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PHYSICAL ACTIVITY OF THE ELDERLY FROM THE LUBELSKIE VOIVODESHIP

Aktywność fizyczna osób starszych z województwa lubelskiego

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A - Koncepcja i projekt badania, B - Gromadzenie i/lub zestawianie danych, C - Analiza i interpretacja danych, D - Napisanie artykułu, E - Krytyczne zrecenzowanie artykułu, F - Zatwierdzenie ostatecznej wersji artykułu

Abstract (in Polish):

Cel pracy: Celem pracy było zbadanie aktywności fizycznej LTPA osób starszych w wieku 65 lat i więcej, mieszkających na terenie województwa lubelskiego.

Materiał i metody: Badania przeprowadzono w ramach ogólnopolskiego projektu PolSenior. Badania przeprowadzono na 313 osobach starszych w wieku 65+, przy wykorzystaniu badań ankietowych.

Wyniki: Uczestnictwo badanych w aktywności fizycznej maleje wraz z wiekiem. Dłużej aktywni fizycznie pozostają mężczyźni. 76,0% mężczyzn i 59,3% kobiet podejmowało krótkie spacerunki wokół domu. Podejmowaną formą PA była również praca na działce lub w ogrodzie deklarują ją mężczyźni (51,2%) i kobiety (40,4%). Blisko trzy razy więcej mężczyzn deklaruje jazdę na rowerze (30,5%) w porównaniu do kobiet (11,4%). Dominującą przyczyną udziału badanych w PA jest motyw zdrowotny, który deklaruje 77,2% badanych mężczyzn i 50,5% kobiet.

Wnioski: Aktywność fizyczna seniorów z Lubelszczyzny jest niezadawalająca i nie wypełnia rekomendacji WHO w dziedzinie profilaktyki i prewencji chorób przewlekłych. Nie odbiega jednak znacznie od poziomu LTPA ogółu Polaków badanych w ramach projektu PolSenior oraz Europejczyków w badaniach Eurobarometr. Obserwowany spadek udziału respondentów w aktywności fizycznej wraz z wiekiem wskazuje na potrzebę promowania aktywności fizycznej wśród seniorów przez władze samorządowe. Działania takie sprzyjać będą utrzymaniu funkcjonalnej sprawności fizycznej tej grupy wiekowej, a co za tym idzie przeciwdziałając postępującej niepełnosprawności. Dostępność zajęć LTPA dla seniorów jest większa w miastach niż na terenach wiejskich. Warto na poziomie krajowym wypracować rozwiązania które przeciwdziałałyby dyskryminacji w dostępie do zajęć LTPA w małych miejscowościach i na terenach wiejskich.

Abstract (in English):

Aim: The aim of the study was to examine the LTPA of the elderly aged 65 plus, living in the Lubelskie voivodeship.

Material and methods: The research was carried out as part of the nationwide PolSenior project. 313 senior citizens aged 65+ with the use of surveys.

Results: The respondents' participation in physical activity declines with age. Men are physically active longer. 76.0% of men and 59.3% of women took short walks near the house. Frequent form of physical activity among the respondents was work in the allotment or garden declared by men (51.2%) and women (40.4%). Nearly three times as many men engage cycling (30.5%) as compared to women (11.4%). The dominant reason for respondents' participation in physical activity is the health aspect declared by 77.2% of the men and 50.5% of the women surveyed.

Conclusions: The physical activity of seniors from the Lublin region is unsatisfactory, and fails to meet the WHO recommendations in the field of prevention of chronic diseases. However, it does not differ significantly from the LTPA level of all Poles surveyed as part of the PolSenior project and Europeans as part of the Eurobarometer survey. Such actions will promote the maintenance of functional physical fitness of this age group, and, consequently, counteract the progressive disability. Availability of LTPA classes for seniors is greater in cities than in rural areas. It would be worth developing solutions at the national level that would counteract discrimination in access to LTPA classes in small towns and rural areas.

Keywords (in Polish): aktywność fizyczna, osoby starsze, starzenie się, zdrowe starzenie się.

Keywords (in English): physical activity, elderly, aging, healthy aging.

