

The level of leisure time physical activity of students vs. the health locus of control

Míra fyzické aktivity studentů ve volném čase versus těžiště kontroly zdraví

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Abstrakt

Dle teorie Locus of Control existuje závislost mezi těžištěm kontroly a prováděním aktivit směřujícím ke zdraví. Cílem této práce je ukázat vztah mezi úrovní fyzické aktivity studentů ve volném čase a těžištěm kontroly zdraví. Studie zahrnuje studenty z Polska, Slovenska a Ukrajiny. Jedná se o 3851 prezenčních studentů ve věku do 25 let studujících různé obory (technické, humanitní, lékařské, matematické a přírodní vědy ale také tělesnou výchovu). V této studii byly využity dva výzkumné nástroje: škála MHLC formulář B (The Multidimensional Health Locus of Control Scale) a dotazník MLTPAQ (Minnesota Leisure Time Physical Activity Questionnaire). Poznatky byly zpracovány pomocí popisných metod a metody statistického vyvozování. Průměrná úroveň fyzické aktivity žen ve volném čase je přibližně o třetinu menší než u mužů. Studenti se střední úrovní fyzické aktivity (1000–1999 kcal/týden) tvořili největší procentuální podíl (32,5 %). Bez ohledu na pohlaví lidi s vyšší fyzickou aktivitou charakterizuje větší míra vnitřního těžiště kontroly zdraví. Spolu s nárůstem fyzické aktivity ve volném čase přibývá také vnitřního těžiště kontroly zdraví. V testované skupině představovaly největší procento osob s volnočasy fyzickými aktivitami pod doporučeným zdravotním standardem (pod 1000 kcal/týden) ženy.

Abstract

According to the theory of Health Locus of Control there is a correlation between the health locus of control and performing health-oriented activities. The aim of this work is to present the relationship between the level of students' leisure time physical activity and the health locus of control. The study covered students from Poland, Slovakia and Ukraine. It comprised 3851 full-time students, aged 25 or less, studying at different departments (polytechnics, humanities, medical studies, mathematics and natural science as well as physical education). Two research tools were used in the study: MHLC form B (The Multidimensional Health Locus of Control Scale) and Minnesota Leisure Time Physical Activity Questionnaire MLTPAQ. The findings were processed by means of descriptive methods and the method of statistical inference. The average level of leisure time physical activity of women is lower than men's by approximately one third. The students representing the medium level of physical activity (1000-1999 kcal/week) constituted the highest percentage (32.5 %). Regardless of gender, people with a higher level of physical activity are characterised by a higher level of internal locus of their health control. Together with the increase in the level of leisure time physical activity, the internal locus of health control increases as well. In the test group women constitute the highest percentage of people whose level of physical activity is below the recommended health standards (below 1000 kcal/week).

Klíčová slova:

fyzická aktivita, studenti, MLTPAQ, MHLC, životní úroveň

Keywords:

physical activity, students, MLTPAQ, MHLC, lifestyle, health locus of control

Introduction

The issue of physical activity, in the context of physical fitness, health, lifestyle and diseases of affluence prevention, constitutes currently the topic of interest for numerous scientific discussions as well as for research in this field (Drabik, 1996; Hasse, 2004; Drygas, 2005; Gorner, 2009). Regular physical activity is a key factor in healthy lifestyle, modifying and integrating in a direct or indirect way other factors of this lifestyle (Drabik, 2009). Lifestyle determines various types of activity and is a background, which is composed by an individual's experience, models of consumption and social connections. Apart from the environment, culture, family and the peer group, personal factors, understood as one's own convictions concerning health, its control, the need for preventive actions, one's own activity and the ability to deal with stress and difficult situations, constitute an important factor influencing one's lifestyle.

The Multidimensional Health Locus of Control Scale (MHLC) is a measure of an individual's belief in his/her responsibility for his/her own health. It measures the individual's convictions in three dimensions (types of health control), that is the internal one (the conviction that the control of my own health depends on me), the influence of powerful others (the conviction that one's health condition is the effect of the influence of others, mainly of the medical staff), and chance (the condition of health depends on chance or other external factors) (Wallston, 1978; Juczyński, 2001).

The sense of health locus of control is a factor that essentially influences the health-related behaviour of young people, for example the use of stimulants, while 'external-directedness' contributes to anti-health behaviours (Strzelecki, 2009; Gacek, 2007). It has been assumed that the internal health locus of control is connected with the attitude of a higher responsibility for one's health, which, in consequence, is favourable for health. The students characterised by the internal health locus of control are more autonomous in taking decisions, they more often get engaged in health-oriented activity and they have a higher level of responsibility for their own health (Łukasik, 2003; Sak, 2009).

The purpose of this work is, therefore, to present the connection between the level of leisure time physical activity of students and the health locus of control.

