The quality of life and health behaviors of students of the University of the Third Age (U3A)

Jakość życia a zachowania zdrowotne słuchaczy Uniwersytetów Trzeciego Wieku (UTW)

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Abstract

Introduction. The Universities of the Third Age provide opportunities to improve the well-being of older people and to influence health-promoting behaviors conducive to health promotion. *Material and methods.* 219 people were studied, 217 persons (194 women and 23 men, average age 65.2 ± 6.2 years), students of the Universities of the Third Age in Silesian Voivodship were qualified for further analysis. The subjects were independent in daily activities and voluntarily agreed to participate in the study. The relationships between the quality of life and health behaviors were assessed. Caltrac accelerometer, SF-36 quality of life questionnaire, Z. Juczynski Health Checklist (HC), Z. Juczynski Health Criteria List (HCL), Minnesota Physical Activity Questionnaire (MLTPAQ), and self-report questionnaire were used. The non-parametric Mann-Whitney U test for independent variables, the parametric Student t-test for independent variables, and the non-parametric Spearman rank correlation coefficient were used for the statistical analysis of the data. *Results.* On the basis of the conducted study, a statistically significant but poor ($p = 0.021$; $r = -0.160$) correlation was found between the quality of life and severity of elderly health behaviors. Most listeners have met the health recommendations of physical activity. *Conclusions.* It is justified to create and support the Universities of the Third Age that can serve to improve the health of older people and to plan social policies against senility. *(Gerontol Pol 2017; 25: 235-241)*

Key words: *the quality of life, the University of the Third Age (U3A), physical activity, aging, health*

Streszczenie

Wstęp. Uniwersytety Trzeciego Wieku są placówkami stwarzającymi możliwość poprawy zadowolenia z życia starszych osób oraz wpływania na zachowania zdrowotne sprzyjające umacnianiu zdrowia. *Materiał i metody.* Zbadano 219 osób, z czego do dalszej analizy zakwalifikowano 217 osób (194 kobiety i 23 mężczyzn, o średniej wieku 65.2 ± 6.2 lat), słuchaczy Uniwersytetów Trzeciego Wieku w województwie śląskim. Badane osoby były samodzielne w zakresie wykonywania czynności dnia codziennego i dobrowolnie zgodziły się na udział w badaniu. Oceniono zależności pomiędzy jakością życia a zachowaniami zdrowotnymi słuchaczy. Do badania użyto akcelerometr Caltrac, kwestionariusz jakości życia SF-36, Inwentarz Zachowań Zdrowotnych Z. Juczyńskiego (IZZ), Listę Kryteriów Zdrowia Z. Juczyńskiego (LKZ), kwestionariusz aktywności fizycznej Minnesota (MLTPAQ) oraz ankietę własnego autorstwa. Do analizy statystycznej danych wykorzystano: nieparametryczny test U Manna-Whitneya dla zmiennych niezależnych, parametryczny test t-Studenta dla zmiennych niezależnych i nieparametryczny współczynnik korelacji rang Spearmana. *Wyniki.* Na podstawie przeprowadzonego badania stwierdzono statystycznie istotną, lecz słabą ($p = 0.021$; $r = -0.160$) korelację pomiędzy jakością życia a nasileniem zachowań zdrowotnych osób starszych. Większość słuchaczy spełniło prozdrowotne rekomendacje odnośnie aktywności fizycznej *Wnioski.* Uzasadnione jest tworzenie i wspieranie Uniwersytetów Trzeciego Wieku mogące służyć poprawie zdrowia osób starszych i planowaniu polityki społecznej wobec starości. *(Gerontol Pol 2017; 25: 235-241)*

Słowa kluczowe: *jakość życia, Uniwersytet Trzeciego Wieku (UTW), aktywność fizyczna, starzenie, zdrowie*

Introduction

An increasing interest in aging is associated with the progressive aging of societies and the incessantly increasing share of older people in the general population structure. Aging of population is one of the most important demographic processes today [1]. One way to mitigate the negative consequences of aging, progressing

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demographic and social change is to implement the concept of "active/successful aging." Nowadays, active retirement life is actively promoted throughout the world, with a particular focus on the role of physical activity and broadening interest through continuous learning [2]. In Poland, to a large extent, the idea of a successful aging is realized by the Universities of the Third Age (U3A) [3]. They are the most widespread, institutional form of senior's education and they serve to improve the quality of life, psychophysical and social condition of older people. The main task of universities is to mobilize students in almost every field of activity (social, scientific, educational), but equally important is health education. Despite the fact that U3A has been operating in Poland for many years, there are still no reports that would show the U3A environment and listeners in all its diversity. There is also insufficient research into the relationship between the quality of life and health behaviors of this group.

