomu sprawności fizycznej.
Do celów niniejszego opracowania wykorzystano sondaż diagnostyczny, zastosowaną techniką była ankieta, która obejmowała 6 pytań. Łącznie analizie poddano wyniki 464 ankiet dla nauczycieli pochodzących z 10 wrocławskich szkół podstawowych.

Słowa kluczowe: dzieci, aktywność ruchowa, sport, nauczyciel wychowania fizycznego

Introduction

Nowadays, people lead more and more sedentary lifestyles. It turns out that if even one hundred years ago 90% of the energy expended by people at work concerned muscles, it is today, especially in developed countries, this factor could be barely equal to 1. It is not difficult, therefore, to note that there has been a marked decline in physical activity for mental work (Grabowski, 1997). Such behavior has become almost a standard, that worst of all, not only adults but also children and adolescents.

There's no doubt that one of the main reasons for this is the progress of civilization, on the one hand, it contributes to the human development, on the other hand leads to its

biological destruction (Grabowski, 1997).This makes young people lead increasingly sedentary lifestyle, they are not interested in their own health and fitness, and yet not from today, it is known that a systematic activity undertaken is considered the primary stimulator of mental and physical development, affects the sporting achievements of the future, as and the promotion of health and sport attitude (Gracz, Sankowski, 2000; Osinski, 1990). There also has an impact on the modeling of the relation to the body which is relied to the shape of somatic attitudes (Sankowski, 2005). Properly dosed physical activity is essential in everyone's life. For an adult helps to maintain health and fitness, for children and young people for the proper development in all aspects: physical, mental and social (Osinski, 1990). That's why the movement is one of the strongest arguments of modern physical education teacher, but rather to the development of education and health.

It is therefore important to look and at and note the lessons of physical education a little bit more. It should also be seen in the health benefits, because the facts on exercise and health relation are already sufficiently documented and widely known (Blum, 1998; Nowocień, 2001; Robacha, 2001). Such attempts concepts they have already been taken (Derbich, 2001), and even the fitting was done for practical implementation of the urban agglomeration healthy in the city of Wroclaw (Kulmatycki, 1995). Some solutions could be taken from other countries that successfully combine physical activity with health education and the wider recreation (Smith, Smoll, 1990; Winkler, 1993). Perhaps this was also the goal of the Ministry of National Education which was preparing a new core curriculum for physical education classes in conjunction with health education as well as Wroclaw School Sports Association, which since 2003 has been implementing in Wroclaw yards and neighborhoods program „Community Sports Coach" (Surynt, Kulmatycki 2009; Surynt, Kulmatycki, 2010; Surynt, Kulmatycki 2011). Since 2008, a similar project is also conducted in the Youth Sports Center in Wroclaw (Surynt et al. 2011; Surynt et al. 2012), which, while analyzing the study of physical fitness of children, initiated cooperation between parents and teachers in Wroclaw 10-year-olds pupils, which was also an attempt to evoke greater participation in taking responsibility for the physical and psychological development, condition and health of future generations (Anderssen et al. 2007; Kantomaa et al. 2007). Fundamental question I set ourselves at this point is the question of how physical education teachers so they see activity movement of children living in Wroclaw? Specific questions are as follows:

1.What is the proportion of positive and negative teachers attitude toward pupils? 2.If, in their opinion, the young generation of Wroclaw enjoy practicing physical activity? 3.What kind of activities most children prefer to test and what is their level of physical fitness? To answer these questions the attempt for survey was made, which aim was to gather teachers' opinion on children willingness to do sports, their participation in various sport and recreation activities, and in school and interschool competition. Its objective is also to obtain information on the preferred forms of physical activity and the level of physical fitness among children.

Material and research

In May 2010 from the Youth Centre in Wroclaw initiative, the physical efficiency was examined. In that survey took part 800 students of 4th classes from 14th primary schools numbers: 2,3,40, 44, 46, 51, 58, 72, 74, 85, 90, 93, 95 and 118. It was the third round of long-term surveys, which goal was to find children sport talented.

Within the confines of physical fitness survey, concerning 11 year old Wroclaw children, the diagnostic poll among parents and teachers was carried out. The applied technique was the questionnaire. The questionnaire included 12 questions for parents and 7 for teachers.

In questionnaires the greater quantity of questions were close questions, which were equipped with so called cafeteria, the set of possible answers. Open questions also appeared which allowed to express one's opinions, and also alternative questions, which fulfilled function of filter-questions.

For the necessity of this study 6 questions from the questionnaire directed to teachers were taken into the consideration.

Questions for teachers:

1. Does a pupil exercise eagerly during physical education classes?
2. What forms of physical activity are the most preferred by a pupil?
3. What optional courses the student / pupil would attend willingly?
4. Do pupil / student is involved in school and interschool competitions?
5. What level of fitness does a pupil present?
6. What motor skills are the most developed at a pupil?

464 questionnaires from teachers were taken into the analysis. Ten primary schools were asked to take part in the research.

The other four schools that were invited to cooperate, did not return a survey results led to the teachers, while the same schools sent questionnaires filled by parents.

Among 464 returned surveys, 220 are teachers' opinions concerning girls and 244 concern information on boys.

Data analyses

The results were analyzed separately for girls and boys and for each of the school. Because of the data protection, the results of the research were coded by numbering the schools from 1 to 10. The 11th column presents the average results of all the schools.

Analyzing the teachers' answers for first question, it was noticed that most of children participate eagerly in physical education lesson (81,6%- girls and 81,9% boys).

Depending on school these results were between 54% to 100% bearing in mind girls, and 33,3% to 100% concerning boys.

With a total of 30% of boys seems to be surprisingly low, but it should be noted that such a small percentage rate was observed only in one of the schools, which indicate the remaining responses, ie, "no" or "no opinion" at a similar level (Figure 1-2).

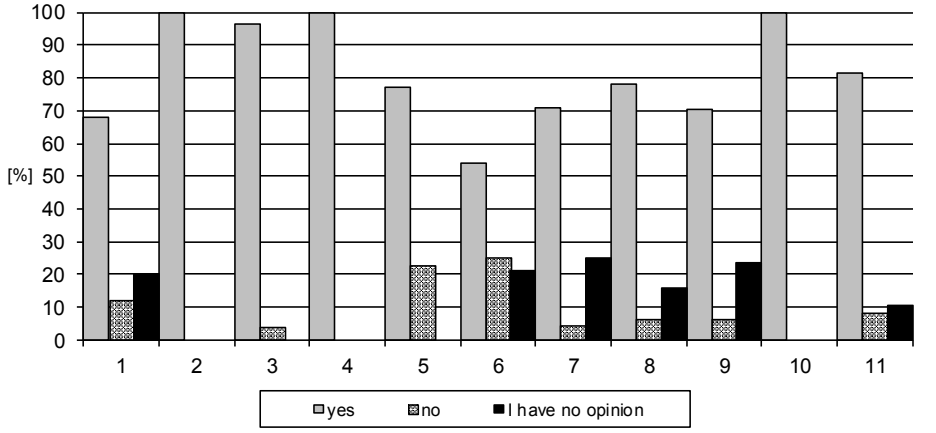


Fig. 1. The percentage of girls eager exercise during physical education classes in the opinion of teachers.

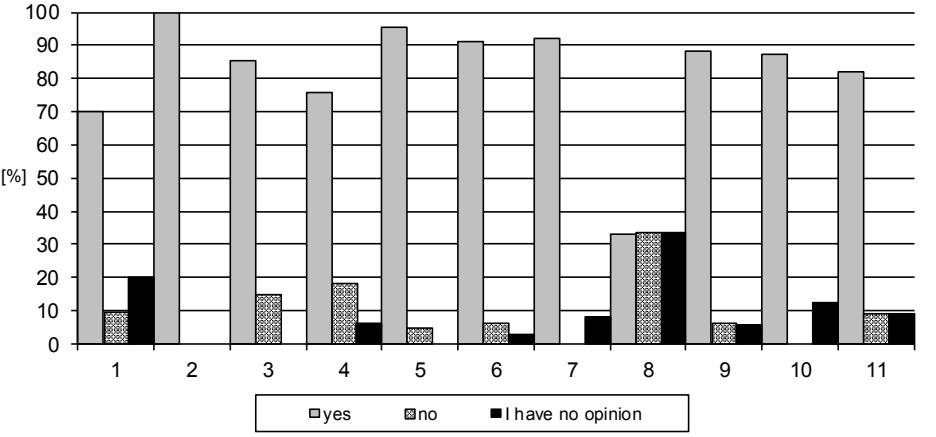


Fig. 2. The percentage of boys eager exercise during physical education classes in the opinion of teachers.

Teachers asked what sport does their schoolchildren practise the most often, answered that team games (43,6%- girls, 46%- boys). On the second place there's gymnastics and athletics. Another forms of activity were chosen by teachers not so often (Figure 3-4).

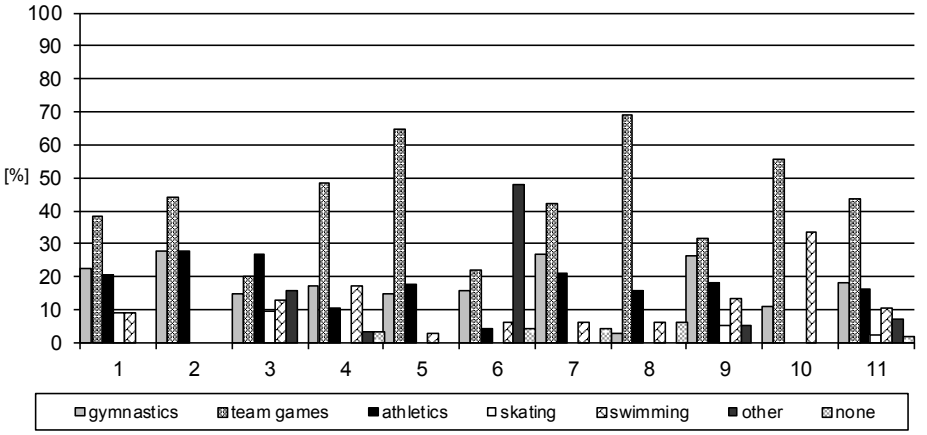


Fig. 3. The most preferred forms of sport activity for girls in the opinion of teachers.

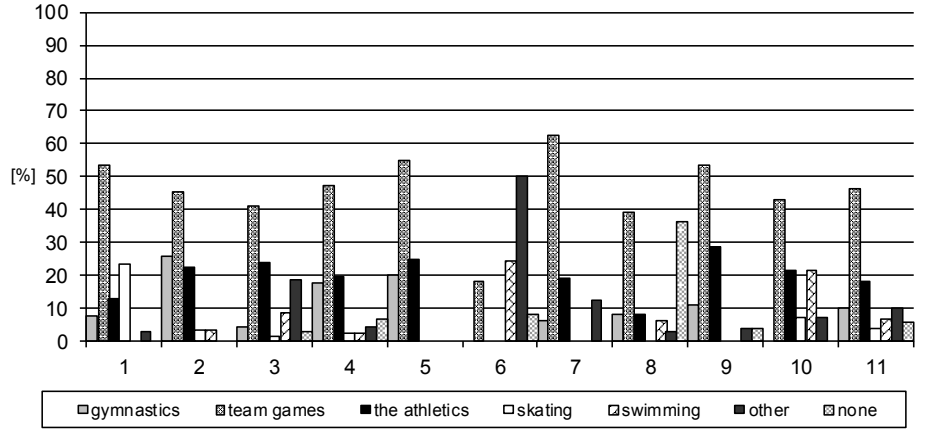


Fig. 4. The most preferred forms of sport activity for boys in the opinion of teachers.

Referring to the new proposal of the curriculum of physical education, teachers were also asked about optional courses student / pupil would could chose, if given the chance? According to the teachers surveyed children would attend classes with sport, recreation and health program. Sports would find favor in the group of girls in about 53,1% and boys at 61,5%. The recreation and health program would gain popularity in approximately 29,3% of girls and 26,3% boys. Dance classes and touristic courses according to teachers would not so popular, common among the younger generation, ie male and female students of IV the class of elementary school, but most likely dance classes would be chosen by girls and the touristic ones by boys (Figure 5-6).

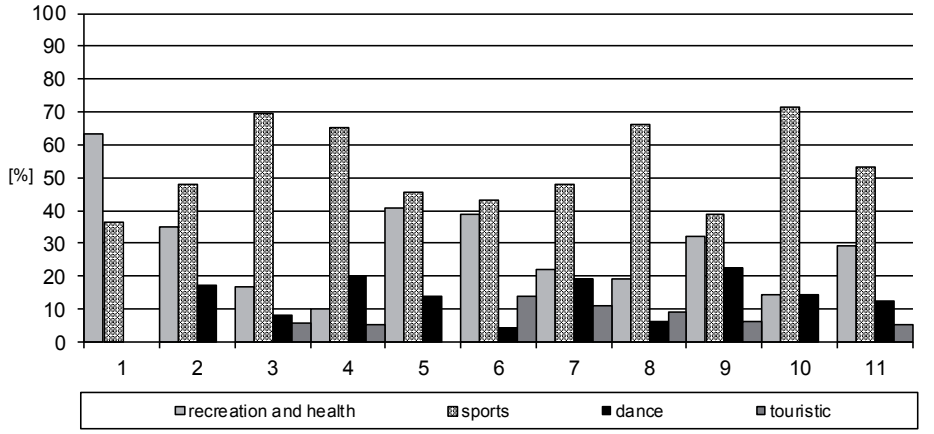


Fig. 5. Readily selected optional classes for girls in the opinion of teachers.

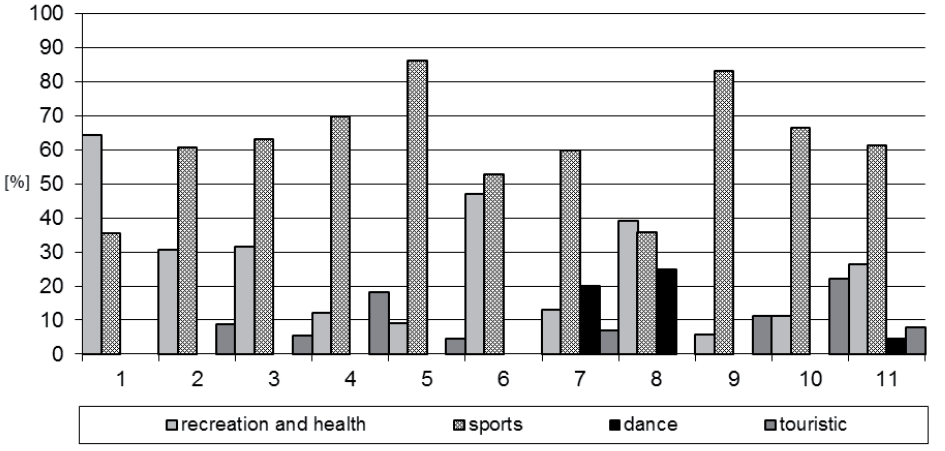


Fig. 6. Readily selected optional classes for boys in the opinion of teachers.