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Aktywność fizyczna osób starszych z województwa lubelskiego.

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Authors (short)

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Introduction

The population aging in Poland and in other developing or economically developed countries of the world, which results from a dynamic increase in the number of the elderly in the social structure, overloads the health care system. On the other hand, combined with the decreasing number of children born and the drop in the number of people of the working age, as well as the decreasing number of population, it adversely affects the prospects of the country's socio-economic development. Over the recent decades, there has been a progressive increase in state budget expenditure on maintaining the society's health and that related to seniors' old-age pensions. Contemporary health policies, in connection with demographic challenges, provide for tasks related to the elderly community, and are related to the field of health and care services, coordination of care for the elderly, as well as education of the medical and care environment for that group. What is missing in these policies, however, is the perception of social health through the perspective of broadly understood preventive health care, a healthy lifestyle in which regular LTPA, in line with WHO recommendations, has a prominent place. Engaging in LTPA several times a week makes it possible to shape or maintain human fitness at the individual stages of the ontogenesis. Unfortunately, the role of LTPA in strengthening people's health, including that of the elderly, has been underestimated by policy makers, but it has received recognition from prominent scientists from the world of medicine. A distinguished Polish physician, an authority in the field of orthopedics and rehabilitation, Prof. Wiktor Dega, who is a co-author of the movement rehabilitation concept, perceived movement (i.e. physical activity) as a medication. He said that movement as a medication has no substance or packaging, and the substance of that medication is an idea born out of science and experience [1].

Physical activity is an important lifestyle factor that can delay the onset of chronic diseases [2,3], increase longevity and survival [4,5], and improve cognitive and physical functions in the older people [6][7]. [Physical activity and successful aging among middle-aged and older adults: a systematic review and meta-analysis of cohort studies [8].

The elderly, as they age, are prone to a decline in muscle strength resulting from loss of muscle mass, most often due to sarcopenia.

Skeletal muscle strength (the amount of force a muscle can produce with a single maximal effort) and muscle power (the ability to exert maximal force in a short time) [9] decline with chronological age [10-12] and are not only functionally important [13] but are also key determinants of adverse outcomes such as morbidity, disability, poor quality of life, and mortality [14-17].

Exercise can lead to a reduction in falls therefore likely to reduce the risk of falling. As Cochrane Reviews have now found that exercise improves both strength [18], and balance [19] in older people, exercise is likely to have a fall prevention effect through its impact on these key fall risk factors. A Cochrane Review found that exercise reduces the fear of falling [20], which is also a strong predictor of falls [21].

Studies which determined the beneficial effect of physical activity on blood pressure proved that physical activity maintained over a long period of time leads to a decrease in systolic blood pressure by about 5 mmHg, and a reduction in diastolic blood pressure by about 3.5 mmHg. It is well known that a reduction in systolic blood pressure values by 2–3 mmHg decreases the risk of death secondary to a stroke by about 5%, and secondary to an acute coronary episode by 3–4%. However, the decrease in blood pressure is a transient one, which is why performing physical exercises, such as walking, must be performed daily [22-24].

The PA has a positive effect on reducing cognitive reaction time in older adults. It is recommended that older adults maintain a moderate level of leisure PA and work-related PA to delay the decline in cognitive reaction time [25].

The nation-wide social policy efforts aimed at the elderly have so far lacked strategies to counteract seniors' low LTPA, despite the recognized physical and mental health benefits resulting from getting engaged in LTPA on a regular basis. Consequently, free LTPA classes aimed at the elderly are usually financed and organized in large cities by local governments [26].

What influences people's participation in LTPA is its determinants, which can be divided into: socio-demographic, personal and behavioral, psychological ones, social determinants, as well as those related to the physical environment [27-30].

An analysis of the literature provides us with evidence that there are connections and relationships between such variables, as the age, gender, education, occupation, and place of residence. LTPA is more often undertaken by people with a degree, living in large cities and doing a job which does not involve physical effort [31-38].

Socio-demographic determinants of physical activity should be taken into account when local government physical activity policies for the elderly are formulated.