Aim of the work

The aim of the study was to know the relationship between the quality of life and health behaviors of students of the University of the Third Age in Silesia.

Material and methods

There were 219 listeners tested from twelve Universities of the Third Age in Silesia. 217 people (men and women) were included in the statistical analysis, and 2 people were excluded because they did not provide gender in the questionnaire. Participants fulfilled the following criteria for inclusion: consent to participation in research, membership of U3A, functional fitness and motor independence for self-mobility and self-service. In Table I the detailed characteristics of the test material are presented.

Movement disorders (43.8%) and hypertension (38.1%) were the most frequently reported diseases in the group of women. 9.1% of students (8.2% of women and 17.3% of men) declared that they did not suffer from chronic disease. The most popular activities within the U3A were sports and lectures with 81.7% of respondents. Foreign language classes were less popular (37.4% of the total - 38.6% of women and 30.4% of men) and computer courses (13.6% of the total - 12.8% of women and 21.7% of men). The participation in various forms of exercise (gymnastics, yoga - 56.1%), pool classes (swimming and aqua-aerobics - 17.5%) and Nordic Walking (29.8%) was the preferred form of physical activity among women. In the group of men swimming classes were the most popular (43.4%), then Nordic Walking and participation in landscapes and mountain tours (34.7% respectively). 52.0% of females and 47.8% of males had secondary education, 32.9% of females and 34.7% of males had higher education, 11.3% of females and 17.3% of males had primary education and basic education was declared by 2.0% of women. Both groups consisted of people with secondary education (52.0% of women and 47.8% of men). Most of the students are mostly citizens of medium-size (from 20 thousand to 100 thousand inhabitants) and large cities (over 100 thousand inhabitants). The majority of respondents (66.2%) lived with their family (eg spouse) - 63.9% of women and 73.9% of men or multi-generational families (3.2%) - 1.5% of women and 8.6% men. The most common financial and economic conditions (73.9%) were rated as average (74.2% of women and 73.9% of men).

Table I. Characteristics of the test material

Variable	Women [N/%] = 194/88.5%	Men [N/%] = 23/10.5%
	$(\bar{x}) \pm$ SD (Min-Max)	
Age [years]	64.8 ± 5.9 (50-83)	69.0 ± 6.6 (54-82)
Body height [cm]	161.3 ± 5.6 (150-174)	173.79 ± 4.6 (166-186)
Body mass [kg]	69.2 ± 10.7 (45-100)	84.32 ± 10.6 (62-110)
BMI [kg/m²]	26.6 ± 3.7 (18.5-38.0)	27.84 ± 2.5 (21.4-32.2)
Physical health component SF-36 [points]	47.3 ± 7.6 (26.3-63.7)	51.0 ± 7.3 (30.3-60.0)
Mental health component SF-36 [points]	68.8 ± 15.2 (21.4-97.3)	73.3 ± 17.2 (33.1-93.4)
The quality of life index SF-36 [points]	99.4 ± 7.1 (69.0-114.0)	99.4 ± 6.6 (79.0-107)
Daily energy expenditure (Caltrac) [kcal/day]	2057.04 ± 310.3 (1328.00- 3336.71)	2284.65 ± 347.6 (1353.14- 2761.29)
Weekly energy expenditure (Caltrac) [kcal/week]	14399.27 ± 2173.7 (9296.00-23357.00)	15992.53 ± 2433.3 (9472.00-19329.00)

$\bar{x}$ – arithmetic mean, SD – standard deviation, Min – minimum, Max – maximum, N – number, % – percent