The analysis of responses to the fourth question leads to the conclusion that, according to teachers about 42,3% of girls and 43,5% boys take part in schools and inter-schools competition, which may lead to a conclusion that in the opinion of the respondents , that they have a predisposition to engage in sports. At the same time almost 60% of young people, both girls (57,7%) and boys (56,5%) did not participate in any competition, which doesn't mean necessarily the lack of talent in this field (Figure 7-8).

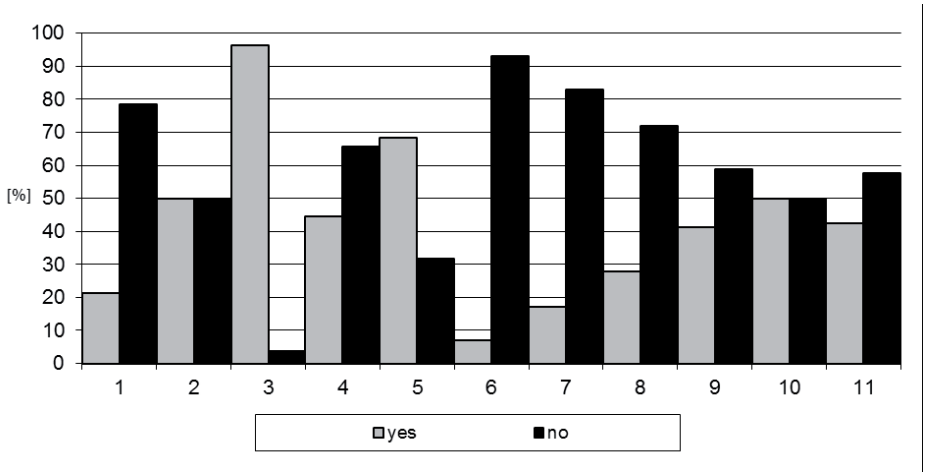


Fig. 7. The percentage of girls taking part in schools and inter-schools championships in the opinion of teachers.

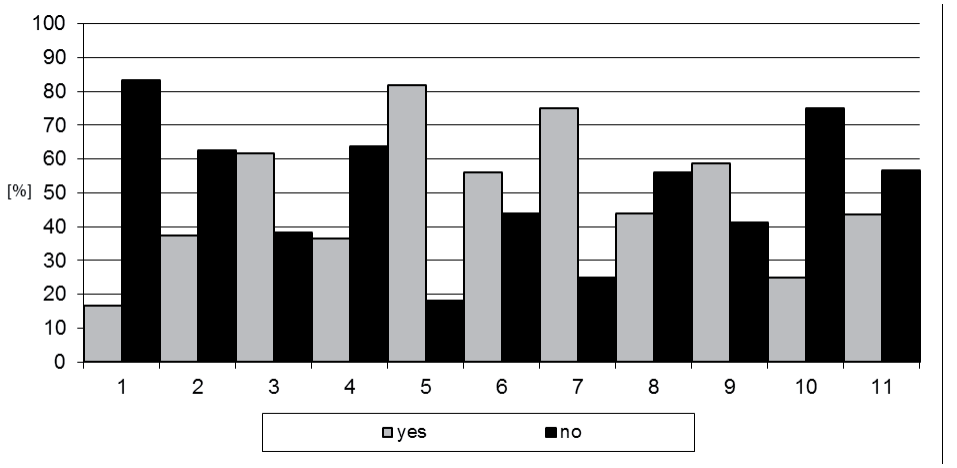


Fig. 8. The percentage of boys taking part in schools and inter-schools championships in the opinion of teachers.

Analyzing the teachers' answers for next question, which concerned the level of fitness of Wroclaw 11 year old children, it was noticed that on average 40-50% teachers have the opinion that their children have got average level of fitness. In case of girls 49,6% of teachers were of the same opinion, whereas in case of boys 43,2%. Teachers of examined children rarely thought that their children have low fitness level, both among girls (10,5%) and boys (13,1%). The rest of teachers thought that their schoolchildren have high level of fitness (girls 39,9%, boys 43,7)-figure 9-10.

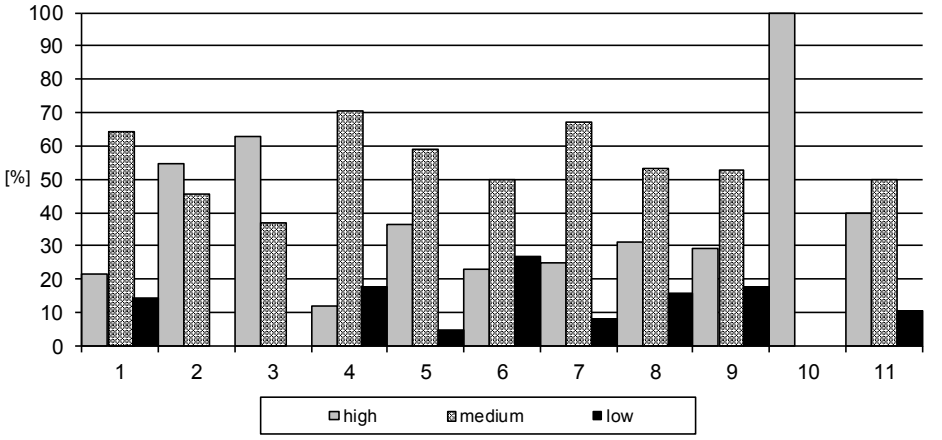


Fig. 9. The level of fitness of girls in the opinion of teachers.

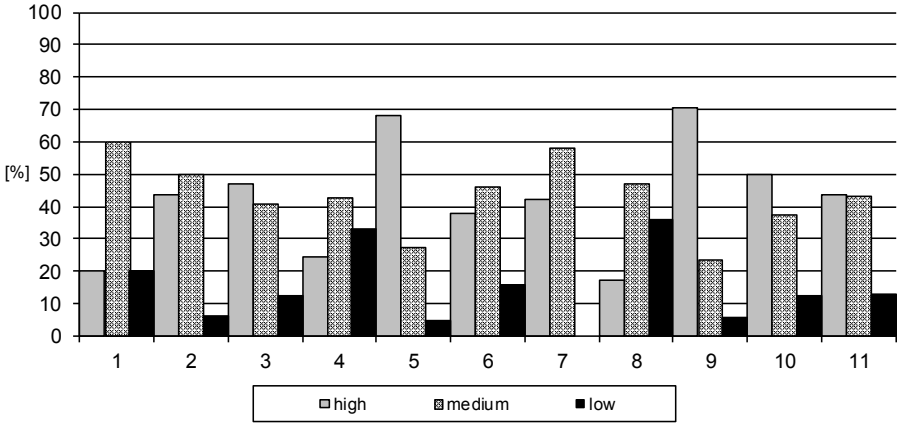


Fig. 10. The level of fitness of boys in the opinion of teachers.

Teachers were asked about the most developed motor skills of 11 year old children. Teachers answered that the most developed motor skills are speed, strength, agility, flexibility and endurance. It's worth to point that in teachers opinion girls' the worst developed motor skill is endurance and boys' is flexibility. This should not be surprising, as evidenced by the fact that during this period of development there is a sexual dimorphism in motility (Figure 11-12).

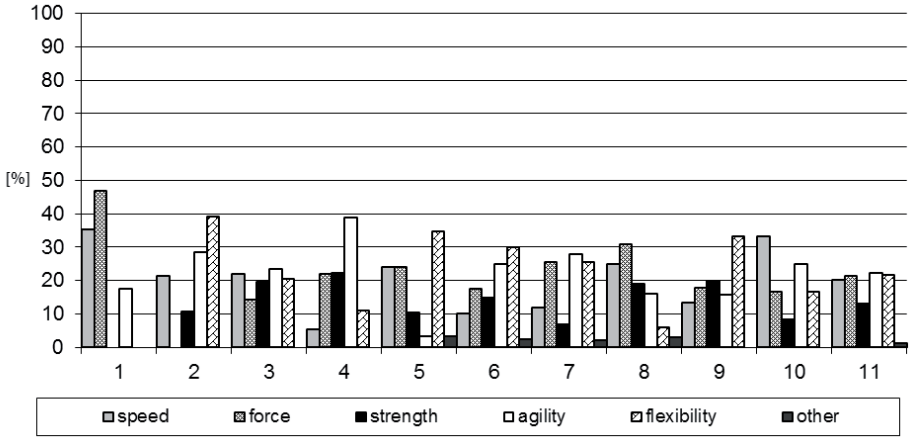


Fig. 11. The most developed motor skills of 11 year old girls in the opinion of teachers.

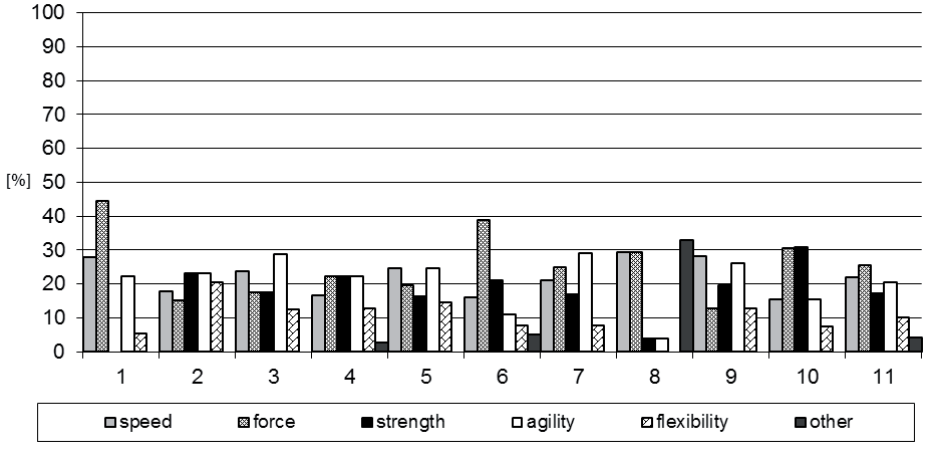


Fig. 12. The most developed motor skills of 11 year old boys in the opinion of teachers.

Discussion

Wroclaw school teachers surveyed are positive about the opportunities and abilities of their pupils. In the context of the development of a young man and doctors statements, developmental psychologists and educators and teachers, the time of habits evolution, favorable to an active lifestyle is related to early school period (Strong, 2005). It was at this time when the teacher is the authority for children and has a most significant impact on health behaviors. A physical education teacher and coach, without compromising the role of family and peer environment, have the major extent in forming and developing physical activity attitude (Sankowski, 2005). Physical activity is one of the most

important determinants of a healthy lifestyle. There's a reason for the efforts of many governments and education systems in developed countries to focus on the growth of sport and physical activity.International research of the Health Behaviour in School-aged Youth Children (WHO Collaborative Study) has been conducted regularly since 1982 also in Poland (Health Behaviour In School-aged Children. WHO Collaborative Study). WHO enables to track many phenomena related to health behaviours and lifestyle in Europe and North American countries Researches aim also at enabling monitoring of changes occurring in next generation of the Internet and computer era. Their purpose is also preparation of efficient strategies to promote active lifestyle. Last report edition (Mazur, Małkowska-Szkutnik, 2011) presents results of last HSBC 2010 research.

The main question related to general physical activity (MVPA Moderate-to-Vigorous Physical Activity) in these studies was associated with an explanation to students that it is "any action that gives the feeling of" shortness of breath "or rapid breathing." The examined pupils were asked to give a number of day of the past week, when they dedicate more than 60 minutes for physical activity. The report shows that in the first year of the HBSC study, in the 2001/2002 it was assumed that 5 days or more meant the appropriate level, and now it is 7 days a week. That means that the child should have at first an encouragement from parents and teachers for this kind of activity and the opportunity of time and place. In a recent survey 2009/2010 question was given in all age groups. It turns out that the image presented by the Wroclaw teachers do not fully coincide with the Polish HBSC surveys. Still, it is clear that confronting the teachers opinions about their students' physical activity with the opinions of the students themselves these differences become even more exposed. Tests may indicate that teachers watching 10-year-old students can see that over 80% of them could spend a minimum of 60 minutes of physical activity. This is a very positive and optimistic message and final conclusions are as follows.

Conclusions

1. The study shows that teachers generally have a positive opinion on the charges and are optimistic about students' physical activity.
2. Analyzing the teachers' answers for next question, which concerned the level of fitness of Wroclaw 11 year old children, it was noticed that on average 40-50% teachers have the opinion that their children have got average level of fitness. Teachers of examined children rarely thought that their children have low fitness level, both among girls (10,5%) and boys (13,1%). The rest of teachers thought that their schoolchildren have high level of fitness (girls 39,9%, boys 43,75).
3. According to responding teachers, the majority of (more than 80%) children practice willingly physical education. At the same time, teachers indicate that almost 60% of young people, both girls (57,7%) and boys (56,5%) did not participate in any sports.
4. Teachers asked what sport does their schoolchildren practise the most often, answered that team games (43,6%- girls, 46%- boys).
5. According to teachers, students having a possibility to choose sports, dance, tourism and recreation and health select sports, 53,1% of girls and 61,3% boys. Recreation and health would gain popularity in approximately 29,3% of girls and 26,3% boys.

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Anna Nadulska[1], Barbara Borowicz[1], Mariusz Teter[1], Rafał Nadulski[2], Emilia Polak[3]

[1]Department of Human Physiology, Medical University, Lublin
[1]Katedra i Zakład Fizjologii Człowieka, Uniwersytet Medyczny, Lublin
[2]University of Life Science, Lublin
[2]Uniwersytet Przyrodniczy, Lublin
[3]University of Vincent Pol, Lublin
[3]Wyższa Szkoła Społeczno-Przyrodnicza, Lublin

The influence of physical activeness on the life quality among over 60. Wpływ aktywności ruchowej na jakość życia kobiet po 60. roku życia

Summary
The process of ageing is a physiological phenomenon, which influences negatively the functioning of human organism. The type of alterations varies among each organism and the changes occur with different frequency among different persons. They result in the decrease of various organ functions and systems as well as in the decrease of activeness. The presence of physical activeness in early life stages and its continuation by elderly people can delay the decrease of physical activeness and significantly influence the improvement of life quality. The aim of this work was indicating if the physical activeness significantly influences the improvement of life quality among women over 60. The study was performed at randomly selected women in a fitness centre, at a swimming pool and a centre of culture in the age group of 60 -74 years. A questionnaire consisting of three parts was used as a research tool. The first part consisted of questions concerning age, weight, education, place of residence, the second part included questions related to lifestyle, availability of sport equipment, ways of spending free time and preferred sport. Satisfaction with Life Scale (SWLS), adapted by Juczyński, consisting of five statements and seven suggested answer versions was used in the third part of the questionnaire. All results were presented in tables and statistically analysed in the programme IBM SPSS Statistics version 20.0. The analysis proves that in this study group the influence of physical activeness on the life quality is not statistically significant.