Materials and Methods

The data presented in this study were derived from the 2008-2012 PolSenior project, whose aim was to assess various aspects of aging among people in Poland, including the health, social and economic situation of seniors over 65 years of age. PolSenior is the first multidisciplinary and multifaceted research project of such size to be performed on aging in Poland.

The project was coordinated by the International Institute of Molecular and Cell Biology in Warsaw. The ethical consent for the research was given by the Bioethics Committee at the Medical University of Silesia in Katowice. The participants for the nationwide study were selected randomly in a three-stage, tiered scheme; all participants received a clinical examination and demographic survey [39,40].

The selection scheme was performed as a three-stage draw to obtain a nationwide, representative group of respondents. In the first stage, random locations (districts) were chosen throughout the country. In the second stage, in the selected districts, streets were selected in the urban districts and urban-rural districts, or villages in the more rural parts. The urban areas of the centers were divided into five groups depending on the number of inhabitants: up to 20,000 inhabitants; from 20,001 to 50,000 inhabitants; from 50,001 to 200,000 inhabitants; from 20,0001 to 500,000 inhabitants; over 500,000 inhabitants. Finally, in the third stage, specific respondents were selected at random from the streets and villages in stage two; this was performed by the Ministry of the Interior and Administration (*Ministerstwo Spraw Wewnętrznych i Administracji*) on the basis of PESEL number: this being a unique number for each Polish citizen with an ID card [39,40].

In total, 5,695 respondents took part in the PolSenior survey. Of these, 5516 respondents received a medical examination performed by an appropriately-trained nurse [39,40] and a social interview; this number constituted 35% of the randomly-selected addresses. By far the most common reason for non-participation was refusal to participate by the recipient (32% of all addresses) or by those living with them (6%). In total, the survey could not be completed at 49% (7681) of the valid randomly-selected addresses, and a further 14% of the addresses were invalid, i.e. the randomly-selected person could not be found, due to death, moving or absence for the duration of the study. In the Lubelskie voivodeship, the sample implementation effectiveness index, i.e. the relationship between the number of addresses where the survey was conducted to the number of all correct addresses, was 53%, compared to 42.58% for the nationwide sample [41].

Our findings present the physical activity of the inhabitants of Lubelskie, the “green” region of Poland, broken down by age, sex, size of place of residence and socio-professional group. The respondents were asked about the level and form of their physical activity as part of moderate LTPA in the last 12 months; they were also asked about the frequency of their participation in LTPA and their motivation for taking part. The survey addressed the following points:

- What form of activity do the surveyed seniors take part in?
- Are there any differences in LTPA, and if so, do they depend on sex, age, socio-economic position and place of residence (size of city)?
- Why do the surveyed seniors undertake LTPA? [42]

In total, 313 senior citizens aged 65 plus, including 168 men and 145 women, were surveyed from the Lubelskie voivodeship. As far as questions about the profession are concerned, we were able to determine this status for 306 persons, i.e. 165 men and 141 women. The data were unavailable for three men and four woman. The results were analyzed with consideration given to the breakdown of the respondents according to their age 65-74, 75-84 and over 85, type of the place of residence and their occupational status. The number of the respondents, taking into account the above-mentioned division, has been presented in table 1.

In 2021, the Lubelskie voivodeship was inhabited by 2,052,340 persons, which accounts for 5.4% of Poland's total population. In terms of the number of inhabitants, the voivodeship ranked 9th among 16 Polish voivodeships. In the years 2011-2021, men accounted for 48.4% of the population, whereas women – 51.6%. The population declined by 123,360, i.e. by 5.7%. The number of women decreased by 62,092 (i.e. 5.5%), whereas of men – by 61,268 (i.e. by 5.8%). The demographic rate of aging (the share of people aged 65 and more in the total population) in the Lubelskie voivodeship has increased over the decade from 14.5% to 19.5% [43].

In 2022, the population of the elderly surveyed was over 407 thousand persons. The average population density, i.e. the number of people per 1 sq. km, was 81 in the Lublin region (121 in Poland). In this respect, the voivodeship ranked 12th in Poland. The percentage of the elderly among women (23.6%) was higher than among men (16.3%) [44].