Caltrac Accelerometer [4] was used in the study as a method of a diagnostic survey and a direct measurement of physical activity as total energy expenditure. The SF-36 quality of life questionnaire, the Z. Juczynski Health Checklist (HC), Z. Juczyński Health Criteria List (HCL), the Minnesota Performance Questionnaire (MLTPAQ), and a survey of my own authorship (the questions concerning the occurrence of diseases and the participation in the U3A classes) [5-7] were used to the survey research. Each participant was instructed about the purpose and the course of the research procedure and the potential use of the results. The consent to participate in the study was confirmed in writing. The surveys were filled 30 minutes before or after regular classes (lectures, classes, sports activities, etc.) organized by U3A. Caltrac, having appropriately programmed the data from the questionnaires, was worn by the examined person and it was attached to a stretchy strap at the waist, from the morning to the evening, for a period of seven days. Listeners have been instructed to maintain their current eating habits and physical activity in their free time. Completion and collection of questionnaires and assessment of physical activity were conducted between April 2015 and June 2016, excluding pre-holiday periods and breaks for the academic year, ie the winter inter-session break (February 2016) and the holiday period (July, August and first half of September 2015). The research was conducted in accordance with the guidelines of the Helsinki Declaration and was approved by the Bioethical Research Commission of the Academy of Physical Education in Katowice (Resolution No. 5/2015 of 12 May 2015).

Statistical analysis

The study sample was analyzed by the groups differentiated by sex. For quantitative variables, the following measures were calculated: central (average), dispersion measure (standard deviation with 95% confidence section, minimum and maximum). Numerical tables and standardized values were used on the stenographic scale for the description of qualitative variables. The Shapiro-Wilk test was used to examine the compatibility of the empirical distributions of the variables tested with normal distribution and histograms showing the distribution of population for the variable under test were constructed. Before carrying out the Student's t-test for independent variables and analysis of variance, the homogeneity of variance was examined by the Brown-Forsyth test. The non-parametric Mann-Whitney U test for independent variables, the parametric Student t-test for independent variables, the nonparametric Spearman rank correlation coefficient were the statistical tools used to verify statistical hypotheses. Computer programs included in Libre Office 5.2.4.2. and the StatSoft Statistica v10 PL package were used to perform the statistical analysis. The level of statistical significance was assumed to be p = 0.05.

Results

The data of the SF-36 questionnaire in the group of women showed that the highest rated components were: social functioning (70.5 ± 13.4 points) and well-being (63.7 ± 11.3 points), the lowest were emotional (38.2 ± 2.8 points) and physical problems (41.1 ± 3.1 points). Similarly, in the group of men the highest rated components were: social functioning (73.3 ± 15.8 points) and well-being (65.5 ± 13.0 points), lowest - emotional (38.7 ± 2.1 points) and physical problems (42.7 ± 2,4 points). To compare the health components and the quality of life index of SF-36 questionnaire for men and women, a non-parametric Mann-Whitney U test for independent variables was performed. Statistical significance in the physical health component was observed (p = 0.012) (Table II).

The classification of health claims according to their mean weight of the HCL questionnaire is presented in Table III.

The results of the HCL questionnaire show that women are most likely to identify their health with efficient body parts and no physical discomfort (health as an attribute). In turn, men most often identify health with happiness most of the time (health as a condition) and good relationships with other people (process). Criteria such as being responsible, having good eyes, hair, skin and the ability to control your emotions and drive are the least important in both groups. The mean values of the analyzed health behaviors of the Health Behavior Inventory (HBI) are presented in Table IV.

Table II. Comparison of health components and the quality of life index of men and women (SF-36)

Components and health factors [$\bar{x} \pm$ SD]	Women	Men	Significance level (p)
Physical health component	47.3 ± 7.6	51.0 ± 7.3	**0.012**
Mental health component	68.8 ± 15.2	73.3 ± 17.2	0.124
The quality of life index	99.4 ± 7.1	99.4 ± 6.6	0.965

$\bar{x}$ – arithmetic mean, SD – Standard Deviation

Table III. HCL – the list of the top 10 health criteria for men and women

Number of the statement	Content statement		Mean weight of a given criterion	
	To be healthy means for me:	Definitione of health	Women	Men
20.	To have all the body parts fit	attribute	1.33	0.70
12.	Not to feel any physical discomfort	attribute	1.15	0.83
17.	To be able to enjoy life	condition	1.10	0.70
14.	Not to get sick, rarely for flu, indigestion	attribute	0.85	0.43
5.	To eat properly	result	0.82	0.57
21.	To accept yourself. know your capabilities and weaknesses	aim	0.81	0.26
6.	To care for rest, sleep	result	0.80	0.61
2.	To feel happy most of the time	condition	0.73	2.04
3.	To be able to interact well with other people	process	0.53	1.04
23.	To feel good	condition	0.50	0.52

Table IV. Mean values of analyzed health behaviors of women (HBI)

