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Are patients with selected chronic diseases informed about the benefits of physical activity?

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Abstract

Introduction. The study aims to determine the level of awareness and meeting recommendations regarding physical activity in selected chronic diseases patients groups in eastern Slovakia. We further focused on the role of the physician and medical staff in providing recommendations on performing physical activity in the patients' treatment as well as meeting these recommendations by the patients. Material and Methods. The study comprised 893 patients (353 males and 540 females) of average age 54.24 years. The dominant condition for participating in the research was the occurrence of one or more diagnoses out of three underlying chronic diseases (cardiovascular disease, oncology disease, metabolic disease) that do not prevent physical activity. For data collection, a non-standardized questionnaire had been applied, as part of the questionnaire battery explicitly designed for the research. The results were analyzed in relation to the chronic diseases groups and gender. Results. More than 60% of the surveyed acknowledged the importance of physical activity in treating their diseases; however, only one-third of patients performed physical activity regularly. Nearly half of patients were provided only with general information concerning physical activity by their physicians. Similarly, half of patients received information from their physicians on the minimum requirements for physical activity and were aware of exercises to be carried out in the prevention and treatment of their diseases, but showed no interest in performing those. Differences in patients' awareness of PA within the individual chronic disease groups were significant. Gender-related differences were found significant only in particular cases. Conclusions. The study supports the importance of education and propagation of healthy lifestyle, inherently including regular physical activity.

KEYWORDS: physical activity, awareness, cardiovascular diseases, oncological diseases, metabolic diseases.

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Introduction

Physical activity (PA) is a critically underrated disease-prevention strategy that has widespread health benefits, not only in prevention of diseases in healthy people [2, 15, 23] but also in patients suffering from various chronic diseases [3, 4, 9, 13]. Numerous periodically updated recommendations have been adopted in this context. For illustration, the WHO health promotion recommendations [30] are relevant to cardiorespiratory health (coronary heart disease, myocardial infarction, and hypertension), metabolic health (diabetes mellitus and obesity), skeletal muscle health (healthy bones and osteoporosis), cancer (breast and colorectal cancer) and depression. These recommendations are based in particular on the PAGAC report [19] which summarizes the scientific background and explains the guidelines on physical activity.

At present, health-related objectives by WHO are becoming increasingly relevant since physical inactivity as a risk factor of the diseases mentioned above causes

9% mortality worldwide, thus being one of the highest risk factors of overall mortality [12, 30]. In the EU member states, 30% of the population does not perform physical activities such as cycling or gardening (the same applies to 19% of the population in Slovakia), and 42% do not exercise or practice any sport (it applies to 41% of the population in Slovakia) [8]. Physicians are often the primary source of information on healthy lifestyle, including regular PA [28], and are among the most effective means of inducing changes in patients' health behavior [9].

Although the effect of PA is well-documented, our research aimed to find out whether the information that patients have in the selected chronic disease risk groups is sufficient, and whether doctors play a leading role in the patients' awareness of appropriate PA. This study aims to determine the level of awareness and meeting recommendations regarding physical activity in selected diseases' risk groups in eastern Slovakia.

Material and Methods

Sample and procedure

The survey was conducted from 10/2018 to 2/2019 in outpatient clinics in eastern Slovakia and comprised patients from 19 cardiology, 14 metabolism, and 9 oncology clinics. We were given written permission from the representatives of all the clinics in advance to contact and approach patients. We randomly addressed 1,193 adult patients treated in these clinics, of whom 282 refused to participate in the survey. We further excluded another 18 patients for not meeting one or more of the essential criteria listed below. The criteria for participating in the research were met by 893 patients – 353 males (38.6%) and 540 females (61.4%). Among all participants, 8.29% patients acknowledged more than one chronic disease.

Patients were enrolled in the research after having met the criteria below:

- over 20 years of age,
- the occurrence of one or more diagnoses of three underlying diseases of affluence that do not prevent physical activity (cardiovascular disease, oncological disease, metabolic disease),
- diagnosis having been treated by a specialist for a minimum of 1 year,
- willingness to give informed consent to participate in the research,
- willingness to fill in questionnaires regarding physical activity and be provided information about physical activity for a given diagnosis.