In 2019, life expectancy in the Lubelskie voivodeship was 73.9 years for men and 82.4 years for women. Nation-wide, the rates were 74 and 81.4 years, respectively. In the year in question, the difference between the life expectancy of men and women in the Lublin region was 7.7 years. As compared to the early 1990s, the male life expectancy increased by 7.1 years whereas female life expectancy by 6.0 years (nation-wide by 7.9 and 6.6 years, respectively) [45].

Results

The results obtained in this study indicate that the participation in several-hour-long walks and hikes, gymnastics, cycling, working in the allotment or garden decreases with age (Table 1). In the male 75-85+ age group it does not exist. What is also visible in men is a trend of decreasing participation in physical activity with age, but it does not fall below 3% in the 85+ age group. The exception is short walks near the house, where participation in this form of physical activity among men, regardless of age, remains above 40%.

The respondents' participation in gymnastics - a form of LTPA with significant health- benefits - is lower compared to other physical activity disciplines, such as short walks near the house, longer walks near the place of residence, cycling or working in the allotment or garden. Women's participation in gymnastics is slightly higher (4.8%) than men's (4.5%).

In towns with a population of less than 20,000, participation in physical activity, except for several-hour walks and hikes as well as exercises, is higher than in towns with a population exceeding 20,000.

In general, participation in physical activity is lower among former white-collar workers than among former blue-collar ones. What is the exception, however, is participation in long walks and hikes, exercises as well as cycling. Here, for men who work physically, it is slightly higher at 64.2% compared to those who work in the white-collar sector and do not engage in typically physical work, at 62.7%.

Table. 1. Forms of leisure time physical activity (LTPA) undertaken by the respondents at least several times a week, according to age, sex, place of residence and socio-professional status [in %]

Factor	Categories	N	Sex	Short walks near the house [%]	Walking or hiking lasting a few hours [%]	Exercise: gymnastics, aerobics, etc. [%]	Cycling [%]	Working in the garden [%]
Age [years]	65-74	53	male	78.7	15.3	5.3	32.2*	58.4
		51	female	66.6	6.2	4.0	18.1	49.2
	75-84	45	male	77.6*	10.9	3.4	32.6*	43.5
		47	female	52.7	9.5	6.4	4.7	31.6
	> 85	70	male	42.1	3.0	0.0	13.5*	9.6*
		47	female	41.4	5.8	2.7	3.0	26.7
	Total	168	male	76.0*	13.3*	4.5	30.5*	51.2*
		145	female	59.3	7.4	4.8	11.4	40.4

Factor	Categories	N	Sex	Short walks near the house [%]	Walking or hiking lasting a few hours [%]	Exercise: gymnastics, aerobics, etc. [%]	Cycling [%]	Working in the garden [%]
Size of place of residence [number of residents]	<20000	127	male	76.3*	13.1*	2.7	37.5*	54.6*
		116	female	61.1	4.1	2.6	13.6	38.8
	243	total	66.9	7.6	2.6	22.9	44.9	
	>20000	41	male	75.2*	13.8	9.7	9.5	41.3
29		female	52.7	19.0	12.9	3.8	46.4	
70	total	62.3	16.8	11.5	6.2	44.2		
Professional /social status	manual labourer, farmer	130	male	77.9*	15.0*	4.6	33.8*	55.8*
		105	female	57.8	7.3	5.7	15.4	34.4
	235	total	66.3	10.6	5.2	23.3	43.6	
	white collar worker	35	male	73.4	8.3	4.2	19.7*	38.9
36		female	66.9	8.2	3.3	3.6	56.9	
71	total	68.9	8.2	3.6	8.8	51.1		

Legend: * - statistically significant differences; p<0.05

Table 2. Reasons for taking up physical activity (LTPA) by the respondents with regard to age, sex, place of residence and socio-professional status [in %]