Key words: life quality, physical activeness, ageing

Streszczenie
Proces starzenia chociaż jest zjawiskiem fizjologicznym negatywnie wpływa na funkcjonowanie organizmu. Zakres zmian jest zindywidualizowany i zmiany postępują w różnym tempie u różnych osób. Efektem jest postępujący spadek wydolności różnych narządów i układów oraz spadek sprawności. Rozpoczynana wcześnie w życiu i kontynuowana przez starsze osoby rekreacyjna aktywność sportowa może spowalniać spadek sprawności i wydolności oraz znacząco wpływać na poprawę jakości życia. Celem niniejszej pracy było wykazanie czy aktywność fizyczna istotnie wpływa na poprawę jakości życia u kobiet po 60. roku życia. Grupę badawczą tworzyły kobiety w wieku 60-74 lat, wybrane losowo w ośrodku fitness, na basenie, domu kultury. Jako narzędzie badawcze zastosowano kwestionariusze ankietowe składające się z trzech części. Pierwszą część stanowiły pytania metryczkowe (wiek, masa ciała, wykształcenie, miejsce zamieszkania), druga część obejmowała zagadnienia dotyczące stylu życia,

dostępności obiektów sportowych, sposobu spędzania wolnego czasu, formy uprawianej aktywności fizycznej, część trzecią część stanowiła Skala Satysfakcji z Życia (SWLS) adaptowana przez Juczyńskiego, składająca się z pięciu stwierdzeń i sugerowanych 7 wersji odpowiedzi. Wszystkie otrzymane wyniki odpowiedzi zestawiono w tabelach i poddano analizie statystycznej za pomocą programu IBM SPSS Statistics version 20.0. Z analizy wyników wynika, że w badanej grupie kobiet wpływ aktywności ruchowej na poziom satysfakcji z życia nie jest istotny statystycznie.

Słowa kluczowe: jakość życia, aktywność ruchowa, starzenie się

Introduction

Life quality has been widely explained by many authors. It mainly concerns good physical, mental and social feeling. Pleasing life quality is a set of fulfilled conditions, such as satisfied needs and goals, which consequently constitute overall satisfaction in many areas of life.

Good health, happy family life, satisfying job, safety and welfare are the most significant values that positively influence life quality. Although, every person can create his subjective and individual hierarchy of conditions which influence the life quality, there are some elements that are universal and equally determining for all people, to which belong appetite, desire, sleeping or the need for procreation. It also includes the need for physical activeness that is the capacity to function in everyday life as well as recreational sport. Undoubtedly, physical activeness improves health, which has been confirmed by numerous studies, and empirically by human's ancestors, who had to possess and prove great physical activeness in order to survive. The need for is rooted in human's nature. The older people become, the worse become functions of organs and systems in an organism and the less is physical activeness, which have negative results elderly people are more prone to injuries and diseases. Every form of physical activeness, individually adjusted to the condition of an organism moderates the decrease of activeness and efficiency and significantly influences the life quality.

Aim of the study

The aim of the study was presenting if the increase in physical activeness among women over 60 has a significant influence on their life quality and showing which forms of physical activeness are preferred and their frequency.

Material and methods

The research was conducted at randomly selected 50 women in the age group of 60-70 in the fitness centre, swimming pool and gymnastic room in the culture centre. The surveyed come from Hajnówka and in neighbourhood regions. The author questionnaire was used as an investigation tool. The first part consisted of questions concerning age, weight, education, place of residence, the second part included questions related to the lifestyle, availability of sport equipment, ways of spending free time and preferred sport. It consisted of 16 questions: 14 of them were multiple choice questions and 2 of them were open questions with the possibility to write your own answer. Satisfaction with Life Scale (SWLS), adapted by Juczyński (Juczyński, 2009) was used in the third part of the

questionnaire. The SWLS is suitable for an individual and group study among healthy and diseased adults. It consists of five statements. The surveyed assess how each of the statements relates to their lifestyle. Each marked answer has its own point scale. The sum of all points gives the general result that presents the level of general satisfaction with life of a polled person. The average time of completing the questionnaire: 2 minutes.
The scale consists of these 5 following statements:

1. In many respects my life is very satisfactory.
2. My life conditions are very satisfactory.
3. I am satisfied with my life.
4. I achieved the most important goals in my life.
5. If I could start my life again, I would not change almost anything.

The statements were assigned 7 possible responds:

1 – I completely disagree.
2 - I disagree.
3 – I rather disagree.
4 – Neither I disagree nor agree.
5 – I rather agree.
6 – I agree.
7 – I completely agree.

The results were presented in tables and statistically analysed by the mean of the programme IBM SPSS Statistics version 20.2.

Analysis of results

The scientific hypothesis was proving the existence of relation between physical activeness and satisfaction with life: the more frequent physical activeness, the better individual assessment of life quality. In order to prove the relation the results of answers about the frequency of physical activeness were analysed. The grading scale was 1 to 4 points for each marked answer (tab.1).

Tab. 1.The frequency of chosen physical activeness

Frequency of chosen physical activeness:	Number of answers	%
• everyday (4 points)	4	8
• several times a week (3 points)	22	44
• rarely (2 points)	17	34
• hardly ever (1 points)	7	14

The results of general score of the SWLS questionnaire were also analysed. The questioned women chose the following answers to the presented statements (Tab. 2-6):

Tab. 2. In many respects my life is very satisfactory

In many respects my life is very satisfactory:	Number of answers	%
• I completely disagree.	4	8
• I do not agree.	5	10
• I rather disagree.	18	36
• Neither I disagree nor agree.	15	30
• I rather agree.	7	14
• I agree.	1	2
• I completely agree.	0	0

Tab. 3. My life conditions are very satisfactory

My life conditions are very satisfactory:	Number of answers	%
• I completely disagree.	2	4
• I do not agree.	6	12
• I rather disagree.	13	26
• Neither I disagree nor agree.	16	32
• I rather agree.	11	22
• I agree.	2	4
• I completely agree.	0	0

Tab. 4. I am satisfied with my life.

I am satisfied with my life:	Number of answers	%
• I completely disagree.	0	0
• I do not agree	0	0
• I rather disagree.	11	22
• Neither I disagree nor agree.	18	36
• I rather agree.	16	32
• I agree.	4	8
• I completely agree.	1	1

Tab. 5. I achieved the most important goals in my life

I achieved the most important goals in my life:	Number of answers	%
• I completely disagree.	0	0
• I do not agree	3	6
• I rather disagree.	4	8
• Neither I disagree nor agree.	19	38
• I rather agree.	20	40
• I agree.	4	8
• I completely agree.	0	0

Tab. 6. If I could start my life again, I would not change almost anything

If I could start my life again, I would not change almost anything:	Number of answers	%
I completely disagree.	3	6
I do not agree	4	8
I rather disagree.	13	26
Neither I disagree nor agree.	19	38
I rather agree.	9	18
I agree	2	4
I completely agree.	0	0

Analysing both variables, the frequency of chosen physical activeness and individual assessment of life quality, the Pearson correlation result between variables: $r \approx 0{,}26$, with $p \approx 0{,}069$ was received.

Tab. 7. Correlation of variables: the frequency of physical activeness and satisfaction with life

Correlations		Frequency of physical activeness	Satisfaction with life
Frequency of physical activeness	Pearson Correlation	1	0,259
	significance (bilateral)		**0,069**
	N	50	50
Satisfaction with life	Pearson Correlation	0,259	1
	significance (bilateral)	**0,069**	
	N	50	50

The results indicate a weak relation between two variables (Tab. 7). It follows that the physical activeness influences the life quality of surveyed persons to a small extent. Positive result proves that an increment of one variable influences the increase of the other variable: the more frequent physical activeness, the highest satisfaction with life quality. However, with the significance constituting 0,069 it can be stated that this relation is not statistically significant in the analysed group.

According to the analysis of the questionnaire, most of the surveyed assess their life quality as average (Tab. 8).

Tab. 8. The assessment of life quality

Life quality:	Number of answers	%
• very good	9	18
• average	36	72
• less than average	5	10

Approximately 40% of the surveyed women feel the need of physical activeness (Tab. 9)

Tab. 9. The need of physical activeness

Feeling the need of physical activeness	Number of answers	%
• yes	21	42
• no	5	10
• to a small extent	24	48

The polled women spend their free time most frequently doing their housework or cultivating a garden (Tab.10).

Tab. 10.The form of spending free time

Form of spending free time:	Number of answers	%
• watching television	5	10
• reading books	11	22
• housework	27	54
• cultivating a garden	7	14

If the women opt for a form of physical activeness, they choose walking and bicycling with the highest frequency (Tab.11).

Tab. 11. The form of preferred physical activeness

Form of preferred physical activeness:	Number of answers	%
• walking	27	54
• dancing	1	2
• bicycling	14	28
• gymnastics	4	8
• swimming	4	8
• jogging	0	0

Among most of the polled there are no contraindications to start physical activeness (Tab.12):

Tab. 12.Existance of contraindications to start physical activeness

Contraindications to start physical activeness:	Number of answers	%
• existence	6	12
• no existence	44	88

The most frequent reason to start physical activeness that was given by women was the need for weight reduction and doctor's recommendation (Tab.13).

Tab. 13. Reasons to start physical activeness

Reasons to start physical activeness:	Number of answers	%
• improvement of the physical function	8	16
• reduction of weight	14	28
• doctor's recommendation	10	20
• improvement of look	3	6
• improvement of mood	9	18
• better sleep	6	12

Discussion

Life quality can be described on the basis of a group of similar, accepted cryteria. According to WHO, life quality of people is difined through the prism of their individual perception of the position in life, in the world of culture and through the prism of value system that surrounded people depending on their plans, expectations ans standards (Buss, 2000). Life quality is understood as good physical, mental and social feeling .According to Wells (1989), life quality is mainly the individual perception of good mental

attitude and satisfaction with life and the ability to function in everyday life. Farquhar (1995) similarly defines the concept of the life quality. Other authors (Flanagan, 1978) describe it as the ability to achieve goals whereas others (Franken, 2005) states that life quality is the difference between hopes, expectations and experiences of an individual (Bańka, 2005). The quality of life is influenced but such elements as: physical activeness, described as ability to function in an everyday life and practise sport, positive feeling and assessment of the future (Franken, 2005; Gieremek, 2007).

Specific definitions indicate that life quality is related to health (Health Related Quality of Life, HQRL). They are definied by individual assessment of your condition, effects of disease sympthoms or the disease. According to these definitions mentioned hereabove, good health is described as tha lack of limitations in everyday life as well as physical activeness (Shipper, 1990). Thus, the problem of apllying suitable exercises in order to slow the sympthoms of body ageing becomes crucial. The process of ageing diminish the efficiency of different systems and organs. Line decrease in efficiency among humans begins at the age of 30 and lasts until the end of their lives (Górski, 2003). The pace of efficiency decrease is various and determined by objective factors, e.g. the health condition. The previous life style and elements such as: diet, body weight, substances such as alcohol and cigarettes and the lack of physical activeness or low physical activeness (Fish, 1999) have significant influence. The previously research (Farquhar, 1995; Kozdroń, 2010) proves that the most frequent factors that stimulate to physical activeness are: overweight osteoporosis and development of degenerative changes of joints. Physical activeness is significant in the preventive medicine of cardiovascular diseases (Jaskólski, 2006) in the preventive medicine of metabolic disorders such as diabetes and hyperlipidemia (Kowalik, 2001) as well as in the prevention of musculoskeletal disorders, e.g. pain in lumbar vertebrae. Authors (Gieremek, Nowotny, 2007) hilight that low physical activeness at a young age negatively influences attempts to physical activation of erderly people. Among the erderly even low physical activeness causes stress that dimishes organism resistance to overloads (Dmowska, 2010). Thus, various forms of physical activeness that motivate and do not cause big tiredness are worth promoting. The research carried out by Duda (2008), Zając-Kowalska (2011) proves that among the polled women in the age group of 60 - 69 years the majority (86,6%) prefers walking as a form of physical activeness; 49% of the surveyed apart from walking do also gymnastics, 41,4% - ride a bicycle, 15,1% - go swimming, 7,6% - do nordic walking, 5,7% - do aerobics and less than 2% - except for walking also go jogging. There are factors that influence the efficiency of physical activeness: duration, frequency and intensity. It is accepted that a training session should last 30 minutes with the frequency of three times a week and the intensity of a training session should result in the pulse rate that constitutes 130 beats per minute. Some of the authors (Kuński, 2000) claim that a shorter, 10-15 minutes, but everyday training sessions are more efficient. In the annual studies conducted by Rezner and Janiszewski (in: Kozdroń, Leś, 2010) in 100 members of a population in the age group of 60 - 68 it was tested if physical activeness influences th decrease in psychoemotional stress and cognition. It was found that after a programme of physical activeness the resistance to psychoemotional stress improved. The subjects struggled better with everyday life problems. Kozdroń i Leś (2010) proved a statistically positive influence on the mood improvement among women in the age of

50 - 88, who were participants of a two-week recreation camps in Poland. The women participated in gymnastic exercises and walking sessions. Physical activeness is crucial among elderly people not only due to the fact that it enables them to function in everyday life but also do everyday activities, such as: hygienic activities, preparing food and eating, the control of physiological functions and independency in physical activeness (walking). Being concerned about their health and not being accustomed to physical activeness, elderly people reduce their physical activeness to minimum. They are afraid of falling down and consequently afraid of injuries and bone fractures. Low physical activeness causes negative changes in motor organs, the coordination and movement precision deteriorates. As a result of hypokinesia, organism dysfunctions escalate, the frequency of some diseases increases that eventually leads to the general physical disability and dependency on other people. Hence, the life quality impairs (Wieczorkowska-Tobis, 2010).

Conclusion

1. Most of the surveyed assess their life quality as average.
2. Vast majority of the women choose walking as the most preferred form of physical activeness.
3. Among the surveyed the most frequent reason to start physical activeness was is the need of weight reduction.
4. There is no significant relation between physical activeness and life quality among the questioned group of women. Seemingly, the fact that the surveyed treat life quality as a feature of life and not a state of life may be the reason.
5. For most of the women there are no medical contraindications against physical activeness.
6. Treating life quality as a life feature and not a state of life by the studied group of women may be the reason for no significant relation between physical activeness and the quality of life.