Methods

The material presented in this paper deals with students from Poland, Slovakia and Ukraine studying in the Carpathian Euroregion and is part of a far-flung research carried out within the project 'Activity for lifetime – Polish and Slovak platform for physical culture and student health promotion' – cofunded by the European Union through the European Regional Development Fund and by the national budget through the Carpathian Euroregion within the Cross-border Cooperation Operational Programme Poland-Slovakia 2007–2013 (Project number PL-SK/KAR/IPP/I/49)

Anonymous and voluntary surveys were carried out in 2010 with the consent of the Bioethics Committee of the University of Rzeszow (No. 1/02/2009). The tests covered 3851 full-time students, aged 25 or less and studying in various departments, including students from Poland (1198 men and 1700 women), Slovakia (221 men and 267 women) and Ukraine (208 men and 257 women). In the research two tools were used: MHLC form B (The Multidimensional Health Locus of Control Scale) and Minnesota Leisure – Time Physical Activity Questionnaire MLTPAQ. The MHLC scale contains 18 statements and comprises convictions regarding generalised expectation in three dimensions of health locus control, i.e. internal (I), powerful others (O) and chance (C). On the other hand, the MLTPAQ questionnaire enabled us to gather information about leisure time physical activity (apart from university classes), providing the value of energy expenditure in kcal/week. In the questionnaire the intensity of activity was divided according to a three-degree scale into activity of low intensity 'L' [≤ 4 MET], activity of medium intensity 'M' [4.5–5.5 MET] and activity of high intensity 'H' [≥ 6 MET]. Besides, the weekly calorie expenditure was categorised into the following levels: ≤ 999 (low), 1000–1999 (medium), 2000–2999 (high) and ≥ 3000 kcal/week (very high) (Taylor, 1978; Nowak, 2007). The findings were processed by means of descriptive methods and the method of statistical inference.

Results

Assuming that the level of leisure time physical activity may be conditioned by the field of studies (for example physical education), the analysis was performed considering the division of the test community into two groups: students of physical education and students of other departments such as polytechnics, medical studies, humanities, mathematics and natural science. The structure of the test group is presented in table 1.

Table 1. Structure of the tested community according to the subject studied in particular countries

Subject	Country			Total
	Poland	Slovakia	Ukraine	
Physical education	803 (27.7%)	25 (5.1%)	29 (6.2%)	857 (22.3%)
Others	2 095 (72.3%)	463 (94.9%)	436 (93.8%)	2 994 (77.7%)
Total	2 898	488	465	3 851

In table 2, the distribution of the MLTPAQ test results in the whole community was presented. The values of descriptive statistics were summarised both for the summary test results and for its elements. Then, the categorisation of MLTPAQ test results into the adjectival scale was performed and the numerical and percentage share of the people from particular categories in the whole test community was presented.

Table 2. Descriptive statistics values for the summary MLTPAQ test result

Test MLTPAQ	\bar{x}	Me	s	c25	c75	min	max
L (kcal/week)	758	585	662	304	1 014	0	8 861
M (kcal/week)	487	299	607	103	645	0	11 264
H (kcal/week)	889	473	1 140	160	1 162	0	9 558
Summary result (kcal/week)	2 133	1 690	1 647	979	2 807	0	13 004

The average level of physical activity in the whole tested community amounted to slightly above 2 100 kcal/week, and the median value (median) was nearly 1 690 kcal/week, which indicates quite a clear right-skew of the distribution of the results obtained. The median value is raised by the relatively few high values of the test, maybe of the MLTPAQ test, obtained by the physical education students or by other people practising sport actively. On the basis of the summary MLTPAQ test results, according to the criteria accepted, the tested people were classified into four groups of physical activity (table 3).

Table 3. Numeral and percentage presentation of the results according to the assumed categories of physical activity for the whole tested community

Level of physical activity (according to the MLTPAQ test)	Number	Percentage
low (0–999 kcal/week)	994	25.8%
medium (1 000–1 999 kcal/week)	1 252	32.5%
high (2 000–2 999 kcal/week)	759	19.7%
very high (3 000+ kcal/week)	846	22.0%

The students representing the medium level of physical activity constituted the highest percentage (32.5 %). The issues of diversity of the level of physical activity was analysed, taking into consideration the field of study, adopting the dichotomous division into the students of physical education and the students of all the other departments. Assuming that gender may also diversify that level, the analysis was carried out separately for women and men. The data summary comprises the descriptive statistics values and the result of the Mann-Whitney test by means of which the significance of the differences in the levels of students' physical activity was assessed, with regard to the field of studies (table 4).

Table 4. The level of physical activity according to the field of studies, with the field of physical education specified

MLTPAQ test (kcal/week)	Field of studies						p
	physical education			the others			
	\bar{x}	Me	s	\bar{x}	Me	s	
Women	2 215	1 777	1 732	1 676	1 340	1 232	0.0000***
Men	3 078	2 677	2 024	2 437	1 997	1 762	0.0000***

The analyses confirmed the previous assumptions and proved that the level of energy expenditure (and, consequently, the physical activity) of the physical education students is by several hundred calories higher than that of the students of other departments. That is why in the further analyses the group of physical education students was excluded, which resulted in the decrease in the size of the test group from 3 851 to 2 994. The correlation of the leisure time physical activity and the gender of the tested students was presented in table 5.