Factor	Categories	Sex	“for health reasons” [%]	“to relax” [%]	“to kill time” [%]	“Out of habit - I exercised when I was young” [%]	“On doctor’s advice” [%]
Age [years]	65-74	male	82.1*	34.4	20.6	16.0	7.1
		female	54.6	33.9	13.9	10.5	7.2
	75-84	male	73.9*	30.7*	33.7*	6.8	3.7
		female	48.8	14.0	11.7	5.6	7.6
	> 85	male	42.8	13.7*	15.5	2.4	3.2
		female	30.8	3.9	9.7	7.3	6.7
Total	male	77.2*	32.0	24.1*	12.4	5.9	
female	50.5	23.7	12.7	8.3	7.3		
Size of place of residence [number of residents]	<20000	male	75.4*	22.2	25.4*	9.2	5.8
		female	47.8	20.9	14.7	7.1	7.3
	total	58.4	21.4	18.8	7.9	6.7	
	>20000	male	82.4*	60.3*	20.3*	21.6	6.2
female		59.7	33.3	6.0	12.6	7.3	
total	69.3	44.8	12.1	16.4	6.8		
Professional/ social status	manual labourer, farmer	male	75.0*	24.1	25.7*	14.3*	7.3
		female	47.6	21.8	14.0	6.2	7.9
	total	59.3	22.8	19.0	9.7	7.7	
	white collar worker	male	91.6*	62.4*	18.3	7.0	1.4
female		57.1	29.3	10.9	13.3	6.6	
total	67.9	39.6	13.2	11.4	5.0		

Legend: * - statistically significant difference; p<0.05

Discussion

The level of LTPA reported by seniors aged 65 and over from the Lubelskie voivodeship is insufficient, and does not fulfil the WHO recommendations regarding the prophylaxis and prevention of chronic diseases [46,47]. This negative situation is also typical of other voivodeships in Poland, including Wielkopolskie, Pomorskie and Małopolskie [48-50]. Furthermore, low levels of physical activity (PA) have also been reported by seniors throughout Poland [51-53], as well as in other European Union countries [54-56].

Furthermore, the participants indicate decreasing participation with age. This trend can be attributed to the natural aging process. Older age groups are more prone to disability and fewer people can participate in physical activity. However, men tend to remain physically active longer, a trend that can be seen in all age groups. These results are consistent with those of Eurobarometer study of physical activity among Europeans [54-56], and the Polish Central Statistical Office (GUS) [51-53].

Our finding that long walks are the dominant form of activity among seniors is consistent with the results of previous studies obtained for the Małopolskie, Wielkopolskie, Dolnośląskie and Pomorskie voivodeships [48-50], and in the PolSenior study for the whole of Poland [57-59]. Walking is the most common form of physical activity among older people. It is recommended for all age groups [60,61].

Considering that the Lubelskie voivodeship is a region of Poland, with an above average afforestation, it is possible that participation in long walks may be associated with the forest cover of a given voivodeship: in greener areas, the residents can easily reach a natural area, or forests and parks with tree stands. A similar trend was observed in older men living in towns with more than 20 000 inhabitants in the Podlaskie, Dolnoslaskie and Małopolskie voivodeships. In the Lubelskie voivodeship, which is 30.9% afforested, 20.4% of older men report taking part in long walks, while in the Dolnoslaskie voivodeship, which is 29.8% afforested, 16.5% take part in long walks, and in the Małopolskie voivodeship, 28.7% afforested, 11.1% of men take part in long walks [49,50,62]. These findings strongly suggest that among older men, participation in long walks increases with an increase in forest cover.

Otherwise, compared to the PolSenior findings [57-59], the seniors from Lubelskie indicate similar levels of participation in other forms of LTPA, e.g. cycling or gymnastics, and a large number report working on the allotment or garden.

The study^[6] has found that gardening can improve memory, logical thinking, and communication skills in older adults.

The observation that greater physical activity was observed among city dwellers than residents of small towns is also generally confirmed in the GUS study [51-53], with cycling being the exception. This difference may result from differences in the role played by a bicycle between villages, small towns and larger towns. In smaller towns, bicycles are more often used for short-distance transport, rather than a piece of equipment for LTPA, as is the tendency in larger towns^[36].

In addition, higher levels of LTPA were reported by white collar workers than manual laborers, similarly to the national PolSenior findings [63,64].