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Anna Krajewska-Pędzik[1], Kinga Michnik[2], Marta Stępień- Słodkowska[1]

[1]The Department of Health Promotion, Faculty of Physical Education and Health Promotion
[1]Zakład Promocji Zdrowia, Wydział Kultury Fizycznej i Promocji Zdrowia, Uniwersytet Szczeciński
[2]The Department of Anthropology, Faculty of Biology
[2]Katedra Antropologii, Wydział Biologii, Uniwersytet Szczeciński

Nordic walking as a type of physical activity in the population of elderly people

Nordic walking jako rodzaj aktywności ruchowej w populacji osób starszych

Summary

Introduction
The process aging of the body is associated with a gradual decrease of physical fitness and increase occurring in this age of chronic disease. Commonly the elderly may be accompanied by the weakening of immunity, weaker ability to adapt to environmental changes and a number of lifestyle diseases. The phenomenon of aging is an individual process, and its rate determined not only by genetic factors. In addition, a significant impact have among other lifestyle and a history of early diseases and injuries.

Purpose of the study
The aim of this study was to assess the physical activity of the participants of the University of the Third Age in Szczecin on the example of Nordic Walking and their physical recreation interests with regard to nutritional status.

Material and research methods
The participants of the study were female students (n = 60) of the University of the Third Age in Szczecin. Material collected by diagnostic survey. The information collected included data on socio-economic status, on education, place of residence, current employment situation, as well as knowledge of diet, frequency, form and duration of undertaken physical activity and the use of stimulants. For the purposes of this study were used select answers given by the female students of the University of the Third Age. Anthropometric measurements of some morphological characteristics were also performed. For the evaluation of statistical analysis was used chi – square test (χ^2), assuming the significance level of 0.05.

Results
The study have allowed to make the general characteristics of a group of students of the University of the Third Age in Szczecin in terms of physical activity in relation to their nutritional status. Insufficient quantity of motion was observed in 75.8% of women, moderate in only 12.9%, and a high of 11.3%. Most elected forms of physical activity was in the order of walking, Nordic Walking, cycling and swimming. Based on the results concluded that there is a correlation between physical activity and quantitative nutritional status.

Conclusions

Based on the survey can draw the following conclusions:
1. All the examined female students of the University of the Third Age were among the physically active people.
2. The level of physical activity of women surveyed were variable (75.8% reported low activity).
3. It was found that there is a correlation between physical activity and nutritional status.
4. Most frequently taken recreational forms of physical activity were successively walk (29.3%), exercise (19.0%) and Nordic Walking (12.6%).
5. Persons who reported Nordic Walking in 25.8% marched with sticks throughout the year.
6. Nordic Walking most practiced in the spring, then summer and autumn the least.
7. Only one person chose daily walk with sticks.
8. Nordic Walking is one of the most frequently indicated form of physical activities, especially for the elderly.

Key words: age, aging, Nordic Walking, physical activity, physical recreation, nutritional status

Streszczenie

Wstęp
Proces starzenia się organizmu związany jest ze stopniowym spadkiem sprawności fizycznej i wzrostem pojawiających się w tym wieku chorób przewlekłych. Powszechnie osobom starszym mogą towarzyszyć również osłabienie odporności, słabsza zdolność przystosowania do zmian środowiska oraz szereg chorób cywilizacyjnych. Zjawisko starzenia się jest procesem indywidualnym, a o jego szybkości decydują nie tylko czynniki genetyczne. Dodatkowo istotny wpływ mają między innymi tryb życia oraz przebyte wcześniej choroby i urazy.

Cel pracy
Celem podjętych badań była ocena aktywności fizycznej słuchaczek Uniwersytetu Trzeciego Wieku w Szczecinie na przykładzie Nordic Walking i ich zainteresowań rekreacją ruchową z uwzględnieniem stanu odżywienia.
Materiał i metody badawcze
Uczestnikami prowadzonych badań były słuchaczki (n=60) Uniwersytetu Trzeciego Wieku w Szczecinie. Materiał zgromadzono metodą sondażu diagnostycznego z wykorzystaniem techniki pomiaru ankietowego. Zebrane informacje obejmowały dane o statusie społeczno-ekonomicznym, dotyczącym wykształcenia, miejsca zamieszkania, aktualnej sytuacji zawodowej, a także wiadomości z zakresu sposobu żywienia, częstotliwości, form i czasu trwania podejmowanej aktywności ruchowej i stosowania używek. Na potrzeby tej pracy posłużono się wybranymi odpowiedziami udzielonymi przez słuchaczki Uniwersytetu Trzeciego Wieku. Wykonano również pomiary antropometryczne wybranych cech morfologicznych. Do oceny zależności statystycznych posłużono się testem chi – kwadrat (χ^2), przyjmując poziom istotności 0,05.

Wyniki
Przeprowadzone badania pozwoliły dokonać ogólnej charakterystyki grupy słuchaczek Uniwersytetu Trzeciego Wieku w Szczecinie pod względem aktywności ruchowej w powiązaniu z ich stanem odżywienia. Niedostateczną ilość

ruchu stwierdzono u 75,8% pań, umiarkowaną jedynie u 12,9%, zaś dużą u 11,3%. Najchętniej wybieranymi formami aktywności ruchowej były w kolejności spacer, Nordic Walking, wycieczki rowerowe i pływanie. Na podstawie uzyskanych wyników stwierdzono, że zachodzi korelacja między aktywnością ruchową a ilościowym stanem odżywienia.

Wnioski
Na podstawie przeprowadzonych badań można sformułować następujące wnioski:
1. Wszystkie badane słuchaczki Uniwersytetu Trzeciego Wieku należały do osób aktywnych ruchowo.
2. Poziom aktywności fizycznej badanych kobiet był zróżnicowany (75,8% zadeklarowało niską aktywność).
3. Stwierdzono, że zachodzi korelacja między aktywnością ruchową a stanem odżywienia.
4. Najczęściej podejmowanymi rekreacyjnymi formami aktywności ruchowej były kolejno spacer (29,3%), gimnastyka (19,0%) i Nordic Walking (12,6%).
5. Osoby, które deklarowały Nordic Walking w 25,8% maszerowały z kijami przez cały rok.
6. Nordic Walking najchętniej uprawiano wiosną, następnie latem a najrzadziej jesienią.
7. Tylko jedna osoba wybierała codzienny marsz z kijami.
8. Nordic Walking to jedna z najbardziej wskazanych form zajęć ruchowych, zwłaszcza dla osób starszych.

Słowa kluczowe: podeszły wiek, starzenie, Nordic Walking, aktywność fizyczna, rekreacja ruchowa, stan odżywienia.

Intruduction

Demographic research in our country shows the progressive aging of the Polish population. The reason for these changes is a decrease in the number of births, with longer duration of life. Therefore, the problem of increase in the number of people in retirement age is one of the most topical issues of modern civilization (Wróblewska et al. 2012). The reasons for this phenomenon should be looked, inter alia, the development of medicine and health care, as well as in the improvement of living conditions, method of nutrition and access to information and a deepening awareness of a healthy lifestyle (Szarak, Żukowska, 2010). Aging is a natural consequence of the sequence of stages in the ontogeny of human beings which is associated with a gradual decline in physical fitness (senility), mental and frequently occurring chronic diseases, often aggravating the ability to live independently. During this time, the elderly are often accompanied by weaker immunity and less ability to adapt to environmental changes and a number of lifestyle diseases (Łuczak, 2010). As pointed Kozdroń and Szczypiorski (2001) "intensity of the aging process often coincides with retirement." For many people, this fact is a major stress that arises due to the deterioration of the economic situation, which is an important factor for life-threatening.

The phenomenon of aging is the process of spontaneous, complex and inevitable, which consists of a constant reduction of the biological activity of the body. Most often it manifests itself in less capacity to regenerate tissues and overall adaptability of the organism (Górka, 2012). The most common chronic diseases, which can accelerate

the aging process of the body are atherosclerosis and its complications, hypertension, coronary heart disease, diabetes, obesity and all the health ailments within the central nervous system including modifications and psychiatric disorders (Wróblewska, 2012). Therefore proper lifestyle is becoming an important element in determining the length and quality of life of every human being, shaped (preferred) over many years. It should be noted that aging is an individual process, the speed of which is determined not only biological but also the lifestyle and past diseases and injuries.

In XXI century has seen significant progress in the biomedical sciences, gerontology and geriatrics, which is the last resort to help and give hope to effectively solve health problems for the elderly (Grzanka-Tykwińska, Kędziora-Kornatowska, 2010). Current efforts are aimed at strengthening the health of older people, and thus influencing the delay in their aging process.

The purpose of broadly understood health promotion is among other things, to encourage the systematic increase overall mental and physical condition of each person. Successful aging is consistent with the achievement of old age with the lowest possible risk of disease and disability and the appropriate level of social skills, intellectual, and especially the physical (Morgulec-Adamowicz et al. 2011). Therefore, active aging is one of the most important factors that determine not only the quality but also the life of every human being. The lower level of activity, both physical and intellectual, the less stimulation of the body, and therefore is not sufficient to mobilize the immune (Bronikowska, 2012).

Physical activity, regardless of its form strengthens the biological potential of the human body. The transformation of socio - political in our country in the last 20 years has seen many positive changes in the attitude of the entity in terms of increased attention to their own health (Michnik et al 2010). Regular exercise increases not only the defense forces and human adaptive capacity, but also shape his personality and develop interest. The movement greatly improves the function of the various systems: respiratory, cardiovascular and musculoskeletal system, reducing the risk of osteoporosis (Krajewska-Pędzik et al. 2010, Bojkowski, 2012). Accelerates the combustion of the energy, which prevents obesity, diabetes, atherosclerosis and hypertension (Krajewska-Pędzik et al 2010).

Regular and well planned physical activity undertaken by the elderly brings a lot of positive aspects, among others improves overall health, helps you stay fit, mentally relaxing, oxygenates the brain and prevents depression. The recommended daily dose of movement slows or stops for a long time the inevitable processes of involution, limiting efficiency (Bojkowski, 2012).

One of the possibilities of physical activity for seniors can be Nordic Walking (Arem, 2008). It is a special form of recreational activity, which in recent years has broad interest of many people because of its versatile effects on the human body and, preferably, affecting the health and well-being. Nordic Walking is one of the most effective forms of recreation and can be used either for prevention, treatment and rehabilitation (Sokołowski et al. 2010). Through rhythmic and aerobic activity in skeletal muscle, a beneficial effect on the cardiovascular system, without too much load on the body (Arem, 2008). This intensive training is a combination of cross-country skiing techniques and brisk walking

with specially designed poles (Figurska, Figurski, 2008). Improves the condition, shaping figure and relieves the spine, which is especially important for the elderly (Sikorski et al. 2010). In addition, training with poles cause a decrease in symptoms of depression and mental and physical tiredness. The health benefits of walking include, among other things to strengthen the muscles of the lower limbs, waist belt and the lower part of the body, improve lipoprotein metabolism and increase strength and bone density especially of the lower limbs, regardless of age. In addition, regular training with poles lowers cholesterol (LDL) and increases muscle mass (Sokołowski et al. 2010). Regular training improves cardiovascular fitness, reduce blood pressure, blood sugar and blood cholesterol, promote mitigate or eradicate stiffness around the neck and shoulders. In addition, regular marches reduce stress and have an impact in correcting poor posture with orthopedic injuries (Krajewska-Pędzik et al 2010). Nordic Walking is safe physical activity led not only to those who prefer a sedentary lifestyle, but also to the less active older people for whom the training is an excellent opportunity to maintain health and well-being (Sikorski et al. 2010, Sokołowski et al. 2010).

In fact, there are no medical contraindications to Nordic Walking, only strong orthopedic injuries (fractures, dislocations), acute conditions of chronic diseases eliminate participants from training. Nordic Walking can be practiced anywhere, on any terrain. The rhythmic march with poles involved nearly 90% of the muscles of the body. Practicing even popular sports such as soccer, is riding, activated mainly the lower parts of the muscle. It is therefore important to use the correct technique of walk. Putting appropriate steps (from the heel to the active reflection with the big toe) activates unused, every day, groups of muscles of the foot and lower leg. In addition, alternating movements of the arms and push back exercise neck muscles, shoulders and arms. This allows you to get rid of the tension caused by stress, localized in these muscle groups. Nordic Walking is an excellent aerobic training for cardio - vascular, respiratory and circulatory systems. All muscle groups are loaded at the same time which is beneficial to improve their endurance and strength. Among the health advantages of Nordic Walking marches should be replaced improvement of the general physical condition, as well as biological regeneration of the body and relax the nervous system (Figurska, Figurski, 2008).

In view of the above outlined advantages of Nordic Walking it becomes essential that efforts be made to increase the physical activity of women who are in menopause. In the adult population movement activities of a sporting nature are rarely implemented, and therefore becomes increasingly important physical recreation carried out through various forms of physical activity. This justifies the collection of information and perform research aimed at establishing such conditions that will increase physical activity for older people.

Aim of the study

Therefore, the aim of this study was to assess physical activity listeners University of the Third Age in Szczecin on the example of Nordic Walking, their interest in physical recreation, including nutritional status.

Material and research methods

Material collected by diagnostic survey survey techniques (Pilch, Bauman, 2001). The study was performed in May 2010 among listeners (n = 60) of the University of the Third Age in Szczecin. Age women ranged in 58 - 84 years. Listeners provides detailed information about the conduct of the study and gave their written consent to taking it. Information collected included data on socio-economic status, on education, place of residence, current employment situation, as well as knowledge of diet, frequency, form and duration of physical activity undertaken and the use of stimulants. For the purposes of this study were used selected answers given by the female students of the University of the Third Age. Anthropometric measurements were also performed some morphological (height and weight) in accordance with the principles laid down by Drozdowski (1998).

Based on the collected data set:

1. nutritional status of the respondents,
2. volume of daily physical activity,
3. preferred forms of tourist activity,
4. level of involvement in Nordic Walking.

Level of involvement in tourism was evaluated based on the frequency of participation in its various forms. The size of physical activity established on the basis number of hours in motion throughout the day. Arbitrarily assumed the following criteria:

• Low physical activity: less than 3 hours movement a day,
• Average physical activity: 3 - 4 hours movement per day,
• High physical activity: more than 4 hours movement per day.

On this basis it was determined:

– The level of physical activity,
– The relationship of physical activity on the nutritional status,
– Preferred forms of tourist activity,
– Interest in Nordic Walking.

