

HEALTH OF ADULTS THROUGH PRISM OF PHYSICAL ACTIVITY

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Summary: The aim of the research was to find out the realization of the physical activity among the middle-aged adults by the association with their health, retrospective of the factor contributing to the transfer of the physical activity to the adulthood. The monitored group consisted of 742 respondents of the middle-aged adults from the Southern Districts of Slovakia, of which 403 were the women (age = 37.2 ± 3.04 years) and 339 were the men (age = 36.5 ± 4.54 years) as the selection was deliberate. The monitoring was conducted by the three stages in 2014, through the so-called "Egészség és mozgás" - "Health and Movement" standardized, anonymous questionnaire, which consisted of 60 questions. Our findings point to the stated facts. The findings found the relationship between the health and fitness among the men ($r = 0.8300$), as well as among the women ($r = 0.7193$). The relationship between the physical activity and the feeling of health was recorded only among the men ($r = 0.8921$), while the relationship between the health problems and the feeling of health was also found among the men ($r = 0.739$), as well as among the women ($r = 0, 6714$). At the same time, the men perceive the importance of the physical activity, in terms of their health condition ($r = 0.8791$) more intense than the women. The physical education was significantly ($\chi^2 = 112.47$, $p < 0.01$) among the men (67.6 %, $n = 229$), opposite to the women (33.7 %; $n = 136$) contributed to the transfer of the physical activity from the school environment to the adulthood. The stated findings show that the targeted education of the population, even from the childhood with the other effective, preventive measures is very important.

Key words: Adulthood, education, physical activity, physical education, health.

Introduction

A current lifestyle of a human being has acquired a hypokinetic character, which has been manifested in the human beings movement regime, where an inadequate recommended volume of a physical activity generates favorable inputs and impulses to emergence of "civilization diseases", which have far-reaching consequences for a health of the human being (Prasad & Das 2009). Corbin & Pangrazi (2003) in this context, suggest that not only the volume of the physical activity of the human being is reduced but also the intensity as well.

The issues about a physical ability, in relation with the health, are at the beginning of our millennium one of the most up-to-date issues of a modern society. Foreign and domestic studies confirm that we have less movement than previous generations, as a result of which a level of the physical abilities decreases, a resistance of an organism to the diseases is reduced, an immunity of the organism is disturbed with a consecutive origin of health disorders, which results in economic consequences for a country itself, in terms of social and health insurance companies. The physical activity, in relation to a quality of life, lifestyle and health, shows close relationships (Nowak 1997). Pate & O'Neill (2008) agree with the stated facts, as well as suggest that a lack of physical activity significantly influences not only the physical ability and performance of the human being but also his/ her work performance and health condition (Borbély & Müller 2008; Blair et al. 2010; Nemček 2016; Nemček & Simon 2016).

In Slovakia is recorded a decline of the physical ability, not only among school but also among adult population, which is associated with a rising character of the health disorders. This is also evidenced by the health insurance statistics, where more than 60 % of the human beings target to a treatment of cardiovascular diseases, 20 % to a treatment of respiratory diseases, 15 - 18 % to a treatment of metabolic diseases, which have a rising tendency in the last two decades, not excluding disorders of musculoskeletal system (Pedersen 2009; Tomková & Palaščáková-Špringrová 2013; Gurín et al. 2016; Bendíková et al. 2016; Nemček 2017a, b).

A prevalence in Slovakia has recorded vertebrogenic diseases since 1990, which IASP (1990) defines as acute and chronic recurrent, persistent and painful spine conditions of degenerative or functional etiology, where a back pain is a symptom, not the disease itself, occurring in a childhood and an adolescence, manifesting in an adulthood as the vertebrogenic diseases which:

- are the main cause of the human beings incapacity for the work at 35 - 45 years of age,

- are placed in the 5th - 6th place in a cause of hospitalization,
- 60 - 90 % of the population had or have had vertebrogenic problems,
- within rehabilitation ambulances, 70 % of the patients in Slovakia have difficulties with the spine. This is the serious economic problem.