Chronic disease included:

- cardiovascular diseases (CVD) – heart attack, including myocardial infarction, coronary thrombosis, and any other heart problems including congestive heart failure;
- oncological diseases (OD) – cancer of any subtype – cancer or malignant tumor, including leukemia or lymphoma;
- metabolic diseases (MD) – diabetes or high blood sugar, obesity, thyroid disorders.

Table 1. Survey sampling method

	Number of clinics*	Approached clinics	Clinics – consent	Number of patients over 19 years**	Patients – consent	Patients – refusal	Criteria not met
Cardiology clinics					384	107	14
Prešov region	36	7	3	136,030	48	24	6
Košice region	58	19	16	217,810	336	83	8
Diabetes and endocrinology clinics					407	91	4
Prešov region	39	9	6	167,107	182	28	0
Košice region	51	11	8	189,828	225	53	4
Oncology clinics					102	84	0
Prešov region	16	4	2	total***	13	32	0
Košice region	15	9	7	140,848	89	52	0

* including children's clinics

** data from 2017, taken from www.nczisk.sk; data from 2018 are currently not available

*** available are only joint data from eastern Slovakia

Table 2. Basic sociodemographic indicators of respondents involved in the survey (n = 893)

Education	elementary	vocational	HS graduate	university	
(%)	3.2	11.2	52.7	32.9	
Occupation	permanent	occasional	unemployed	student	retired
(%)	43.1	3.7	5.4	5.7	42.1
Occupation	sedentary	physically demanding		none	
(%)	37.1	15.4		47.5	
Residence	urban	rural			
(%)	65.7	34.3			
Age	21-30	31-40	41-50	51-60	61-70	71-80	81-90
(%)	10.6	7.2	17.4	16.9	28.9	16.2	1.8
Duration of HP*	0-5 years	6-10 years	11-15 years	16-20 years	21 and more years		
(%)	32.9	31.2	18.9	10.0	6.8		

* HP – health problem

Table 1 specifies the survey sampling method: the number of outpatient clinics in both regions of eastern Slovakia, the total number of clinics contacted and clinics which gave written consent. It also presents the number of patients treated for the diseases we monitored, the number of patients who gave written consent and the number of patients who refused to participate in our survey and of those excluded due to not meeting the inclusion criteria.

The average age of respondents was 54.24 years. The largest group consisted of patients with metabolic diseases, especially diabetes and obesity (n = 407; of which males = 165, females = 242), and patients with cardiovascular disease, primarily hypertension and arrhythmia (n = 384; of which males = 162, females = 222). The smallest group was comprised of oncological patients (n = 102; males = 26, females = 76). Other sociodemographic indicators are presented in Table 2.

Measures

All relevant data were collected using a non-standardized questionnaire, part of a questionnaire battery explicitly designed for this research. Most of the questions applied were selected from previously validated or tested tools, such as the Behavioral Risk Factor Surveillance System developed by the Centre for Disease Control and Prevention [6], and the International Physical Activity Questionnaire [11]. The questionnaire contained 29 questions and was designed for a total completion time of 20 minutes.

The majority of questions included were closed-ended, with the option for respondents to elaborate on a certain response, and were of a factual nature. The first seven questions focused on sociodemographic indicators, 4 questions covered patients' medical condition and awareness of their medical condition, 14 questions dealt with PA (including the short version of IPAQ) and awareness of PA, and 4 questions focused on selected lifestyle factors.

The research was approved by the UPJŠ Ethics Committee (PJSU-1/0825/17).

Statistical analyses

Processing statistical data was performed using IBM SPSS version 23 (Reference: IBM Corp. Released 2015. IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY). Pearson's Chi-Square Test was used to determine differences in the actual frequency of the occurrence of attributes. Since excess numbers of comparison categories do not allow reliable interpretation, the value of χ^2 at certain questions was calculated from dichotomized responses (Table 3). Testing the statistical hypothesis was performed at the significance level of $\alpha < 0.05$. The results were stratified by disease groups and by gender.