Nutritional status was assessed using the Quetelet index - BMI (Body Mass Index) based on the following formula:

$$BMI = [\text{weight (kg)}]: [\text{height (m)}]^2$$

Data classification was based on the division into categories according to nutritional status. Interpretation of the results was made according to the scheme adopted by the WHO in 2003 (Gertig and Przysławski, 2006).

malnutrition	BMI < 18,5 kg/m^2
norm	BMI = 18,5-24,9 kg/m^2
overweight	BMI = 25,0-29,9 kg/m^2
obesity	BMI > 30,0 kg/m^2

To assess the statistical relationships test chi - square (χ^2), was used assuming the level of significance of 0.05 (Arska-Kotlińska et al 2002).

Discussion of results

The structure of the group was dominated by women aged 68-77 (56.7%), the next 36.7% were persons aged 58-67, and the remaining percentage of listeners had more than 78 years, the oldest of the women had 84 years. The studies show the general characteristics of a group of listeners at the University of the Third Age in Szczecin in terms of physical activity (Fig. 1). Little activity was declared by as much as 75% of women only moderate - 13.3%, and high - 11.7%.

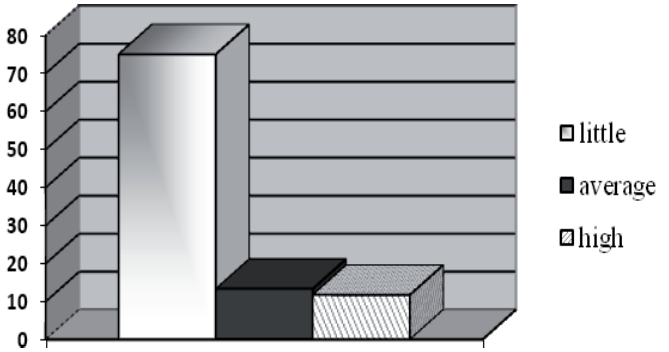


Fig. 1. Physical activity and listeners of the University of the Third Age in Szczecin.

The main morphological features are height and weight, which were used to determine the nutritional status among listeners of the University of the Third Age. For the correct numerical range of nutritional status (BMI = 18.5-24.9 kg/m2) enrolled 20 women, representing 33.3% of the entire group. Overweight condition occurred in 24 women - 38.4%, and the degree of obesity was observed and the remaining 28.3% of people. The results did not indicate a reduced BMI among listeners (Fig. 2).

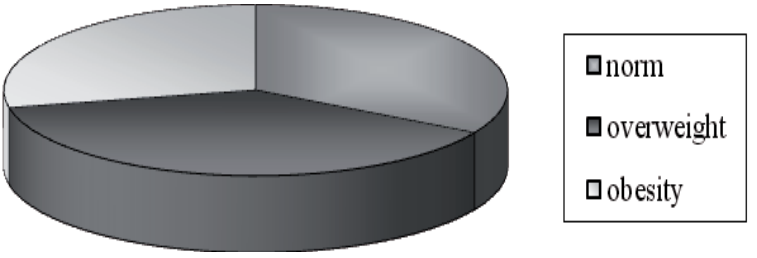


Fig. 2. Nutritional status of students surveyed.

The gathered material was found that there is a correlation between physical activity and quantitative nutritional status. Chi2 test ($\chi^2 = 16.280 > 9.488$ at a significance level of 0.05) confirmed significant statistical relationship between the studied variables (Table 2).

Tab. 1. Nutritional status of listeners at the University of the Third Age, depending on physical activity.

Physical Activity	number of people	Nutritional status BMI					
		norm		overweight		obesity	
		n	%	n	%	n	%
low	45	9	20,0	21	46,7	15	33,3
moderate	8	7	87,5	-	-	1	12,5
high	7	4	57,1	2	28,6	1	14,3
total	60	20	33,3	23	38,4	17	28,3

Most of respondents as the most physical activity undertaken, declared in the order of a walk (29.3%), gymnastics (19.0%), Nordic Walking (12.6%), fitness activities (9.8%), dance (7, 5%) and bicycle (6.9%). Work in the garden have preferred (6.3%), as well as cycling. Nobody declared team games. Occasionally, in individual cases, female students decide to take yoga and exercise in the gym. Two people practiced climbing, the first of these two times a year, and another 3-4 times per year (Fig. 3).

Among the women surveyed who reported practicing Nordic Walking - only 25.8% marched with poles throughout the year, the remaining percentage of people chose the way of physical activity most often in the spring, then summer and fall less often. Given the frequency of Nordic Walking is among all the listeners of the University of the Third Age, only one of the ladies chose daily walk with poles throughout the year.

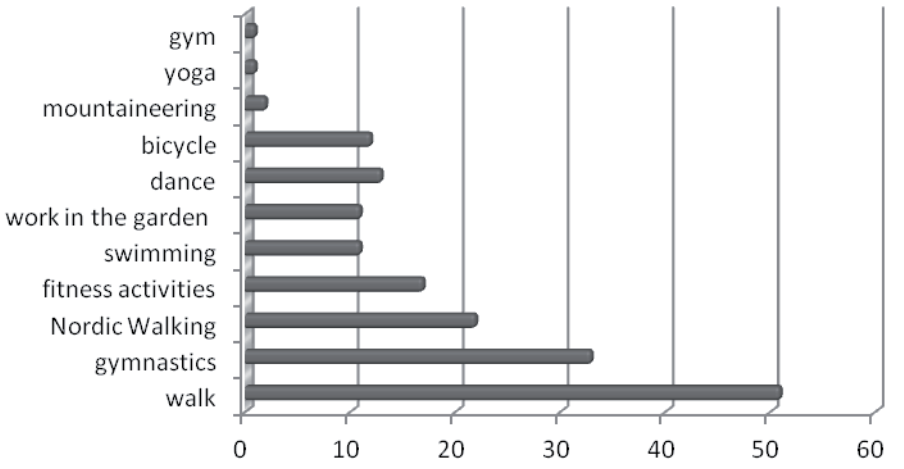


Fig. 3. Preferred forms of physical activity listeners University of the Third Age.

In the opinion of students, the correct technique walking Nordic Walking can be regarded as 71% for easy, and 29% for medium difficult. The most commonly mentioned problems in mastering walking with poles group exchanged successively coordination, gripping hands on the handles while repelling and incorrectly held pole and arm misconduct. Occasionally, female students showed too little range of motion in the joints

of the limbs and the adoption of bad figure at the time of exercise (Fig. 4). Single people have a problem with too much range of motion in the joints of the limbs and walking "the Spider" (stick before hammering a right angle, that is, between the upright and outstretched hand to the front, instead of at an angle of 60 degrees).

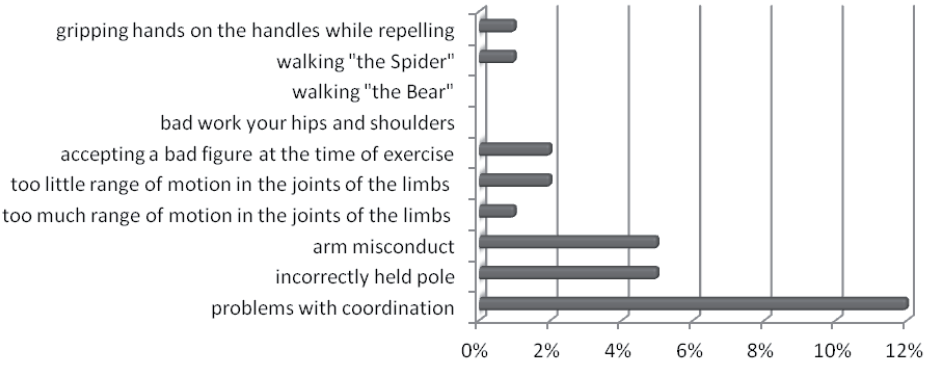


Fig. 4. The most common problems in mastering the correct Nordic Walking technique.

Discussion

Physical activity is one of the most important lifestyle elements at each stage of ontogeny. The demand for physical activity decreases with age. However, older people who already belong to groups oral exercising (TKKF, UTA, Clubs Senior) occasionally voluntarily refrain from physical activities (Kozdroń, Szczypiorski, 2001). A major problem is the recruitment to the team carrying out a specific program of physical activity by individually preferred form of recreation and maintain regular meetings in this regard. The requirements of modern life draw attention to the importance of physical recreation, which is a necessity and a duty of every person regardless of age, as her regular practice has a significant impact on health. Both excessive physical activity and its deficiency can lead to organ dysfunction and increased susceptibility to pathogenic effects of negative environmental factors.

Physical activity, regardless of its form strengthens the biological potential of the human body. Systematic physical efforts and, therefore, exercise increases not only the defense forces and human adaptive capacity, but also to shape his personality and develop interest (Krajewska-Pędzik et al. 2010). The movement greatly improves the function of systems: respiratory, cardiovascular and musculoskeletal system, reducing the risk of osteoporosis (Łuczak, 2010). Accelerates the combustion of the energy, which prevents obesity (Bahrynowska-Fic, 1999).

The problem of scarcity of movement: covering all age groups, is one of the most difficult activities in the field of preventive health care. Hypokinesia may lead to acceleration of the aging process and infirmity, and even in some cases, physical disability (Grzanka-Tykwińska, Kędziora-Kornatowska, 2010). People remaining physically active throughout life in old age are more efficient, more robust, and therefore healthier. As previously shown, a better mood and increased self-esteem, are some of the benefits that it offers us a physical activity.

The study shows that the nutritional status of the elderly is related to the adoption of physical activity. Listeners with normal BMI allocated their movements more than four hours a day.

The research presented in this paper shows that the time spent on physical activity by female students of the University of the Third Age in Szczecin is varied. All the tested women were active, and for 75.8% the level of physical activity remained at a low level (less than three hours of movement per day). e research results correspond to findings of other authors, who point to the active participation of older people in recreational activity (Górka, 2012, Wróblewska et al. 2012). Among the respondents there was no person who does not show any physical activity. Probably has to do with the ability to participate in a wide range of physical activities offered by the University of the Third Age.

Shaping physical culture from an early age, the introduction of healthy eating habits and hygiene at all stages of ontogeny should contribute to making regular physical activity throughout life regardless of their age.

Conclusions

Based on the survey can draw the following conclusions:

1. All the examined female students at the University of the Third Age were among the physically active people.
2. The level of physical activity of women surveyed were variable (75.8% reported low activity).
3. It was found that there is a correlation between physical activity and nutritional status.
4. Frequently taken recreational forms of physical activity were successively walk (29.3%), exercise (19.0%) and Nordic Walking (12.6%).
5. People who reported Nordic Walking in 25.8% marched with poles throughout the year.
6. Nordic Walking most grown in the spring, then summer and autumn the least.
7. Only one person chose daily walk with poles.
8. Nordic Walking is one with the most suitable forms of physical activities, especially for the elderly.

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Alicja Stachura, Łucja Płatek, Czesław Opyrchał

Akademia Wychowania Fizycznegoim. Jerzego Kukuczki w Katowicach
The Jerzy Kukuczka Academy of Physical Education in Katowice

Motor and swim skills of canditates for sport-focused class
Sprawność motoryczna i pływacka kandydatów do klasy sportowej

Summary
The selection is one the major elements in high-performance sport. On the basis of this issue the research has been conducted: the evaluation of motor and somatic levels of the candidates joining swimming profile classes. There were 197 children that participated in the research (101 girls, 96 boys), at the age of 10, from primary schools in Zabrze and Ruda Śląska. The evaluation concerned the motor and of swimming efficiency as well as the somatic features of the candidates for sport class. The analysis of the results was made using U Mann- Witney test, the analysis ANOVA of Kruskal-Wallis ranks, the test of the median and the Spearman's rank correlation. The analysis of the results showed that the boys achieved higher level of motor efficiency whereas the girls were more efficient in swimming. The sex of the subjects differentiated their motor efficiency profiles. The somatic features and the motor efficiency did not determine the level of the subjects' swimming abilities. The motor efficiency was conditioned by the weight of body. The work presented is an attempt of finding the ways of optimization of the usage of selective tests for children who want to do swimming sport.

Key words: selection, motor abilities, somatic features, swimming

Streszczenie
Jednym z czynników w wysokokwalifikowanym sporcie jest selekcja, która jest przedmiotem tego artykułu. Celem badań była ocena somatycznych i motorycznych zdolności kandydatów do klas sportowych o profilu pływackim. W badaniach uczestniczyło 197 uczniów (101 dziewcząt, 96 chłopców) w wieku 10 lat z szkół podstawowych z Zabrza i Rudy Śląskiej. Ocena dotyczyła sprawności pływackiej jak również cech somatycznych kandydatów do klasy sportowej. Analiza wyników była wykona z zastosowaniem testu U Manna-Witneya, analizy ANOVA rang Kruskala-Wallisa i testu mediany, korelacji rang Spearmana. Analiza wyników wykazała, że chłopcy osiągnęli wyższy poziom sprawności motorycznej, zaś dziewczęta były efektywniejsze w pływaniu. Płeć istotnie różnicowała profile sprawności motorycznej. Cechy somatyczne oraz sprawność motoryczna nie determinowały poziomu sprawności pływackiej badanej grupy., natomiast sprawność motoryczna kandydatów do klas sportowych była uwarunkowana masą ciała. Zaprezentowana praca jest próbą szukania dróg optymalizacji stosowania testów selekcyjnych dla dzieci chcących uprawiać sport pływacki.

Słowa kluczowe: selekcja, zdolności motoryczne, cechy somatyczne, pływanie

Modern professional sport is a complex phenomenon with systematically increasing degree of difficulty. Competitors are faced with higher and higher requirements in consequence of which the level of results and records increases as well as simultaneously difficulty and complexity of sport competition grows. Effective participation in a sport competition requires proper preparation. A training process aimed at that purpose takes many years and is complex, multifactorial and multidimensional. It starts from the selection of young gifted candidates who during many years of training should obtain specialist qualifications enabling to achieve record results. Sport mastery requires a wide range of perfection within: somatic structure, energy and regulation functions of the system, psyche qualities, profile and level of motor skill, technical and tactical skill as well as theoretical knowledge (Sozański, 2005; Płatonow, 2000, 2004; Sachnowski et al. 2005).

The selection and orientation of competitors for a particular sport discipline should be performed within the framework of a systematic and multi-stage process of long-term training due to the low level of reliability of young age-related resultant forecasts. A complex approach while evaluating potential abilities of candidates for competitors is one of more important principles at qualifications (Płatonow, 2004; Sachnowski et al. 2005). During the initial selection for the disciple of swimming the following factors are of significance: evaluation of health condition, calendar and biological age, respiratory system, motor potential preferred in swimming. The following factors are of equal importance: proper evaluation of personality-psychic features of candidates, family traditions in sports, somatic features as well as specific predispositions for swimming related to "feeling for water".