Table 5. The level of leisure time physical activity in kcal/week in the whole population according to gender

Gender	MLTPAQ test		
	\bar{x}	Me	s
woman	1 676	1 340	1 232
man	2 437	1 997	1 762
P_{M-W}	0,0000***		

The medium level of physical activity of women is by nearly 800 kcal/week (which is approximately by one third) lower than the level of men.

Table 6. The numeral distribution of the results according to the levels of leisure time physical activity for the whole community with regard to gender

Physical activity level (according to MLTPAQ test)	Gender (p = 0.0000***)		Total
	woman	man	
low	670 (33.9%)	188 (18.5%)	858
medium	721 (36.5%)	321 (31.6%)	1042
high	340 (17.2%)	219 (21.6%)	559
very high	247 (12.5%)	288 (28.3%)	535
Total	1 978	1 016	2 994

Among women, only every eighth person is classified into the highest level of activity, while there are nearly 30 % of such persons among men (table 6). Regardless of the gender, the people

with a higher level of physical activity are characterised by a higher level of internal health control (table 7, 8).

Table 7. Correlation of the health locus of control in the group of women according to the level of physical activity

MHLC scale	Physical activity level (according to MLTPAQ test)								p
	low		medium		high		very high		
	\bar{x}	s	\bar{x}	s	\bar{x}	s	\bar{x}	s	
Internal control	25.4	4.4	26.0	4.4	26.0	4.5	26.4	4.4	0.0055**
Powerful others	19.6	5.5	19.4	5.3	18.9	4.9	19.0	5.3	0.3058
Chance	18.9	5.2	18.6	4.9	18.8	4.9	18.5	5.1	0.5900

Table 8. Correlation of the health locus of control in the group of men according to the level of physical activity

MHLC scale	Physical activity level (according to MLTPAQ test)								p
	low		medium		high		very high		
	\bar{x}	s	\bar{x}	s	\bar{x}	s	\bar{x}	s	
Internal control	25.0	5.1	25.5	4.5	26.0	4.6	26.4	5.2	0.0042**
Powerful others	18.7	5.4	18.8	5.3	18.3	5.1	19.0	5.7	0.4364
Chance	18.3	4.5	19.0	4.7	18.5	5.0	18.2	5.0	0.3220

Discussion

The use of physical activity in order to maintain and improve health depends on its level. Sports Medicine Research Laboratory of the Medical University in Lodz considers 1000 kcal/week as the minimum energy expenditure on physical activity, even though the most beneficial effects were observed with the expenditure above 2000 kcal/week (Jegier, 2001).

In the presented study, the point of interest was to present the correlation between the level of leisure time physical activity of students and the health locus of control. The people characterised by the inner control are more responsible for their health, as well as for the recovery and rehabilitation process. They are more willing to undertake efforts in order to preserve their good state of being than the individuals with the external locus of health control (Sak, 2011).

In the population study of adult Welsh people a weak correlation was found between internal control and health-oriented activity, connected with undertaking physical activity in leisure time (Norman, 1997). Practising sports shapes the internal sense of control. According to research focusing on young people, even a 2-month-contact with sports activity influences the increase of the internal sense of control (Sankowski, 2001). However, in the study by Gruszkowska from 2012, carried out, among others, among the students of the University of Physical Education, it was found that the in the group of women practising sport the internal health control is statistically more significant than in the group of women practising physical activity in the recreational form. That is consistent with the reports from other authors. As results from the observations carried out among the team sport athletes and swimmers, women display the sense of external control to a higher degree than men (Sankowski 2001). With reference to scientific publications confirming the positive correlation between the field of study being physical education and the level of leisure time physical activity and the internal health locus of control, in order to obtain homogeneity of the group, students of physical education were excluded from further analysis. The correlation of the level of leisure time physical activity and the gender of the tested students was proved. This factor essentially differentiates this level. The average

level of physical activity among women amounted to 1 676 kcal/week and was by nearly 800 kcal/week lower than that of men (2 437 kcal/week). Among women, only one in eight persons is classified into the highest level of physical activity, among men there are 30 % of such people. Both among women and men, people with the medium level of physical activity, with the calorie expenditure of 1 000–1 999 kcal/week constitute the highest percentage. One in every three women was classified into the group with the lowest level of physical activity (under 1 000 kcal/week), which means that in the tested community 670 women did not obtain the physical activity results at the level compliant with the recommended health standards. The existence of a correlation between the leisure time activity level and the health locus of control was observed. Regardless of gender, people with the higher level of physical activity are characterised by the higher level of internal control of their health.

Conclusions

1. Together with the increase of the level of leisure time physical activity, the internal locus of health control increases as well.
2. In the test group women constitute the highest percentage of people whose level of physical activity is below the recommended health standards.

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