In Slovakia is currently 1.5 to 2 million overweight or obese human beings, of which up to 10 % (around 200 000) suffer from the highest degree of a disability and severe morbid obesity. The overweight and obesity with aging among men and women are increasing and by the age of 64, on average 47 % of the human beings have the overweight and 20 % of the human beings have the obesity. Risk factors of overall cholesterol have in Slovakia 43 % of the men and 40 % of the women of a productive age. The evident is increasing trend of a morbidity, based on diabetes mellitus II, in which since 2000 the number of treated diabetics increased by 27 %. The most vulnerable age group is between 50 - 69 years of age. At the age of 36 - 45 years, a hypertension is reported among 28 % of the men and 16 % of the women, as joint and spinal pains are ranging from 50 % to 80 % of the adult population. A cause of an ascending trend of the mentioned diseases among the adult population is: lack of physical activity, unhealthy eating, obesity and stress.

One of the priority tasks, which is throughout the life of human being is a health care (WHO 2005), while from each side is information "attacking" us about the healthy lifestyle. Despite, the lifestyle, in which there is no movement, has become an all-society problem, not excluding the adult population. The health is a category, which protection is also written in legislation. In Slovakia, it is the Act No. 355/2007 on Protection, Support and Development of Public Health The health has a multi-factor bio – psycho – social basis. While in the past, the health has been determined predominantly by an influence of biological patterns, it is now more and more clearly conditioned by social factors. The health cannot be obtained as genetically given unchangeable status. The genetic basis is only a biological potential, which can evolve in a positive or negative direction.

Bendíková (2014) states that a basis of this situation is an understanding of an importance of the health benefits and essence of the physical activity, in terms of its monitoring and subsequent intervention in a school environment, through a prism of physical and sport education, which directly and indirectly creates space for a diversification and realization of an innovative content of classes. A liberalization of the contents of a curriculum of the physical and sport education puts teachers of the physical and sport education increased demands, even in a selection of new and nontraditional physical activities, and thus the space to diversify an offer of the physical activities (Bendíková 2016a). A benefit, should be classes

within the school educational curriculum of varied character (exercises with fitballs, overballs, expanders, bosu balls, flowin, pilates, zumba, floorball, badminton, rope and so on), which has a positive effect on the physical, functional, social and psychological development of a pupil (Bendíková 2016b).

The school through the education process of the physical and sport education in qualitative and quantitative terms has one of decisive positions in influencing the physical preferences of the pupils, even in a later period of life (Telama & Yang 2000; Cuddihy et al. 2002; Müller et al. 2008; Antala 2009; Cardon et al. 2012; Dobay 2015; Rozim & Marko 2015; Madarász & Bácsné 2016; Nagy & Müller 2016a,b; Szököl 2015).

Economic calculations show that investing of 1 euro into the physical and sport education for children and youth in schools will save 3 euros in a future, needed for a treat of the health disorders and civilization diseases, resulting from the physical inactivity (Klein, Hardman 2008).

Aim

To find out the realization of the physical activity of respondents in a monitored group in relation to their health, as well as a factor that is involved in a transfer of the physical activity to the adulthood.

Methods

Participants and procedure

The monitored group consisted of 742 respondents of the middle-aged adults from the Southern Districts of Slovakia (Komárno, Nové Zámky and Dunajská Streda), of which 403 were the women and 339 were the men as the selection was deliberate. The educational level of the respondents was secondary and academic, where all of the respondents were actively working in private and national spheres. None of the respondents was partially or totally retirement based on disability. At the same time, everyone was in marriage (with 1 and maximal 3 children). The primary characteristic of the monitored group is presented in table 1. The empirical research was conducted in 2014, by three primary stages, through distribution and collection of questionnaire data, which core was to process and evaluate qualitative and quantitative results, followed by presented interpretations.

