



# Quality of life in seniors living in home environment in Poland and Slovakia

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A – Research concept and design, B – Collection and/or assembly of data, C – Data analysis and interpretation, D – Writing the article, E – Critical revision of the article, F – Final approval of the article

Kowalczyk B, Lubińska-Żądło B, Demjanovič Kendrová L, Mikułáková W, Gajdoš M. Quality of life in seniors living in home environment in Poland and Slovakia. *Ann Agric Environ Med.* 2024; 31(4): 552–559. doi: 10.26444/aaem/191690

## Abstract

**Introduction and Objective.** Poor motor skills can increase the burden of disease and negatively affect the overall quality of life. The aim of the study was to investigate how people aged 60 and over assess their overall quality of life, overall health status and other domains of life in relation to socio-demographic factors.

**Materials and Method.** The study was conducted among 1,534 people aged 60 and over and living in a home environment – 831 people living in Małopolskie Province in Poland, and 703 people from Prešov Province in Slovakia. Polish and Slovak versions of the standardized WHOQOL-Bref questionnaire were used to assess quality of life. For all tests, a significance level of 0.05 was adopted.

**Results.** Mean perceived level of quality of life ( $p=0.000$ ), mean level of satisfaction with one's health status ( $p=0.001$ ), and results of physical function assessment ( $p=0.00$ ) were significantly higher among the Polish seniors than among the seniors from Slovakia. In contrast, psychological function ( $p=0.000$ ) and scores in the environmental domain ( $p=0.029$ ) were significantly higher in seniors from Slovakia than in those from Poland. Only place of residence of the subjects was not found to be a determinant of their quality of life.

**Conclusions.** The level of overall quality of life in people over 60 in Poland and Slovakia was good. Age, education, living arrangements and marital status were the socio-demographic factors that were found to determine the level of the quality of life in people aged 60 and over in Poland and Slovakia.

## Key words

quality of life, seniors, WHOQOL-Bref questionnaire, up&go test

## INTRODUCTION

Life expectancy of the population in EU countries has steadily increased [1]. In 2022, more than one-fifth (21.1%) of the EU population was aged 65 and over, and according to Eurostat's forecast, the percentage of the population aged 80 and over in the EU will increase from 5.8% to 14.6% between 2019 – 2100 [2]. Population ageing is also observed in Poland and Slovakia. At the end of 2020, Poland's population amounted to 38.3 million, with more than 9.8 million people aged 60 and over – more than 25.6% [3]. The population of the Slovak Republic in 2020 was 5.45 million, with people aged 60 and over accounting for 23.94% [2, 4]. In 2018, people aged 65+ accounted for 16.04% of population of Slovakia. According to Eurostat's prediction, the population of the European Union will increase by 2050, but in countries such as Poland and Slovakia it is expected to decrease [2].

Global aging contributes greatly to the higher risk of physical incapacity. It is projected that by 2050 people aged 60 or over will make up 20% of the global population [5]. In Slovakia in 2050, 37.4% of the total population of will be over the age of 60. There are similar projections for

Poland; according to the Polish Central Statistical Office in 2050 people aged 60+ will make up about 40% of the total population of Poland [5, 6]. The average poverty- and disease-free life expectancy at birth based on World Bank data for both genders is 77.6 years for Poland and 77.5 years for Slovakia [7]. Members of the Polish Council of Ministers, in a strategic document called 'Healthy future strategic framework for the development of the health care system for 2021–2027, with a perspective to 2030', point out that everyone benefits from increasing the healthy life expectancy of seniors as this directly or indirectly leads to a stronger family and community, reduced poverty and better social security [1]. The happy and healthy aging of older people guarantees reduced welfare expenditures, e.g. in the form of pensions, health care and institutional or private (health) care, and is likely to result in a lower burden on the working-age population [2]. As a result, the demand for quality of life research is reported by various groups in society, chiefly by physicians and community related to health care and health policy [8]. Nowadays, instead of looking for ways to prolong life, science representatives are more focused on finding ways to increase the quality of life. As the quality of life assessment provides a measure for evaluating therapeutic processes and can be used indirectly to study the quality of medical care, the authors addressed this topic.

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## OBJECTIVE

The aim of the study is to investigate how people aged 60 and over in Poland and Slovakia perceive their overall quality of life, overall health status, and other domains of life in relation to socio-demographic factors.

## MATERIAL AND METHODS

The study was conducted in a group of 1,534 people over 60 years of age, living in their own homes in urban and rural environments. Of the people who participated in the study, 831 lived in the Małopolskie Province in Poland and 703 in Prešov Province in Slovakia. The study was conducted between April–November 2022. The qualification criteria were based on a random selection of declarations submitted in Day Care Centres in Podhale and Presov, or declarations submitted to authors who visited elderly people at home. The level of functional fitness was assessed in the Day Care Centre in Nowy Targ and Presova by the authors who had a valid license to practice as a physiotherapist in their country. All people who took part in the study were instructed by the researchers, and in the case of any doubts about how to perform the study or complete the survey, the researcher provided explanations. Functional tests were unified in both countries.