Table 3. Frequency after dichotomizing the answers to the questionnaire questions

Questions	Analysis of response frequencies from dichotomized questions	
a) PA influence on medical condition	definitely yes	cannot say I have not thought about it rather no than yes not at all
b) Information from the physician on the importance of PA	the questions were not dichotomized	
c) Physician recommendations on PA and its realization	yes, regularly yes, but do not feel like it	no + warning against PA no, not even discussion
d) Patients' awareness of minimum requirements on PA	yes, informed	not important no, but interested no information not interested
e) Patients' awareness of suitable exercises	yes	no, but interested not aware not interested
f) Daily PA	the questions were not dichotomized	

Results

Table 4 summarizes patients' approach to PA – subjective responses to questions: what influence PA had on their health condition, what PA related information they obtained from the doctor and medical staff and whether they applied the information in real life. Besides that, it presents the extent of patients' information on the minimum PA requirements and whether they are aware of suitable exercises matching their diagnosis. The results further contain subjective information on PA performed daily. The definition of PA was presented to the patients, following WHO recommendations [30], as any bodily movement that requires energy expenditure. All relevant data were stratified according to disease groups and gender.

Based on the results, we can conclude that most patients were aware of the importance of PA in treating their diseases. This concerns about 60% of the CVD group, and more than 70% of the MD and OD groups (Table 4a). The difference was statistically significant ($\chi^2 = 11.315$, $p < 0.05$). In all cases, the importance of PA was recognized mostly by males rather than females. However, in neither case were the differences statistically significant. Almost 20% of patients in the MD and OD groups were unable to assess the influence of PA on their health condition, compared to 10% in the MD group.

Patients whose PA is not limited by their medical condition should be encouraged to regular PA by their physicians and be informed about the importance of PA in treating their medical condition. Almost half of the patients in our survey obtained only general information regarding suitable PA (Table 4b). Considering the questions' complex character, we did not merge the responses when comparing the answers. We found a difference between the OD group and the two other disease groups ($\chi^2 = 22.705$, $p < 0.05$). Because of the number of responses, this interpretation cannot be considered reliable though. Almost one-third of the patients in our survey received sufficiently detailed information, predominantly females from the CVD and MD groups and males from the OD group. We further found gender differences in this respect, significantly in the CVD and MD groups. However, we found significant differences only at having merged medical conditions ($\chi^2 = 10.634$, $p < 0.05$).

Almost 50% of patients in the three chronic disease groups received recommendations on PA from their physician but were not interested in doing PA (Table 4c). In the MD group, it was more than 50%, in the OD group only 27.5% ($\chi^2 = 12.705$, $p < 0.05$). However, in the OD group, we recorded the highest number of people who had never discussed the importance of PA with their physician (45%). Despite significant differences between genders, those were not statistically significant. More than 65% of patients in the OD group obtained information on the minimum requirements for PA (Table 4d). In the CVD group it was only less than 45% and in the MD group almost 47% ($\chi^2 = 14.632$, $p < 0.05$). Some considered such information irrelevant (15%), or they showed no interest in such information at all (4%). The most significant inter-gender differences (CVD $\chi^2 = 10.986$, $p < 0.05$; MD $\chi^2 = 11.583$, $p < 0.05$) were reported in these particular questions.

Table 4. Distribution of chronic diseases patients, approach to PA stratified according to health problems and gender (%)