Table 1
Characteristics of the monitored group (n = 742)

Monitored group	n	Age (years)	Height [cm]	Weight [kg]
Women	403	37.2 ± 3.04	167.9 ± 3.2	65.3 ± 6.8
Men	339	36.5 ± 4.54	179.6 ± 6.3	89.1 ± 7.9

Measurement taking

In terms of methods of data acquisition, a method of content analysis of the study of literary sources of various important foreign and domestic databases, as well as an interrogative method, so-called "Egészség és mozgás" - "Health and Movement", anonymous, standardized questionnaire, which consisted of 60 questions, was used. The stated questionnaire was based on the stated primary monitored determinants of quality of life and lifestyle of the monitored group: primary, personal information, area of the health, area of the physical activity, area of lifestyle and risk factors.

(Note: The stated questionnaire was published under the title SF-36: -Health Survey Questionnaire Short Form in 1992. The questionnaire was expanded in 1995 and 1996, as well as prepared and expanded to analyze the physical activity under the title IPAQ Short Last: -International Physical Activity Questionnaire, which was in 2003.)

Data analyses

The obtained data were processed by percentage frequency analysis (%) and Chi-Quadrat-Test of a good match (χ^2 $p < 0.01$, $p < 0.05$), which was followed by the evaluation of the significance differences in the answers on the individual questions in the questionnaire, between the genders, as well as Pearson Correlation Coefficient (r $p < 0.01$, $p < 0.05$) to evaluate the relationship between the selected, monitored determinants among the monitored group, with an usage of Cohen Table. We also used the methods of logical analysis and synthesis, with usage of the inductive and deductive techniques and comparisons.

Results

Beginning with the aim, we present part of the results, which are a subject for further, exact processing. The presented results cannot be generalized but it is necessary to understand them in their overall context as orientative and basic, from the point of view of the health prevention (Dobay & Bendíková 2016).

The realization of the free time physical activities of the adults is currently a rarity because of their busyness. In the monitored group, significantly ($p < 0.01$) even 56.3 % ($n = 191$, $\chi^2 = 103.2323$, $df=4$) of the men and only 31 % ($n = 125$) of the women mentioned that like to do the physical activities in their free time as a way of active rest, whereas 7.4 % ($n = 25$) of the men and 22.8 % ($n = 92$) of the women do not like to do any of the mentioned and do not care about it (3.2 %; $n = 13$ of the women; 9.1 %, $n = 31$ of the men). The mentioned physical activities are not done by up to 14.4 % ($n = 58$) of the women and only 1.5 % ($n = 5$) of the men, while rather 28.5 % ($n = 115$) of the women and 25.7 % ($n = 87$) of the men like to do the physical activities. The positive fact is that within the monitored group of the men, up to 91.1 % ($n = 309$) are trying to devote to the physical activities in their leisure time. Among the women, it is about one-third less (62.7 %, $n = 253$).

The structure of the leisure time physical interests within the monitored group of the women points to a stability, especially in the most popular and less popular physical activities realized in the leisure time. From the various physical activities, the women are particularly interested in various forms of dance, such as aerobics (16.45 %, $n = 114$), zumba (13.71 %, $n = 95$) and pilates (4.47 %, $n = 31$), as well as health activities based on the spine (8.08 %, $n = 56$) and the physical activities of the health character for relaxation in general (8.8 %, $n = 61$). Among the women are thus dominated the physical activities, which are focused on their aesthetic perception of the movement and are characteristic from a psychological point of view. The other physical activities within the active rest include a swimming (12.12 %, $n = 84$) and running (11.11 %, $n = 77$), which are offered in relation to the environment. A cycling (13.85 %, $n = 96$) also belongs to the very popular type of physical activity among the women. Among the monitored group of the men, the most popular and performed physical activities in the leisure time include a football (soccer) (16.74 %, $n = 107$), strengthening (15.49 %, $n = 99$), cycling (15.34 %, $n = 98$), running (13.93 %, $n = 89$) and swimming (12.05 %, $n = 77$). Less popular physical activities are a basketball (6.73 %, $n = 43$), tennis (5.16 %, $n = 33$), walking (Nordic Walking) (4.85 %, $n = 31$), volleyball (4.85 %, $n = 31$) and skating (4.69 %, $n = 30$). The findings point to and confirm the fact that the women tend to look for the physical activities of an individual character, mainly of aesthetic focus, without direct contact ($\chi^2 = 33.2323$, $p < 0.01$), while the men prefer dynamic and conditioned physical activities ($\chi^2 = 36.3239$, $p < 0.01$).