As far as swimming is concerned the following fitness abilities are of basic relevance: stamina, strength and speed. Training practice proves also the importance of flexibility. A high level of fitness abilities and flexibility enables more effective learning and mastering of sport motor activities, ability to overcome water resistance in a longer period of time as well as the ability to use propulsion in the shortest possible time and in the most efficient manner.

In swimming, just like in most sport disciplines, coordinative abilities are of huge significance. They are of particular importance at first phases of sport development of a competitor as they contribute to faster and better mastering of sports skills and are conducive to effectiveness of the technical preparation process (Czabański, 2000; Płatonow, 2000, 2004; Raczek et al. 2003; Sachnowski et al. 2005; Frank, 2005).

The effectiveness of propulsive motions of a swimmer consists in correct representation of the technique and its continuous improvement till an individual "master technique" is achieved. It is worth emphasizing that fitness abilities constitute a specific motor potential, whereas coordinative abilities enable these potentials to be revealed in a particular sport activity (Czabański, 2000). Also the evaluation of somatic features plays an important role in qualifying for professional swimming. The qualification should take one's body type into consideration, i.e. slenderness or stoutness as the training practice shows the meaning of body type and its proportions that increases during consecutive phases of sports training.

Summing up individuals with suitable somatic body structure and optimum level of motor skills as well as swimming ability should be selected for sport swimming. Therefore, taking actions aimed at researching what candidates declare willingness to go in for swimming seems to be justified and interesting.

The objective of the paper was an attempt to evaluate motor and somatic level of candidates for sport-focused classes with extended curriculum in swimming.
The following research questions were asked:

1. What is the level of motor, swimming and somatic skills of candidates for the class with extended curriculum in swimming like?
2. Are there any differences in somatic-motor profiles depending on sex?
3. Are there any diversified relations between motor skill and somatic development of future swimmers ?
4. Does the motor skill collate with the level of their swimming skill?

Material and methods

One hundred ninety seven 10-year-old children (101 girls, 96 boys) being pupils of primary schools in Zabrze and Ruda Śląska took part in the research. Their level of motor skill was assessed by means of fitness tests evaluating: arm strength – a medicine ball throw (2kg), strength of legs – standing long jump, stamina – 600 meters, speed – 60 meters, suppleness – bend forward and agility – slalom run, static balance – two-leg-standing on the balance beam, dynamic balance – bench pivots, reaction rate – 3 meters run after a bend forward, motion frequency – two-legged jumps over the bench, kinaesthetic diversification of motions – catching a ball in a cup.

The level of swim skills of candidates was determined by means of a test prepared on the basis of swim skills by Dybińska (2002, 2004), whereas swimming technique was assessed by means of the point system. At evaluating basic swim activities and water jumps (depending on the level of performance) the subject could achieve from 0 – 3 points; at evaluating limb motions at a distance the subject achieved from 0 – 5 points (2 extra points could be given for swimming the distance of 15 meters). The highest number of points (maximum 10 points) was given for swimming the distance of 25 meters in correct technique of front and back crawl. The following elements were judged: body position in water, alternating limb work, bending legs in knee joints, feet position, moving arms over water, palm downsweep and upsweep as well as breathing and coordination of movement. The subject could achieve for each correctly performed technical element 1 points, whereas 2 extra points for swimming the distance of 25 meters.

Summing up the results of particular tests allowed to determine the level of swimming ability and to create fitness groups of pupils according to the following criteria:

0 – 10 points – poor level, fitness group – “1”,
11 – 20 points – medium level, fitness group – “2”,
21 – 30 points – good level, fitness group – “3”,
31 – 39 points – very good, fitness group – “4”.

For the purpose of fuller evaluation of subjects also measurements of basic somatic features were carried out, namely of body mass and height.

On the grounds of data received the body slenderness index (BSI) was calculated according to the following formula:

$$BSI = \frac{\text{height}\,[\text{cm}]}{\sqrt[3]{body\ \ mass\ \ [kg]}}$$

as well as the body mass index (BMI) according to the following formula:

$$BMI = \frac{\text{body mass}\ \ [\text{kg}]}{height^2[m]}$$

Measurement data gathered in the computer database were subjected to adequate statistic procedures. The statistic analysis included: the descriptive analysis, Mann-Whitney U test, ANOVA analysis, Kruskal-Wallis analysis of variance by rank and median test, Spearman rank correlation. The set of values of standardized parameters defining motor skill was assumed as the profile of motor skill. The standardization conducted was related to average values and standard deviations organized according to sex. Signs of standardized variables, namely 6o and 600 meter – run and slalom run were reversed.

Research results

The level of swimming skills of candidates for sports-focused class with extended curriculum extended is presented in figure 1. Results obtained (tab. 1) show that the level of swimming ability among the subjects varied. Among girls the highest level of very good – "4" was represented by 52.8% of the subjects, the swimming ability on the level of good ("3") – 31.5%; whereas 12.5% obtained results on the medium level ("2"). In the group of female candidates there were also girls with the swimming skill on the level of "1" – 3.4%. the level of swim skills of boys was similar to that of their female peers. The highest level of swim skills ("4") was achieved by 45.2% of the subjects, the level of good ("3") – 31.5%; whereas 16.4% obtained results on the medium level ("2"); 6.9% of pays swam poorly (level "1"). Thus, it may be concluded that most candidates (girls and boys) had swim skills on the level of very good (49.4%) and good (31.5). The direction of results obtained shows that girls with slightly higher level of swim skills than boys participated in the recruitment to a sport-focused class.

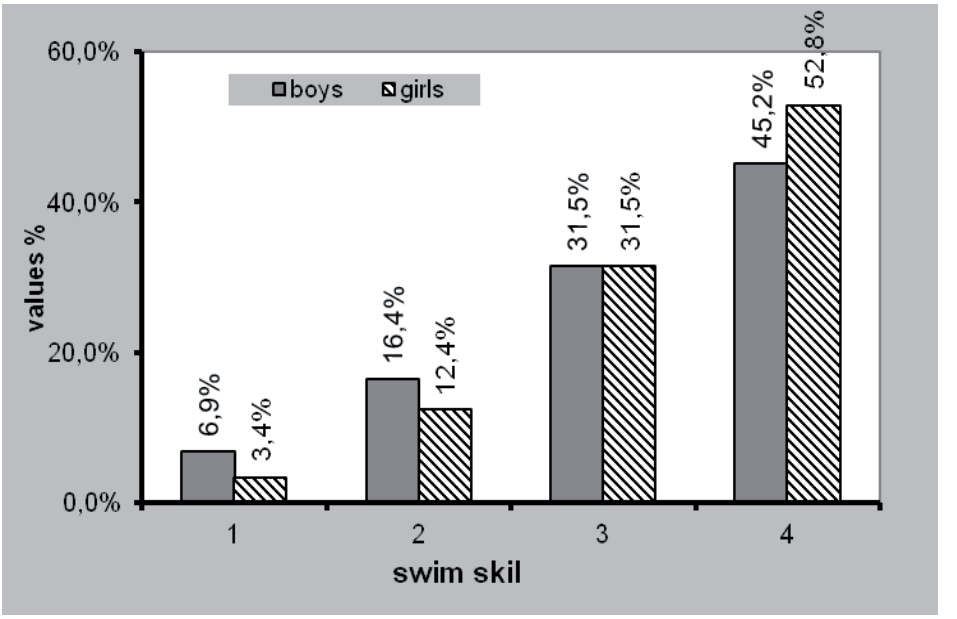


Fig. 1. Level of swimming skills

Swim skills did not diversified the subjects in terms of sex, neither were statistically significant differences among particular fitness groups reported in the group of girls and of boys.

The correlation analysis (Spearman's rank correlation) of swim skills with somatic features did not show any statistically significant difference in the group of girls and of boys. The results of the correlation of swim skills and motor skills show a small relation of these two variables. Significant relations cab be seen in the group of girls as regards the kinaesthetic diversification of motions and stamina, whereas in case of boys only when compared to arm strength.

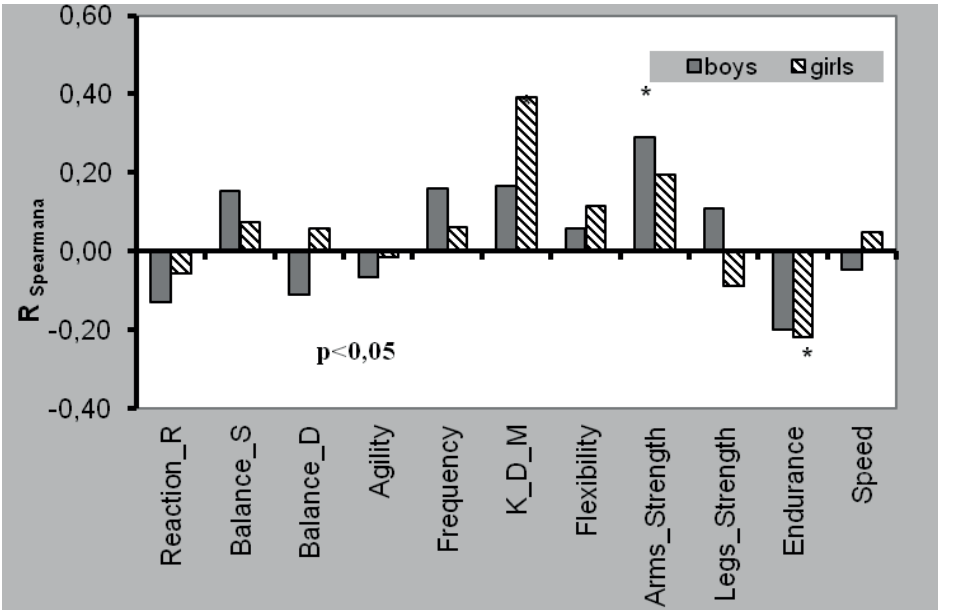


Fig. 2. Correlations between swim skills and motor skills

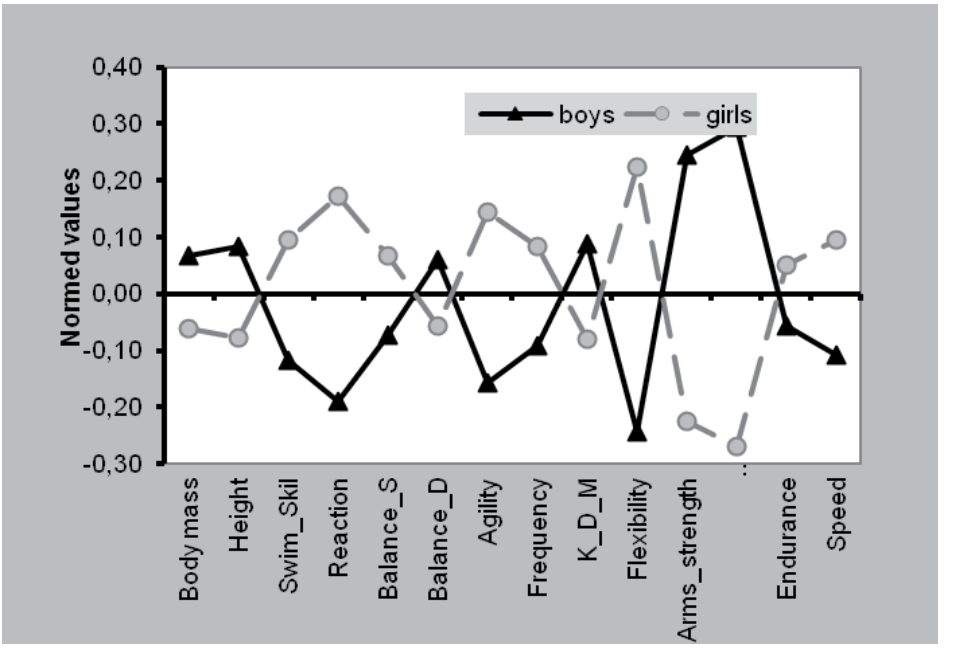


Fig. 3. Somatic and motor profiles of candidates for sport-focused class with extended curriculum in swimming

The results of the comparative analysis of motor and swim skills as well as somatic features (somatic-motor profiles, Fig. 2) show that boys dominated in terms of somatic features, arm and leg strength, dynamic balance and the kinaesthetic diversification of motions.

Whereas the analysis based on Mann-Whitney U Test (tab. 1) showed that sex diversified the subjects significantly within the scope of: reaction rate, static balance, agility, arm and leg strength as well as flexibility. No statistically significant difference in somatic features compared was reported among the subjects.

Tab. 1. Values of Mann-Whitney U Test

Variable	Sum.rang	Sum.rang	U	Z	Level p	Z	Level p
	m	f				correction	
SPR_PŁ Swim skill	5616	7587.00	2915.00	-1.12	0.26	-1.22	0.22
S_R Reaction rate	9323	12205.00	4373.00	-2.26	0.02*	-2.26	0.02*
RÓW_ST Static balance	9435	12093.50	4484.50	-2.00	0.05*	-2.00	0.05*
RÓW_DYN Dynamic balance	10562	10966.00	5080.00	0.62	0.54	0.63	0.53
Agility	9308	12220.50	4357.50	-2.30	0.02*	-2.30	0.02*
Frequency	9732	11796.50	4781.50	-1.31	0.19	-1.31	0.19
Kinaesthetic diversification of motions	10797	10731.50	4845.50	1.16	0.25	1.17	0.24
Body Mass	10820	10708.00	4822.00	1.22	0.22	1.22	0.22
Height	10834	10694.50	4808.50	1.25	0.21	1.25	0.21
Flexibility	8821	12707	3871	-3.42511	0.00**	-3.48	0.00**
Arms strength	11593	9935	4049	3.01163	0.00**	3.01	0.00**
Legs strength	12164	9364	3478	4.33801	0.00**	4.34	0.00**
Endurance	9558	11970	4608	-1.71313	0.09	-1.71	0.09
Speed	8468	10447	4190	-1.28425	0.20	-1.28	0.20
*p<0,05							
**p<0,005							

The analysis of body proportions shows that 60% of the subjects represented medium built, whereas only 15-18% (boys, girls) – wide built. The average of slenderness index for boys amounted to 42.94; for girls – 43.06. Whereas, BMI for girls was 17.9, for boys – 18.1 .