	CVD			OD			MD			Total
%	M	F	total	M	F	total	M	F	total	
n	162	222	384	26	76	102	165	242	407	893
a) PA influence on medical condition										
definitely yes	61.5	59.9	60.6*	76.9	68.4	70.6	75.9	69.6	72.1	67.0
cannot assess	15.5	20.8	18.6	11.5	19.7	17.6	8.5	12.1	10.7	15.5
I have not thought about it	17.6	13.4	15.1	7.7	3.9	4.9	13.5	15.0	14.4	13.0
rather no than yes	4.7	4.5	4.6	3.8	3.9	3.9	1.4	2.8	2.3	3.3
not at all	0.7	1.5	1.1	0.0	3.9	2.9	0.7	0.5	0.6	1.2
b) Information from physician on the importance of PA										
yes, detailed info.	23.0	29.2	26.6	30.8	25.0	26.5	22.7	32.2	28.5	28.6
yes, general info.	52.0	43.1	46.9	42.3	39.5	40.2*	55.3	46.3	49.9	46.8
I have not thought about it	6.1	5.4	5.7	0.0	1.3	1.0	7.8	61	6.8	5.8
rather no than yes	12.8	13.9	13.4	11.5	25.0	2.6	10.6	9,3	9.9	12.9
not at all	6.1	7.4	6.9	11.5	9.2	9.8	1.4	5.1	3.7	5.9
others	0	1.0	0.6	3.8	0	1.0	2.1	0.9	1.4	1.0
c) Physician recommendations on PA and its realization										
yes, regularly	20.9	32.7	27.7	26.9	18.4	20.6	18.4	23.8	21.7	23.3
yes, but do not feel like it	48.0	37.1	41.7	19.2	30.3	27.5*	51.1	50.5	50.7	40.0
no + warning against PA	4.7	5.4	5.1	7.7	5.3	5.9	6.4	6.1	6.2	5.7
no, not even discussion	26.4	24.3	25.1	46.2	44.7	45.1	20.6	18.2	19.2	29.8
others	0.0	0.5	0.3	0.0	1.3	1.0	3.5	1.4	2.3	1.2
d) Patients' awareness of minimum requirements on PA										
yes, informed	39.2	48.5	44.6	57.7	68.4	65.7*	36.2	53.7	46.8	48.2
not important	11.5	16.8	14.6	15.4	9.2	10.8	29.1	19.2	23.1	17.8
no, but interested	12.8	12.4	12.6	19.2	13.2	14.7	17.0	11.2	13.5	13.3
no information	32.4	17.8	24.0	7.7	6.6	6.9	12.1	10.7	11.3	16.2
not interested	4.1	4.5	4.3	0.0	2.6	2.0	5.0*	4.7*	4.8	4.2
others	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.5	0.6	0.2
e) Patients' awareness of suitable exercises										
yes	36.5	49.5	44.0	53.8	69.7	65.7*	39.0	52.8	47.3	48.2
no, but interested	21.6	18.8	20.0	11.5	19.7	17.6	25.5	18.7	21.4	20.3
not aware	39.9	28.2	33.1	34.6	7.9	14.7	33.3	27.1	29.6	29.2
not interested	2.0	3.5	2.9	0.0	1.3	1.0	2.1	1.4	1.7	2.1
other	0.0	0.0	0.0	0.0	1.3	1.0	0.0	0.0	0.0	0.1

f) Daily PA										
sufficient	33.1	36.6	35.1	42.3	28,9	32.4	24.8	39.7	33.8	33.7
insufficient	22.3	23.8	23.1*	23.1	38.2	34.3	33.3	27.1	29.6	29.0
cannot assess	43.2	35.1	38.6	34.6	27.6	29.4	27.7	29.0	28.5	32.1
not interested in PA	1.4	3.5	2.6	0.0	1.3	1.0	4.3	1.4	2.5	2.0
none	0.0	1.0	0.6	0.0	3.9	2.9	9.9	2.8	5.6	3.0

Note: CVD – cardiovascular disease; OD – oncological disease; MD – metabolic disease
* statistical significance

According to our findings, patients with OD (66%) were the most knowledgeable about appropriate physical exercises for a given diagnosis, while CVD patients (44%) were least informed ($\chi^2 = 15.073$, $p < 0.05$). However, almost one-third of patients either did not get any such information or did not consider it (Table 4e). These responses showed once again significant inter-gender differences, statistically significant only in the OD group ($\chi^2 = 11.572$, $p < 0.05$). When merging the individual diseases, the gender difference was even more pronounced ($\chi^2 = 18.771$, $p < 0.01$). Subjective responses by the patients provided substantial information as to whether they considered the daily PA sufficient. More than one-third of respondents in the OD group admitted that their daily PA was insufficient, compared to about 20% in the CVD group. One-third of patients rated their daily PA as sufficient; almost one-third admitted that they could not assess their daily PA (Table 4f), while nearly 40% of CVD patients stated the same. Inter-gender differences were also apparent in this case, although they were only significant in the MD group ($\chi^2 = 17.137$, $p < 0.05$).