A frequency of performed physical activities among the monitored group of respondents was the following (table 1). 33 % ($n = 112$) of the men and 28.5 % ($n = 115$) of the women performed physical activities irregularly, while 21.5 % ($n = 73$) of the men and

15.6 % (n = 63) do not perform any physical activities at all. On the other hand, performing the physical activities more than 3 times a week was done by 9.4 % (n = 32) of the men and 5.2 % (n = 21) of the women with 4.2% of the difference in the women's disadvantage. Performing the physical activities 1 time a week was done by 29.2 % (n = 99) of the men and 23.3 % (n = 94) of the women (5.9 % of the difference in the women's disadvantage). Significantly ($\chi^2 = 57.3878$, $p < 0.01$, $df=5$) up to 20.1 % (n = 81) of the women performed physical activities regularly, 2 times a week, while performing the physical activities 3 times a week was done by 7.2 % (n = 29) of the women. The men with 0.3 % of the difference performed the physical activities 2 times a week (3.5 %; n = 12) and 3 times a week 3.2 % (n = 11).

Table 1
The frequency of physical activity (n = 742)

Frequency of Phys. activity	does not practice		irregularly		once a week		twice a week		3 times a week		more than 3 times a week	
	n	%	n	%	n	%	n	%	n	%	n	%
Sex/ multiplicity												
women (n = 403)	63	15.6	115	28.5	94	23.3	81	20.1	29	7.2	21	5.2
men (n = 339)	73	21.5	112	33.0	99	29.2	12	3.5	11	3.2	32	9.4
χ^2	57.3878, $p < 0.01$											

An intensity of physical activities is very important from the point of view of the health of human beings, as well as the above mentioned frequency. That is why we were interested in the fact. Similarly, among the men (52.2 %, n = 177) and women (49.1 %, n = 198) dominated the median intensity of physical activities. At the same time, the men 30.7 % (n = 104) were reported with the high intensity and only 17.1 % (n = 58) were with the low intensity of physical activities. For the women, the situation was the opposite. The low intensity was dominated by 35.2 % (n = 142) and the high intensity of the physical activities was only in 15.6 % (n = 63). We observed the significant difference ($\chi^2 = 41.309$, $p < 0.01$, $df=2$) among the genders at the low intensity of performed physical activities (table 2).

From the point of view of a time volume, which the respondents devoted to the physical activities, we found that the highest percentages among the women (46 %, n = 189) represented the physical activity in a duration of 60 minutes, while the men performed the

physical activities significantly over 1 hour (37.1 %, n = 126) ($\chi^2 = 60.0832$, $p < 0.01$, df-4) (table 3).

Table 2
Intensity of physical activity (n = 742)

Intensity physical activity	high intensity		medium intensity		low intensity	
	n	%	n	%	n	%
women (n = 403)	63	15,6	198	49,1	142	35,2
men (n = 339)	104	30,7	177	52,2	58	17,1
χ^2	41.309, $p < 0.01$					

Table 3
The volume of physical activity in adults (n = 742)

The time volume	15 min		30 min		45 min		60 min		more than 60 min	
	n	%	n	%	n	%	n	%	n	%
women (n = 403)	36	8,9	67	16,6	59	14,6	189	46,8	52	12,9
men (n = 339)	26	7,6	42	12,3	33	9,7	112	33	126	37,1
χ^2	60.0832, $p < 0.01$									

The way of performing the physical activities among the monitored group, both the men (68 %, n = 231) and the women (53 %, n = 214) with the highest percentage representation labelled the answer "in an organized group", significantly ($p < 0.01$) in favor of the men ($\chi^2 = 22.3299$, df-3). The answer "in a nonorganized group" labelled 20 % (n = 67) of the men and 25 % of the women (n = 101). Only 7 % (n = 24) of the men and 9 % (n = 36) of the women labelled the answer, "Individually," while the answer "I do not care" was chosen by 5 % (n = 17) of the men and 13 % (n = 52) of the women.