The paper was also an attempt to find out whether the level of motor skill depended on somatic features. Correlations of somatic features with motor skill showed stronger relation with body mass. The results obtained in the course of the analysis inform that body height determined motor skill of boys to a smaller extend than of girls. In the group of boys significant correlations were only reported in respect of dynamic balance, whereas in case of their female peers – in respect of reaction rate, static balance, agility and arm strength. Body mass proved to be significantly correlated with motor skill (Fig. 4) – it refers to most motor skills evaluated. These correlations in case of girls were related to reaction rate, static and dynamic balance, agility, frequency of motions, arm and leg strength as well as speed. The strongest correlations were reported in respect of static balance, agility and speed. In the group of boys there were the strongest correlations between body mass and reaction rate, static and dynamic balance, agility, leg strength, stamina and speed.

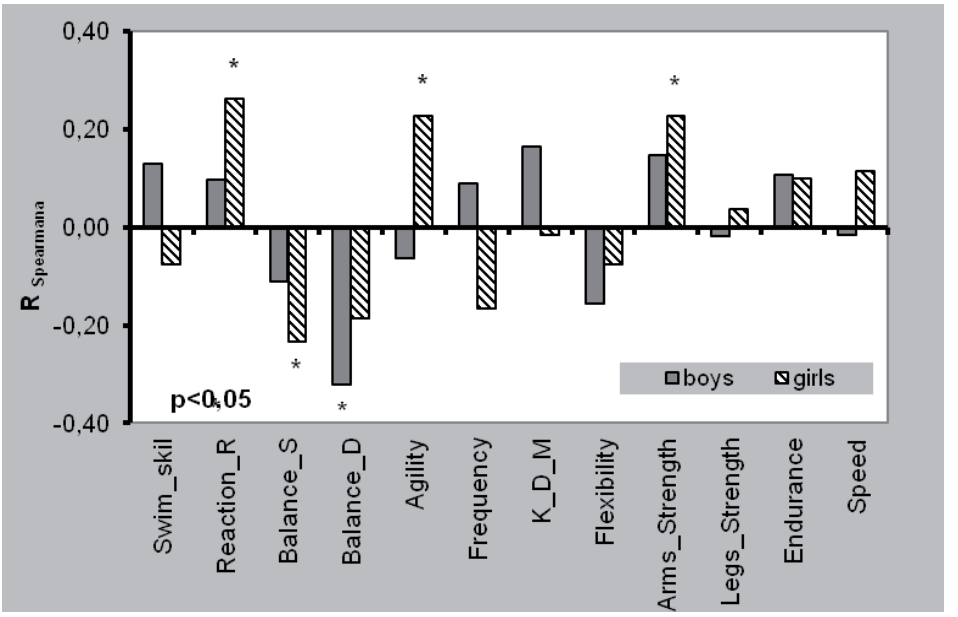


Fig. 4. Correlations between body height and motor skills

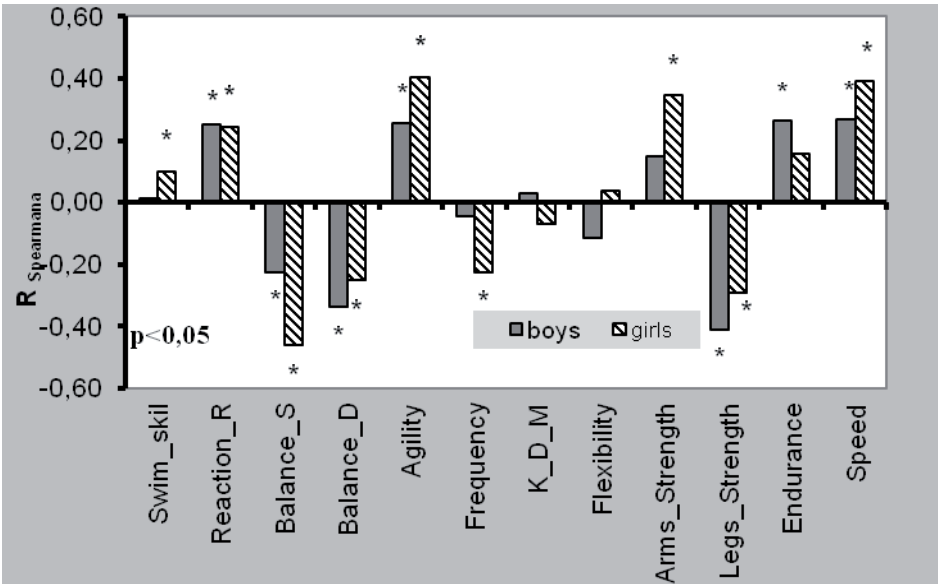


Fig. 5. Correlations between body mass and motor skills

Tab. 2. Descriptive statistics for boys

Variable	Average	Median	Min.	Max	Stand. deviation	Coefficient of variation	Skewness
SPR_PŁ Swim skill	3.15	3	1	4	0.94	29.77	-0.83
S_R Reaction rate	1.75	1.76	1.29	2.24	0.20	11.26	0.12
RÓW_ST Static balance	5.99	3.78	1.00	30	6.15	102.68	2.42
RÓW_DYN Dynamic balance	4.11	4	1	8	1.52	36.92	0.20
ZWINNOŚĆ Agility	9.01	8.92	7.30	11.92	0.87	9.65	0.39
CZĘSTOT Frequency	33.62	34	14	49	7.43	22.10	-0.25
K_R_R Kinaesthetic diversification of motions	3.95	4	0	13	2.93	74.16	0.78

MASA Mass	36.46	36	22.9	64.5	7.66	21.01	0.74
WYSOKOŚĆ Height	141.41	141	125.5	160	7.02	4.96	0.18
GIBKOŚĆ Flexibility	2.31	2	0	6	1.66	71.66	0.40
SIŁA_RR Arm strength	3.93	3,8	1.5	7.2	1.19	30.19	0.45
SIŁA_NN Leg strength	1.37	1.38	0.5	1.95	0.26	19.07	-0.39
WYTRZYM Stamina	180.12	192.2	0	302.31	68.84	38.22	-1.58
SZYBKOŚĆ Speed	11.92	11.8	9.66	15.8	1.14	9.55	0.86

Tab. 3. Descriptive statistics for girls

Variable	Average	Median	Min.	Max	Stand. deviation	Coefficient of variation	Skewness
Swim skill	3.34	4	1	4	0.82	24.72	-1.08
Reaction rate	1.83	1.805	1.4	2.78	0.22	12.24	0.94
Static balance	6.81	4.96	0.93	30	5.74	84.22	1.89
Dynamic balance	3.95	4	1	7	1,19	30.22	0.16
Agility	9.28	9.245	5.98	11.83	0.90	9.66	-0.15
Frequency	34.86	36	16	50	6.88	19.72	-0.49
Kinaesthetic diversification of motions	3.47	3	0	11	2.78	80.16	0.61
Mass	35.44	34	22.6	63.4	7.97	22.48	1.00
Height	140.30	140	126	160	6.69	4.77	0.44
Flexibility	3.08	3	0	6	1.55	50.39	-0.20
Arm strength	3.43	3.4	1.5	5.8	0.85	24.78	0.12
Leg strength	1.23	1.225	0.5	2.05	0.22	17.46	0.24
Stamina	187.62	199.225	0	265.31	69.39	36.98	-1.90
Speed	12.17	11.93	10.16	16.97	1.24	10.15	1.11

Conclusions

The analysis of the material gathered in the course of research allows to conclude that:

1. Boys showed a higher level of motor skill, whereas girls a higher level of swim skill.
2. Sex of the subjects diversified their profiles of motor skill. Statistically significant differences were reported in respect of reaction rate, static balance, agility, flexibility, arm and leg strength.
3. Somatic features and motor skill did not determine the level of swim skill of the sample group.
4. Motor skill was conditioned by body mass.

Discussion

The recruitment of children and youth to swimming should be based not only on an initial selection, but most of all it should be a long-term and multi-phase process incorporated into the entire system of swimming education (Wieczorek, 2001; Sachnowski et al. 2005; Płatonow, 2000, 2004). As the training practice shows selecting a future champion already at a younger age is not easy. Many issues need to be dealt with, numerous questions need to be answered, doubts concerning a proper selection procedure of individuals for swimming should be resolved and simultaneously these actions require caution and consideration.

Many authors emphasize that both fitness and coordinative abilities as well as somatic features play a significant role in swimming (Kunicki, 2004; Raczek, 2003; Sachnowski et al. 2005; Dybińska, 2004; Wieczorek, 2001). The presented research does not show any relation between motor skill and swim skills. However, it is supposed that the reason of this lack of relation is the swim skills of the subjects as persons with various levels of swimming ability took part in the recruitment.

Obviously, age at which children commence their swimming training is a significant factor in swimming qualification. It is assumed that the recruitment for sport-focused class with extended curriculum in swimming should take place when children are 8-9 years old. The sample group of children was 10 years old, the delay in the recruitment to a sport-focused class resulted from assumptions and the organizational plan of the self-government body as well as the access to the sport-recreational centre. The aforementioned situation does not allow to refer fully all results obtained to the results of other authors dealing with similar issues.

The conducted research showed that somatic features significantly determined the level of motor skill of candidates for swimmers. It is worth noticing that somatic features are conditioned to a larger extend genetically and are least susceptible to effects of swimming training. The genetic conditioning of this diversification is also accompanied by impacts of social and economic factors. One of these factors is the place of residence, i.e. the so-called urbanization factor which is the resultant of social and economic modificators. Thus the results obtained were also evaluated against research data of children coming from various regions of the world. The comparisons show that the sample group of candidates for the class with extended curriculum in swimming was

characterized with the level of somatic development similar to the level of groups from different regions of Poland (Wieczorek, 2001; Dutkiewicz et al. 2004; Umiastowska, 2001; Saczuk, 2005; Chrzanowska, Gołąb, 2003; Gołąb, Chrzanowska, 2002; Stachura, 2004).

The research results were also referred to the population of children from Upper Silesia as they were evaluated by means of similar sets of tests. The comparisons showed that candidates for sport-focused class with extended curriculum in swimming looked better. Both somatic features and motor skill of children applying for classes with extended curriculum in swimming were on higher level than in the comparative group (Stachura, 2004; Szepelawy, 2000, 2002).

As the training practice in swimming shows early identification of a "talent" is not a guarantee of a sport success in childhood, not to mention adolescence or adulthood. Many variables determine a success, they are related to normal growth, maturing and development as well as sport education system. In swimming sector it is a frequent phenomenon that children who initially are very successful in their age group and after going to the next one fall down to the end of classification lists.

A proper selection for the discipline of swimming is a "starting point" to the further effective development of a swimmer and talent identification. Thus, in the situation when motor potential and skills of children are on a similar level it is worth seeking attributes that may increase their advantage over their rivals, namely relative body length and length of body parts (feet, palms, arms). They give a swimmer a "natural" advantage over other rivals providing such person with mechanical advantage in the development of propulsive power (Carter, Auckland, 1994).

The recruitment and selection of children for professional sports require a complex approach that needs to be remembered about. Tests and examinations should be selected in such a way so as to evaluate the level of motor skill globally and give a correct picture of abilities of each candidate. They should be helpful to determine to what extent a given candidate meets expectations and on what level the abilities of significance for a given discipline are. However, the specialization should not be the only decisive factor when evaluating suitableness of candidates in respect of selected motor skills – desirable in a given sport dissilience. Motor aptitudes are equally important and so is the willingness of children to do sports. Only afterwards the selection of candidates should be based on the narrow approach to the issue. This way it is possible to avoid omitting potentially talented competitors and discoursing them from doing sports (Czabański, 2000; Płatonow, 2000, 2004; Sachnowski et al. 2005; Raczek et al. 2003).

Tab. 4. Specification of results of selected indexes and body mass and height

Populations of children	Mass	Height	SI	BMI	Mass	Height	WS	BMI
	girls				boys			
children from Szczecin voivodeship (Umiastowska 2001)	34.6	142.5			38.6	145		
children from Kielce voivodeship (Dutkiewicz 2004)	33.13	140.03			33.7	1.39		
children from Krakow voivodeship (Chrzanowska 2003)	34.5	139.9	43.3	16.5	35.4	140.9	43.3	17.7
children from Łódź voivodeship (Wieczorek 2001)	34.59	141.35	43.54		34.56	141.18	42.51	
children from Lublin voivodeship (Saczuk 2005)	34.63	143.44	44.26	16.68	34.55	142.54	43.55	16.89
children from Silesia voivodeship (Stachura 2004)	33.03	137.77			32.5	139.09		
Own research	35.44	140.30	43.13	17.89	36.46	141.41	42.72	18.13

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Elvira R. Rumyantseva[1], Teresa Socha[2], Monika Socha – Masztafiak[3]

[1]Bashkir Institute of Physical Education, Ufa, 450077, Republic of Bashkortostan, Russia
[2]Department of Individual Sports, The Jerzy Kukuczka Academy of Physical Education in Katowice, Poland
[3]Doctoral studies The Jerzy Kukuczka Academy of Physical Education in Katowice, Poland

Hormonal status of female athletes of speed - power sports in period of intensive training

Zmiany poziomu hormonów u zawodniczek trenujących szybkościowo – siłowe dyscypliny sportu

Summary
The article presents the characteristics of the hormonal status of female athletes on the background of many years of intensive training of speed-power orientation. The possible mechanisms and causes of reproductive disorders of weightlifting athletes, acrobats and gymnasts are observed. Based on the data of hormonal status it is indicated the most favorable age for the girl's sport career beginning in speed-strength sports.

Key words: female body, antigen, hormonal status, intensive training activity, speed-strength sports.

Streszczenie
W pracy przedstawiono cechy układu hormonalnego kobiet - zawodniczek przez wiele lat intensywnie poddawanych pracy treningowo - szkoleniowej, ukierunkowanej na szybkość i wytrzymałość. Ukazano niektóre z możliwych mechanizmów i przyczyn zaburzeń reprodukcyjnych u zawodniczek, specjalizujących się w podnoszeniu ciężarów, akrobatek i gimnastyczek.

Słowa kluczowe: organizm kobiety, układ hormonalny, intensywność treningu, sporty szybkościowo - siłowe.

Introduction

The desire of women to achieve high results, as well as the fact that without progress in this area, no country can join the group of leaders in the Olympics, promotes the role of women's sports (Jordanskaya, 1992). This explains the fact that in recent years, there is a tendency towards convergence of content, volume and intensity of training loads of men and women (Medvedev, 1997; Socha S, Socha T., 1999). At the same time, the maximum focus on individual characteristics of athletes, the adequacy of the functional capacity of the planned training and competitive pressures, in such circumstances are of great potential for raising the efficiency of sports training.

In this regard, the physiological rationale for optimizing the training loads, taking into account features of the female organism, can be considered as an urgent problem, allowing to achieving high results with no risk to their health (Skierska, Socha et al. 1996; Shakhlina, 1993; 2000; Drinkwater et al. 1997; Lebrun 2001). This is due to the fact that in the theory and methodology of sports training, there are features that are unique to women, which lead to differences in the course of adaptive processes in the female body.