Similarly to the seniors from Lubelskie voivodeship, health was also found to be the predominant motivation for LTPA in the Eurobarometer [54-56] and GUS studies [51-53], as well as various others [57,58,65,66]. Interestingly, our observation that seniors rarely undertake physical

activity at the advice of a doctor has also been confirmed in previous studies [48-50]. Medical doctors should recommend physical activity more often to the elderly in order to consolidate their belief that physical activity is an essential part of a healthy human lifestyle and an important component in providing support to seniors. The positive role played by the physician as a specific authority in recommending, recommending and promoting PA has been highlighted previously [67]. In Poland, doctors tend to be highly regarded in society. As such, their recommendation that PA is an important component of a healthy lifestyle may serve to reverse the undesirable tendency toward a low participation in PA observed in Polish society.

Of course, among experts, professionals and researchers, physical activity is regarded as an essential part of a healthy lifestyle. They recommend that it should be undertaken regularly, at all stages of human development. It should be emphasized that, in accordance with the latest WHO recommendations, the greater recognition of the importance of PA has required the reshaping of the 2009 Human Nutrition Pyramid [68]. In 2016, this was developed into the Pyramid of Healthy Nutrition and Physical Activity, with PA at its base; hence, it should be undertaken regularly, preferably for a minimum of 30-45 minutes a day. The changes described above reflect progress in medical science, and take into account both recent scientific findings and the recommendations of recognized global expert centers [68].

As the level of PA is known to decline among seniors, it is extremely important to promote its value among this group. Other studies show that regular PA, also undertaken in “old age”, has a positive effect on the quality of human life [69], extends life expectancy [70] and contributes to a reduction in the risk of premature death in the elderly [71].

In Lublin, on the initiative of the City Council, the Active Lublin program (<https://aktywnylublin.eu>) is implemented as part of a project funded from the civic budget. Among the various leisure time physical activity classes, one can find those aimed at seniors. Gymnastics for seniors is organized for persons aged 60 plus. The workout involves general development and rehabilitation exercises, improving physical fitness by increasing seniors' physical activity. They can also take part in aquaerobics classes during which water physical activity exercises are done, which have a beneficial effect on the whole body, and increase its overall fitness and functional performance. The classes use various forms of movement - dance, functional training, yoga, stretching, exercises with fitness equipment placed in the water. On 13 multifunctional Orlik football pitches, the city's residents aged 50+ can participate in free sports and recreational activities organized, for example, as part of the “Active Senior on Orlik” campaign. The activities have been specifically developed for this age group, and their purpose is to manage leisure time, improve fitness and integrate the community. Activities on offer include table tennis, boules, gymnastics, badminton, tennis, Nordic walking, and, depending on seniors' interests and health condition, team games. The instructors ensure that the offer is expanded based on the participants' suggestions, so that every person interested can find something for themselves. The classes can be also attended by seniors' families and friends [72]. Unfortunately, in small towns and rural areas there are no available PA programs for the elderly to maintain their physical fitness. These disparities in access to organized LTPA between large cities and the province discriminate against seniors living in smaller towns. How to prevent that social exclusion? It seems that this can be done at the national or governmental level by directing budgetary resources to fund or subsidize LTPA instructor-led programs in small towns and rural areas.

Conclusions

It is known that PA has a significant impact on human health, and LTPA plays an important role in the prevention of chronic and lifestyle diseases. The level of LTPA reported by seniors aged 65 and more from the Lubelskie voivodeship is insufficient and does not meet the WHO recommendations on the prevention and prevention of chronic diseases. In view of the low level of AP reported by Lublin seniors, and its decrease with age, it is good practice that local authorities not only promote LTPA for this age group, but also organize various forms of LTPA for seniors. The leader is the city of Lublin. Such an initiative will not only have a positive impact on maintaining the physical fitness and health of seniors, but will also ensure their independence and improve the comfort and quality of their lives, as well as reduce budgetary expenditure on medical care. There is more to do in small towns and villages. Public PA classes for seniors are rarely organized there due to the low budgets of these units.

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