Significantly more men (45.7 %; n = 155, $\chi^2 = 177.8421$, $p < 0.01$; df-4) than women (12.2 %, n = 49) evaluated their health "excellent". 29.2 % (n = 99) of the men and 17.1 % (n = 69) of the women labelled the answer "very good". 36.5 % (n = 147) of the women and 19.2 % (n = 65) of the men rated their health as "good," while 2.7 % (n = 9) of the men and 8.2 % (n = 33) of the women rated it negatively. "Not good" was reported in 3.2 % (n = 11) of the men and 26.1 % (n = 105) of the women.

The higher percentage representation and significantly ($p < 0.01$) more men (54.9 %, n = 187) than women (21.6 %, n = 87) reported that they had no health problems (33.3 % difference in favor of the men; $\chi^2 = 132.1577$, df-3). On the contrary, the health problems had 10.9 % (n = 37) of the men and 26.8 % (n = 108) of the women. The answer "more less, no,"

was reported more (28.6 %, n = 97) among the men than the women (23.8 %, n = 96). At the higher percentage representation, the answer "mostly yes" was picked 27.8 % (n = 112) of the women and 5.6 % (n = 19) of the men. This suggests that the men had fewer health problems than the women. Among the men, we found the relationship between the physical activity and evaluation of the health status ($r = 0.9420$), which means that those who performed the physical activities also rated their health better (men vs. women). Even the feeling of the good health was significantly ($p < 0.01$) more among the men (52.8 %; n = 179, $\chi^2 = 31.7832$, df-3) than the women (37.7 %, n = 152), with 15.1 % of the difference in the women's disadvantage. In the same way, we also found among the men the relationship between the performed physical activity and feeling of health ($r = 0.8921$) but also between the health problems and feeling of health ($r = 0.739$), as well as the women ($r = 0.6714$).

A physical fitness 31.5 % (n = 107) of the men and 9.6 % (n = 39) of the women was rated as "excellent", with 21.9 % significant difference ($\chi^2 = 103.84$, $p < 0.01$, df-4) in men's advantage, while "very bad" was reported more among the women (22.1 %, n = 89) than the men (5.3 %, n = 18). 29.1 % of the men and 24.6 % of the women labelled the answer "good" condition", while "satisfactory" was reported in 32.3 % of the women and 13.2 % of the men. 20.9 % of the men and 11.4 % of the women picked the answer "quite good". Based on our findings, we found the relationship between the health status and physical fitness among the men ($r = 0.8300$), as well as the women ($r = 0.7193$).

Currently, significantly more ($\chi^2 = 33.6871$, $p < 0.01$, df-4) of the men, up to 50.4 % (n = 171) and only 3 % of the women (n = 121) reported the answer "yes" and perceived the physical activities as a significant factor of the health. The men, at the same time, perceived the importance of the physical activities, in terms of their health status ($r = 0.8791$) much more intense than the population of women in the monitored group. While, the women reported the answer "rather yes", in 40.4 % (n = 163) and 29.8 % (n = 101) of the men, this means 70.4 % (n = 284) of the women and 80.2 % (n = 272) of the men had positive perception of these factors for the health of human beings. On the other hand, 12.7 % (n = 51) of the women and 9.7 % (n = 33) of the men, do not paid the attention to the importance of the mentioned facts. "Rather not" was chosen by 13.6 % (n = 55) of the women and 7.4 % (n = 25) of the men and "was one" was chosen by 2.7 % (n = 9) of the men and 3.2 % (n = 13) of the women. At the same time, the men perceived the evaluation and level of their physical condition through the importance of performing physical activities ($r = 0.791$).