Discussion

People suffering from chronic diseases profit especially from regular PA [5, 17, 21, 24, 31]. PA may help maintain their independence and normal life functioning, improve psycho-sociological welfare and quality of life, ease the symptoms, and decrease or postpone comorbidities. This study aimed to determine the level of awareness and meeting recommendations regarding physical activity in selected disease risk groups in eastern Slovakia. At the same time, we focused on the role of the physician and medical staff in providing recommendations on performing physical activity as part of treating the patients, as well as meeting such recommendations by the patients.

This cross-sectional study conducted in patients with selected chronic diseases found that most patients are aware of the importance of PA in the treatment of their disease. We have also found that almost half of the patients received only general information from the physician about the role of PA. On the other hand, nearly one-third of patients received very detailed information. Most patients in our research acknowledged being informed on the minimum requirements for regular PA – frequency, duration, and intensity of exercise, and they admitted awareness of appropriate physical exercises to prevent and treat their disease. However, during consultations we found that the reality was different. Only few patients knew about the safe and beneficial frequency, duration, and intensity of PA to be carried out during their treatment, and many were not aware of exercises appropriate for their diagnosis.

Physician counseling appears to be an effective tool for promoting physical exercise in order to modify harmful health behavior and improve overall health in different patients. Primary care providers, and particularly sport and exercise medicine physicians, have an important opportunity to make PA an integral component of the prevention and treatment of chronic disease [27]. It is an inherent role of the sport and exercise medicine physicians, and likewise, primary care physicians should include PA assessment and prescription as part of routine healthcare for patients, and this should be a priority for training and education at every level of medicine. Based on a systematic review and meta-analysis of randomized controlled trials, Orrow et al. [18] found that physicians' support of PA in adults with chronic disease leads to small to moderate improvement in physical activity in 12 months period (probability ratio 1.42 (a 95% confidence interval of 1.17 to 1.73), with a difference of 0.25 (0.11 to 0.38)). These results are consistent with Dorsey and Songer [7], who monitored overweight and obese adults with diabetes mellitus. They found that counseling on healthy lifestyle strongly correlated with attempts at behavioral changes. As the authors point out, physician counseling on lifestyle behavior is the

first and critical factor in the patient's involvement in weight management. They play an important role in the dissemination of PA recommendations to a broad segment of the population. For illustration, over 80% of Canadians visit their doctors every year and prefer to get health information directly from their family physician [10]. Similarly positive were the results obtained by Tarasenko et al. [25], who examined the importance of health care providers' role in promoting preventive health behavior among cancer survivors. And perhaps the most excellent effects of PA were observed in CVD patients, as presented in Adams and Linke [1].

Unfortunately, though, most physicians do not regularly assess or prescribe PA as a part of routine care [14, 20], and even when discussed, few provide specific recommendations [23]. A survey conducted in 2006 revealed, for instance, that only 65% of obese patients were provided advice to lose weight by their physicians, and recommendations for physical activity are also rarely addressed [26]. The lack of physicians' interest to inform patients about the advantages of PA and follow-up inability to recommend PA matching their diagnosis may have various reasons. A significant barrier in supporting patients' physical activity seems to be physicians' lack of time. This fact might have caused the adverse outcomes related to physicians informing patients of the importance of physical activity. The fact that oncological patients are least informed may be due to the excessive occupancy of out-patient clinics, as well as a lack of doctors and nursing staff [16]. Crowds of patients in waiting rooms often prevent doctors from engaging in preventive measures other than primary care. This issue concerns most specialized centers for chronic diseases in Slovakia. The second reason for poor awareness is the insufficient personal approach of doctors. Physicians with interest in exercise and physical activity, according to Pojednic et al. [22], Tarasenko et al. [25], recognize the importance of recommending and counseling patients on exercise and physical activity.

Conclusions

Most patients in the selected chronic disease patients groups are aware of the importance of physical activity in treating their disease; however, very few perform physical activity regularly. Moreover, almost half of the patients reported obtaining only general information from their physicians. Despite the fact that most patients reported having relevant information on the minimum requirements for physical activity with respect to their diagnosis and limitations, the veracity of such fact was not confirmed in face-to-face interviews. The same applies to their awareness of suitable exercises. The above results underline the importance of further education and raising awareness related to a healthy lifestyle, inherently including physical activity. Such approach is important not only for the healthy population but also for people suffering from selected chronic diseases that do not prevent physical activity.

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