The antigen is especially expressed in a puberty, which ends in girls aged 17-18 and young men – 20-22 years. These age-related features is necessary to consider in constructing a sports training, particularly the temporal structure in the macrocycle of the "sports ontogeny." Girls are able to show good results for 2-3 years before boys, but because of the complex hormonal changes they have much more critical periods of development.

According to information received, the loads of modern sport, especially in species that require the development of speed-strength abilities in women cause functional changes. Without systematic integrated monitoring in order to confirm the rationality of the construction of training loads and the possibility of adjusting them, you can not build a model-targeted training program of athletes in such sports.

In this case, methodology for assessing the functional state in women's sport on the criteria of efficiency of cardiovascular and respiratory systems in speed-strength sports, which proposed in the works of some authors, are also ineffective. This is due to the fact that in sports like weightlifting, gymnastics, sports acrobatics, etc. most of the work is fulfilled on the breath and straining in a very short period of time. According to (Gaverdovsky, 1979; Vorobyev, 1989;, Hagberg et al. 1983; Stone, 1990; Patsha, Gilmore et al. 2004) the representatives of these sports' changes in the cardiovascular and respiratory systems are small and differ little from those of healthy people who are not involved in sports. In this regard, there is a need to find better criteria for evaluating the functional state of athletes for the representatives of these sports.

In connection with the foregoing, it seems urgent to systematize the functional characteristics' features of the state of female-athletes' hormonal status, physiological study of speed-power load's influence in their bodies, the definition of progressive approaches to achieve adequate pedagogical influences dimorphic specificities deployment of adaptive processes in the female body under the influence of specific coaching loads.

Organization of the study and characterization of subjects

To assess the state athletes in sports of speed-power orientation, and also taking into account the particular relevance of accounting medical and biological characteristics of the organism during physical exercise, we have carried out studies on the representative of the three sports - weightlifting, gymnastics and sports acrobatics. By the nature of training activities, these activities can be classified as such modes, which are already at the initial stage of preparation is very important the development of speed-strength.

The purpose of this study was to identify differences in hormonal status and adaptive response of the athletes' organism on the background of intense speed-power loads in similar by the mechanism of effects on the body sports. A sports qualification of all athletes was not below the Candidate Master of Sports. Age - 18-20 years. We examined 86 female athletes, who were classified, in-depth medical examinations, to the first group of health.

Traditionally, to the first group of health on the basis of a comprehensive assessment of the state include healthy people who have no abnormalities on all grounds of health: who were not ill, or occasionally sicken during the observation period, with the normal physiological and psychological development, with no deformities, injuries and

functional disorders. There can be isolated carious teeth, a positive reaction of Pirke with no signs tube intoxication, hypertrophy of tonsils of first degree, an increase in thyroid cancer of the second degree, without violation of its function. That is a fairly homogeneous contingent, which does not need rehabilitation.

According to the results of the survey, the acrobats' average age in the beginning of long-term athletic training was 8.83+1.01 years, gymnasts - 6.83+0.70 years and weightlifter - 8,75+2.02 years (Table 1). Most of the girls came immediately to the appropriate sport before any other sports were not engaged. That is, on the top of specialization, the earliest is gymnastics, girls in Bashkortostan in weightlifting and acrobatic come in about the same age. This is due to the fact that the sports schools on these sports usually recruit girls from the initial classes of comprehensive school.

Tab. 1. The questionnaire's data of various sports' athletes

The data of questionnaire	Groups		
	Acrobat (n=6)	Gymnast (n=6)	Weightlifter (n=6)
The beginning of sports specialization, age	8,83±1,01	6,83±0,70	8,75±2,02
Menarche, age	13,67±0,42	15,33±0,42	12,67±0,21
Menstrual cycle: normal, % abnormal, %	 75,4 24,6	 70,9 29,1	 86,5 13,5
Training in phase I and V CMC: with restrictions, % without restrictions, %	 33,3 66,7	 0,0 100,0	 18,8 81,2

One of the important parameters of sex, and, consequently, the general development - the age of menarche was the earliest in weightlifters - 12.67±0.21 years, which corresponds to the physiological norm of ordinary girls - not athletes, very late - in gymnasts - 15.33 ±0.42 years.

The duration of the female athletes' menstrual cycle is an average of 28-30 days, and the ovarian-menstrual phase is characterized by normal or heavy blood separation. The number of athletes who have violations of ovarian-menstrual function, which manifests itself in lengthening the cycle to 60-90 days was 29.1% among surveyed gymnasts, 24,6% - acrobats and 13,5% -weightlifters. Absolutely all athletes train in the critical days and only 33.3% of acrobats and 18,8% weightlifters reduce load on the state of health. None of the surveyed female gymnasts had not pointed out reducing the loads during the critical days, so perhaps it is among the representatives of this sport has the highest percentage of violations of the ovarian-menstrual function. These figures point out that the preparation of highly qualified athletes completely ignores physiological characteristics of the female body, which is an unfavorable sign, and worrisome for the future health of athletes.

In this case, none of the athletes face the problem of choosing the "sports or personal life, all of them choose sports. 28.6% of the respondents said that during the sports training they have formed such psychological qualities as aggressiveness and rudeness, but the vast majority has indicated only the development of such personality traits as dedication and patience. On the question of how they evaluate their appearance, only one athlete has given a negative assessment, 25.0% of respondents do not pay attention to their appearance, but 78,6% of respondents believe that "sport", "beauty" and "femininity" are compatible, so sports can be combined with a normal family life. 60.7% of females believe that after the sports career adaptation to life will be easy, as the sport gave them something that would help to arrange their lives. But 39.3% believe it will be hard to adapt to reality due to the fact that, after the athletic career, it will be much different from the lifestyle that they are now.

In order to study the long-term adaptation of high qualification athletes' hormonal status to significant speed-power loads in the competitive season, after an intensive eight-week training, we studied the serum levels of hormones for assessing the functional activity of individual systems: testosterone and cortical as indicators of activity of the adrenal glands, estradiol - ovaries, prolactin, luteinizing hormone (LH) and follicle-stimulating hormone (FSH) - the hypothalamic-pituitary system.

Blood sampling for biochemical analysis was carried out in the morning on an empty stomach in the follicular phase of the ovarian-menstrual cycle. In order to study the features of adaptation of the endocrine system of highly skilled athletes for intense speed-power loads after the eight-week training we have analyzed the serum levels of testosterone, cortisol, estradiol, prolactin, luteinizing hormone (LH) and follicle-stimulating hormone (FSH) by standard biochemical methods using appropriate sets of reagents produced by «Uniplan» on immunosorbent analyzer.

Results

Revealed by us the majority of athlete's violation of CMC (dysmenorrhea, oligomenorrhea) may point out on the one hand, a violation of the neuroendocrine function of the reproductive system on the background of many years intense speed-power load. Today, it is proved that the ovaries are very sensitive to physical stress - their hormones are involved in adaptive reactions of the organism.

On the other hand, data from studies (Soboleva, 1999) suggest that such a high frequency of irregularities in the functioning of genital system of qualified athletes is the result of selection of athletic somatotype, which has a combination of clinical signs of hyperandrogenism.

In order to study the features of adaptation of the endocrine system of highly skilled athletes for intense speed-power loads after the eight-week training we have analyzed the serum levels of testosterone, cortical, estradiol, prolactin, LH and FSH. It is known that secretion of most hormones is regulated by a mechanism of negative feedback. Table 2 presents data on hormone levels in athletes with normal menstrual function.

Tab. 2. The contents of hormones in the blood serum of athletes of different sports with normal menstrual function

Groups	Cortisol nmol / l	Testosterone nmol /l	Estradiol (FF), nmol /l	Prolactin IU / L	LH (FF) IU / L	FSH (FF) IU / L
Not involved in sports (n=20)	202,1±2,1	0,62±0,04	0,64±0,06	267,9±8,80	10,61±0,8	6,37±0,09
Acrobats (n=6)	401,43±3,02	1,58±0,24	0,41±0,09	196,63±7,29	3,59±0,86	3,88±0,54
Gymnast (n=6)	389,53±3,59	1,66±0,38	0,24±0,06	275,57±2,33	6,12±0,96	2,64±0,48
Weightlifter (n=6)	385,30±4,28	1,81±0,26	0,47±0,04	239,82±3,42	6,19±0,90	5,71±0,86
P_{1-2}	< 0,001	< 0,01	< 0,05		< 0,001	< 0,01
P_{1-3}	< 0,001	< 0,01	< 0,01		< 0,01	< 0,01
P_{1-4}	< 0,001	< 0,01	< 0,05		< 0,01	
P_{2-3}			< 0,01		< 0,01	
P_{2-4}					< 0,01	< 0,01
P_{3-4}			< 0,01			< 0,01

Note: P 1-2 - Significant difference in performance compared acrobats and those who not involved in sports,
P 2-3 - Significant difference in performance compared to the gymnasts, and those who not involved in sports,
P 1-4 - Significant difference in performance compared weightlifter and those who not involved in sports,
P 2-3 - Significant difference in performance compared acrobats and gymnasts,
P 2-4 - Significant difference in performance compared acrobats and weightlifter,
P 3-4 - Significant difference in performance compared to the gymnasts and weightlifter.

The study found that the surveyed athletes, as compared with the physiological norm of women who were not involved in sport, increased levels of cortisol and testosterone in serum significantly. The greatest level of cortisol was observed in acrobats - 401.43+ 3.02 nmol/l (p <0,001), and testosterone in weightlifting athletes -1.81+0.26 nmol/l (p <0,001). According to the theory of H. Selye, in any stress the adrenal glands play a major role in the adaptation to stressful situations (cold, pain or physical exertion). The leading role H. Selye assigns glucocorticoids (cortisol), but not androgens, the result of the impact can be masculinization.

High levels of androgens, which are antagonists of estrogen, may lead to suppression of pituitary functions of synthesis of gonadotropins. That is what we observed in the studied athletes. The level of LH and FSH in the serum of female athletes was lower than that of persons not involved in sports. Moreover, LH levels were lowest among acrobats - 3.59+0.86 IU/l (p <0,001) and FSH with gymnasts - 2.64+0.48 IU / l (p <0,001). Closest to the physiological norm values were detected in weightlifting athletes - 6.19+0.90 IU/l (p <0,001) and 5.71+0.86 IU/liter.

The level of estradiol in the blood serum was reduced in all examined our athletes, but also the smallest, as expected, due to low levels of gonadotropins of gymnasts on the average for the group 0.24+0.06 nmol / liter. This decrease in the concentration of gonadotropins, apparently, is that a functional basis, which leads to inhibition of ovarian function in female gymnasts, which leads to gipoestrogenem and gipoestrogen and, consequently, to delay sexual development, and abnormalities in reproductive functions. Lack of sufficient concentrations of estradiol and its metabolites may also cause a deterrent formation of estrogen-dependent trait, menstrual dysfunction.

The level of secretion of prolactin by pituitary was within normal limits in all the surveyed athletes on a par with those not involved in sports and was at acrobats - 196.63+7.29 IU/l, at gymnasts 275.57+2.33 IU/l, at weightlifting athletes 239.82 3.42 IU/l, with a mean of such persons not engaged in sports 267.9+8.80 IU/liter.

Because the symptoms of depression of ovarian function, reflected in reduced concentrations of estradiol and lower levels of gonadotropic hormones observed in the majority of our athletes surveyed higher education should be assumed that the cause of menstrual dysfunctions in these sports is, apparently, hyperandrogenic of hypothalamic origin.

An effect of physical exercise on the female body and, in particular, on the gonads, obviously, has a complex mechanism. Playing the role of age, which begin systematic training (for the gymnasts, they are the earliest), and the absence of a differentiated approach to individual athletes (all of them train in full force and effect regardless of the phases of ovarian-menstrual cycle and well-being). We should not deny also the influence of special exercises specific to each of the species of sport, and the original selection in the sports section of sportswomen who have inherited traits of hyperandrogenism (Soboleva, 1997). As it is known, the most rigorous selection of athletes is precisely in Section gymnastics.

Multivariate analysis of variance showed that the reason for such a low level of gonadotrophic hormones in female gymnasts, apparently, is also the earliest age of onset of training 5-6 years. Acrobats and weightlifters, which start career, later in 7-9 years, are in a better position. In this regard, from the standpoint of preserving reproductive function of girls this age should be considered as the most preferred for the start of the course speed-strength sports.

Thus, early sports specialization has a significant impact on the adaptive characteristics of the women. Data that characterizing the pleads correlation of sports specialization beginning and long-term process of adaptation are presented in Table 3.

Obtained by nonparametric statistics, correlation coefficients and levels of statistical significance suggests that the earlier a child begins to engage, the later menstruation starts (R =- 0,352), and subsequently the higher will be her achievements in sports -it is talking about its negatively closing communication age of early specialization by a factor of Sinclair (R =- 0,463) and the success of competitive activity, expressed in points (R =- 0,703).

Tab. 3. Correlation dependence of early sports specialization and indicators of long-term adaptation of weightlifter to loads of speed-power orientation (n = 28)

Indicators	R	P
Beginning of menstruation	-0,352	<0,04
Factor of Sinclair	-0,463	<0,02
The success of competitive activity	-0,703	<0,01
Estradiol	-0,586	<0,05
Prolactin	0,575	<0,04
LH	-0,433	<0,01
FSH	-0,429	<0,01

However, with early specialization in adult female athletes on the background of intensive training load will be less suppressed functional activity of the ovaries - the coefficient of the relationship with estradiol (R =- 0,586) and the development of gonadotropin-releasing hormone - LH (R =- 0,433), with FSH (R =- 0.429).

Discussion

Glands of internal secretion play a leading role in the regulation of metabolic processes. Now it is established that the constancy of internal environment and the body's ability to adapt to environmental changes caused mainly harmonious interplay of various endocrine organs. Change of the secretory activity of a cancer necessarily affect the secretion of other glands, which causes a range of processes leading to the recovery of the initial stable state or to the emergence of a new level of balance between the components of the endocrine glands involved in these processes. This phenomenon is known in endocrinology as a "synergistic effect" according to Ingle, or the "interaction of hormones" according to Selye.

An example of such a relationship can serve as a system of "ovary - adrenal gland". These glands are closely related by common embryological origin. Apparently, the common origin determines the ability of the adrenal glands, along with corticosteroids, produce sex hormones. In addition, the adrenal cortex and ovaries are linked by common chemical structure of hormones produced by them.

In general, it should be noted that the maximum focus on individual characteristics of female athletes, the adequacy of the functionality of the planned training and competitive pressures, recreation, food, media recovery reserves are undoubtedly improve the efficiency of sports training.

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