A retrospective view of the respondents on the importance of physical and sport education in their lives pointed to the fact that significantly ($p < 0.01$) found that the women

perceived the importance of physical education in health at 35.2 % (n = 142) ($\chi^2 = 26.2498$), while the men from the point of view of creation of the relation to the physical activities was 28.9 % (n = 98) and performance in 26.3 %. The answer "creation of relation to the physical activities" was reported only in 27.5 % (n = 111) of the women. It means that the women perceived the physical and sport education through the health, while the men through the creation of relation to the physical activities, which they are performed within the active rest, even currently (56.3 %, n = 191) than the women (31 %, n = 125).

The popularity of physical and sport education among the respondents of both genders also confirmed our expectations, where only one third (30 %, n = 121) of the women enjoyed physical and sports education, while among the men it was more significantly ($\chi^2 = 37.5297$, $p < 0.01$, df-3), even up to 51.6 % (n = 175), with 21.6 % of the difference of the men's advantage. 30.5 % (n = 123) of the women did not like the physical and sport education, as well as 18 % (n = 61) of the men, which is 12.5 % less. The answer "sometimes" was picked up by 22.8 % (n = 92) of the women and 17.1 % (n = 58) of the men. The laxity of the popularity of the mentioned subject was reported by 16.6 % (n = 67) of the women and 13.3 % (n = 45) of the men.

In the same was, the popularity of physical and sport education, even the activity of respondents in the physical and sport education classes was significantly higher among the men ($\chi^2 = 26.9684$, $p < 0.01$, df-3) than the women. Being active in the physical and sport education classes was 41.6 % (n = 141) of the men and only 27.5 % (n = 111) of the women, while 16.8 % (n = 57) of the men and 15.1 % (n = 61) of the women were considered as inactive. "Rather active" was 40.9 % (n = 165) of the women and 34.8 % of the men (n = 118). 6.8 % (n = 23) of men and 16.4 % (n = 66) of the women were included in the group "rather not" active. It mentioned means that the men enjoyed the physical and sport education classes, as well as actively participated ($r = 0.8363$), not as the women. Compared to current findings, it is very similar, boys are more active than girls.

Discussion

Our findings point to a number of facts and relationships between a human health and a realization of a physical activity in relation to a lifestyle. If in the past the physical activity had limited a strength, a speed and an endurance, we would need it as a factor of a survival and a balance between a physical and a mental determinants of maintaining an active health.

Therefore, in this context, it is necessary to show on politics of Health 2020, which is based on four priority areas, where each one focuses on investments to the health through a life cycle and creation of opportunities for strengthening responsibilities of citizens for their own health, which is directly confirmed in our findings and pointed to an educational transfer towards the health through the physical activity as a suitable form of a prevention. It means that well-chosen and realized physical activity aimed at promoting the right lifestyle and the responsibility of human beings for their health as can help to manage epidemic of so-called civilization diseases (obesity, oncological diseases, cardiovascular diseases, hypertension, skeletal disorders, metabolic diseases, etc.). Such seemingly not medical, but public health measures will help to prevent a growth of the new civilization diseases and to improve a current state of the human health because the physical activities are by their content, extent and influence of complex biological, psychological and social, as well as cultural health phenomenon.

Conclusion

Based on the aim of the current study, we found that:

- the relationship between the health status and fitness among the men ($r = 0.8300$) and among the women ($r = 0.7193$),
- the relationship between performed physical activity and feeling of health ($r = 0.8921$) but also between the health problems and feeling of health among the men ($r = 0.739$), as well as among the women ($r = 0.6714$),
- the men at the same time perceived the importance of physical activity, in terms of their health ($r = 0.8791$) much more intense than the women,
- the men perceived the evaluation and level of their physical condition through the importance of performing the physical activity ($r = 0.791$).

From the point of view of the health, we strongly confirm the difference in the health status ratings among the men, where we confirm the relationship between the physical activity and health status, as well as the physical activity and fitness among the men. Significantly, we confirm the difference performing of the physical activities among the genders, in terms of the frequency, intensity, volume and content. The physical and sport education plays the

significant role among the men in the transfer of physical activity from the school environment to the adulthood.

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