Variable	Women	Men
	$\bar{x} \pm SD$	
Overall health behaviours	88.3 ± 17.2	88.2 ± 22.8
Sten*	5.5 ± 1.8	5.6 ± 2.1
Proper eating habits (PEH)	22.5 ± 4.9	21.7 ± 6.2
Prophylactic behavior (PH)	22.3 ± 5.4	21.5 ± 5.7
Positive mental attitude (PMA)	22.3 ± 4.9	22.6 ± 6.0
Health practices (HP)	21.3 ± 4.5	22.0 ± 6.1

$\bar{x}$ – arithmetic mean, * – standardized values. presented on a stencil scale; Results: 1-4 low, 5-6 average, 7-10 high

The overall HBI score for health behaviors was 88.3 ± 17.2 points for women and 88.2 ± 22.8 points for men. This means that the average intensity of male and female health behaviors was at an average level. In the analysis of the categories of behavior in which the average score in each category was the indicator, none of the health behaviors was dominant - all the results were comparable. It was then examined whether the parameters of the mean values of the analyzed health behaviors (HBI) differed significantly between the group of men and women. Statistical significance was not observed (Mann-Whitney U test, p = 0.572). The data collected from Minnesota's physical activity questionnaire shows that moderate activity (4-6 MET) associated with recreational activity (RA) was dominant in both men and women. The results are shown in Table V.

In physical activity measurement studies the average daily and weekly energy expenditure was measured using Caltrac Accelerometer (Muscle Dynamics, INC., Torrance, CA). The higher values of both average weekly energy expenditure and daily energy expenditure were reported in the group of men (Table I).

The correlation analysis was then performed:

a) between the SF 36 Index and the average weekly total energy expenditure (TOTAL Minnesota). Statistical significance was not observed. The results are shown in Table VI.

b) between the values of the quality index (SF 36 index) and its overall health behaviours index (HBI). Statistical significance was observed and is shown in bold font. Results are in Table VII.

Table V. Types and variety of physical activity of U3A listeners identified using the Minnesota Physical Activity Questionnaire

Variable [kcal/kg/week]	Women	Men
	$\bar{x} \pm SD$	
Light effort <4 MET	626.35 ± 451.99	638.84 ± 457.72
Moderate effort 4-6 MET	826.89 ± 615.57	976.59 ± 980.60
Great effort >6 MET	605.48 ± 565.21	859.70 ± 863.17
RA effort together	1748.78 ± 1113.12	1951.93 ± 1041.71
HW effort together	407.85 ± 660.57	500.43 ± 761.04
TOTAL [kcal/kg/week]	2156.63 ± 1243.65	2451.36 ± 1609.33

$\bar{x}$ – Arithmetic mean, SD – Standard deviation, RA – Recreational activity, HW – Housework, TOTAL - Average weekly total energy expenditure

Table VI. The correlation between the values of SF 36 Index assessed using the SF-36 questionnaire and TOTAL Minnesota and an overall energy expenditure in the study groups

THE CORRELATION OF SF 36 INDEX vs TOTAL MINNESOTA		
TESTED GROUP	LEVEL QUALITY P	R SPEARMAN
Total	0.671	-0.030
Women	0.743	-0.024
Men	0.891	-0.032

Table VII. Correlation between SF 36 quality of life index and overall health behaviors index (HBI)

SF 36 INDEX vs GENERAL INDEX HBI		
TESTED GROUP	LEVEL QUALITY P	R SPEARMAN
Total	**0.021**	**-0.160**
Women	**0.029**	**-0.160**
Men	0.654	-0.103

R Spearman – Spearman rank correlation coefficient

Discussion

The self-assessment of the health status of the elderly is an important measure of the health status of this sub-population, especially in terms of the quality of life.

The report of the Institute of Labor and Social Affairs commissioned by the Ministry of Labor and Social Policy, on the situation of older people in Poland [8] states that the percentage of people evaluating their state of health lower than good, year by year, decreases in the oldest age group (70 years and older), the improvement in health assessment is the lowest. In 2009, 85% of people aged 70 and older rated their health lower than good. In the reports of Grzanka-Tykwińska et al. [9], using the WHOQOL-BREF research tool, the greatest change has been observed in the physical and social fields. In my own study, people who at least assessed the quality of their lives as good were as high as 43.8%, and only 9.1% were dissatisfied. Most of the respondents (64.8%) stated that their health condition has not worsened recently. Similar results have been obtained by Gajewska et al. [10], where it is shown that participation in U3A activities promotes good physical, mental and functional health, which is reflected in self-esteem.

In my own studies the higher mean scores of the quality of life index were related more to the mental health component than the physical component, while the statistically significant differences between men and women were recorded in the physical component. Knapik et al. [11] reported similar results in terms of mean physical and mental components.

These results suggest that self-evaluation of quality of life is not gender-related, and seniors are more positive about their state of mental than physical health. This is important because, as Kaczmarczyk et al. [12] argues, aging is an ever-increasing lifespan, and it is a problem for every individual, a distant or closer, but for each one

of us. The respondents also made self-evaluations of their health - only 9.1% of the participants (16 women and 4 men) declared that they did not suffer from any illness and thus fulfilled one of the main criteria for successful aging. It has been shown that there is a relationship between the mean value of the quality of life index and the overall severity of health behaviors (HBI), but this is a weak correlation. In the category of subscales, in terms of social functioning, the highest average score, which indicates the highest grade in the quality of life assessment, has been reported among men and women. This may suggest that listeners are socially active and benefit greatly from the multidirectional activation capabilities offered by U3A. By developing interests, spending leisure time actively, learning foreign languages, traveling or meeting new people, U3A positively influences their mental condition. The lower values obtained for the physical component may mean that the audience is aware of the limitations of the aging process, but that the underlying disease does not limit their ability to use the U3A's offer and social contact. However, it should be emphasized that the majority of the research group was educated residents of large and medium-sized cities with stable financial situation. Nevertheless, the positive effects of the U3A on the quality of life of participants in the study can be recognized, as is confirmed by other authors [13-15].

Regular physical activity has a positive effect on successful and independent senility [16]. From the obtained data, 81.7% of the participants declared participation in sports and leisure activities, and according to the data from the Minnesota Physical Activity Questionnaire, moderate effort activities (4-6 MET) were associated with recreational activity in both groups of men and women. The predominant leisure forms included walking, cycling and general-purpose exercises. The subjects also included people who regularly participated in various forms of recreation (running, swimming, cycling) whe-

re their weekly energy expenditure associated with this activity exceeded 3000 kcal/kg/week (but it was a small group). There was no difference between the average weekly energy expenditure of leisure activities for men and women. Similar results were obtained by Paduch et al. [17] and Makuła [18], where dominance of moderate physical activity was found, most often in the form of natural and simple forms of movement such as walking, gardening, hiking and cycling. Krzepota et al. [13] in a study of 131 U3A listeners using the IPAQ questionnaire showed that in 35.9% of respondents predominated moderate levels of physical activity, 38.9% were inactive and 25.2% were characterized by high physical activity, while WHO recommendations were fulfilled by 61.1% of seniors.

With Caltrac accelerometer (Muscle Dynamics, INC., Torrance, CA), average weekly energy expenditure was defined as 14399.27 kcal/week for women and 15992.53 kcal/week for men. There were also statistically significant differences between men and women (p = 0.012). According to the criteria proposed by Salmon et al. [19] the research group was divided into: physically inactive (<50 kcal/week), inactive (50-799 kcal/week), moderately active (800-1600 kcal/week) and highly physically active (> 1600 kcal/week) [20]. In their own studies, 56.1% of U3A listeners moderately active and 18.7% of U3A highly physically active listeners fulfilled the recommendations of the World Health Organization (WHO) for adults. The obtained results demonstrate the high awareness of the listeners in the field of kinesisgeropathy, as confirmed by their own observations during the measurements (within the analyzed U3A physically and psychologically active students, especially active ones were listeners from Żory or Rybnik).

This study gives a slightly deeper understanding of the lifestyle and health behavior of seniors associated with U3A in Silesia and can be used in the future to promote health, create strategies and programmes for seniors' activation and gerontological prevention.

Conclusions

Health is perceived as an atribute and a condition, and listeners are characterized by a high level of severity of health behaviours. Most of the students of Universities of the Third Age in Silesian voivodship met the health recommendations of physical activity. Significant correlation was found between mean value of SF-36 and overall health behaviour (HBI). However, the low Spearman correlation coefficient (p = 0.021, r = -0.160) indicates that the correlation is poor. It is justified to create and support Universities of the Third Age capable of successfully aging and planning social policies against old age.

Acknowledgements

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