The inclusion criteria for the study were people aged 60 and over, living in a home environment, and whose mental capacity and level of verbal communication allowed them to participate in the study without the need for assistance from others. All respondents provided informed and voluntary consent to participate in the study.

Polish and Slovak versions of the standardized WHOQOL-Bref questionnaire were used to assess quality of life. The use of the same instrument in the research was purposeful due to the optimality of comparing the quality of life in different countries. The questionnaire covers four domains of life: physical, psychological, social and environmental, and two questions concerning individually perceived satisfaction with the quality of one's life and satisfaction with health status, which are analyzed separately. Overall perception of quality of life and overall perception of health status are scored on the WHOQOL-bref scale from 1–5 points, while the score range for other domains on the WHOQOL-bref scale is 0–100 points. The higher the score, the better the quality of life in a particular domain [8, 9].

To assess the level of general fitness and the risk of falling, the Get Up & Go test was used, which is a good indicator of the strength and efficiency of the lower limbs, mobility, dynamic balance and coordination. The respondent's task was to stand up from a chair with a seat height of 46 cm, pushed against a wall, on which they were seated with their backs resting against the back of the chair, and then walk a distance of 3 meters on flat ground, make a 180° turn, return to the chair, and assume a seated position again. The subjects were asked to complete the task as quickly as possible, but at a pace that was safe for them. Interpretation of the Get Up & Go test results:

- < 10 sec – normal physical function; low risk of falling;
- 10–19 sec – slightly reduced physical function with indication for in-depth fall risk assessment; moderate risk of falling;

- 20–29 sec – partially reduced physical function; high risk of falling;
- ≥ 30 sec – significantly reduced physical function; very high risk of falling.

The chair stand up test was used to assess the strength of the lower limbs. The examined senior was seated on a 43 cm high chair, occupying half the seat, with his back straight, feet touching the ground, arms crossed over his wrists and resting on his chest, was asked to perform standing up and sitting down for 30 seconds as fast as possible. The obtained number of repetitions was calculated according to the norms for the gender and age of the respondent. Statistical analysis was performed using SPSS 20 software. Data analysis included comparing the results in different groups of subjects according to the type of variables. Quantitative variables were presented as mean ± standard deviation (SD). In the case of variables of a nominal nature or with a small number of categories, the chi-square statistic was used to determine the existence of relationships. In the case of quantitative variables of at least ordinal nature, the existence of a linear relationship between the variables, as well as its strength and direction, was checked using Spearman's correlation coefficients (ordinal variables).

After verification of the null hypothesis, this was rejected, thus only non-parametric tests were used in the analysis: the Mann-Whitney U test to compare the distributions of variables in two unrelated groups and the Kruskal-Wallis test to assess differences in the distributions of continuous variables in more than two groups for the data. The analysis was performed at a significance level of  $p < 0.05$  (95% probability).

The study was conducted in accordance with the Declaration of Helsinki and approved by the Bioethics Committee of the Kraków Regional Medical Chamber (Resolution No. 121/KBL/OIL/2023).

## RESULTS

Of all the people aged 60 and over who participated in the study, 831 were from Poland and 703 from Slovakia. In terms of age of the Polish subjects, seniors aged 60–74 constituted the largest group (74.25%), while those over 90 were the least numerous group (0.60%). In the Slovak group, the most numerous were also those aged 60–74 years (61.88%), while the least numerous group were the 90-year-olds (1.71%). The mean age of Polish seniors who participated in the study was  $70 \pm 7.3$  and the mean age of Slovak seniors was  $73 \pm 6.6$ . A total of 534 women (64.26%) and 297 men (35.74%) from Poland participated in the study; in the Slovak group, there were 423 women (60.17%) and 280 men (39.83%). Among the Polish seniors, the most numerous group were people with vocational education (42.72%) and the least numerous group were people with higher education (10.95%). Among Slovaks, the most numerous group were people with secondary education (39.83%) and the least numerous group were those with higher education (12.94%). The majority of Polish seniors were married (58.48%) and the lowest percentage of the participants were divorced (15.40%). Among Slovak seniors, the most numerous group were also married people (56.47%), while the divorced were the least numerous group (4.41%). Considering the body mass index (BMI), the highest

percentage of people among Polish seniors were overweight (43.68%), while underweight people were the least numerous group (0.84%). In Slovakia, the majority of the participants were overweight (51.21%), while the lowest percentage were found to be underweight (0.71%).

Living arrangements were another variable that was taken into consideration. In the Polish sample group, seniors most often lived with their family in the same household (44.28%), and least often with a spouse and children (3.73%). Slovak seniors were most likely to live only with a partner (39.97%), and least likely to live only with a family but without a spouse (14.37%). While analyzing motor skills using the Get Up & Go test and the 30-second chair stand test, low-level physical function was found to be prevalent among both Polish and Slovak seniors. The largest group among Polish seniors were those with normal physical function with a low risk of falling (39.83%), while the largest group among Slovak seniors were those who could walk outside independently, did not need assistive equipment, but demonstrated a medium risk of

falling (54.05%). In both analyzed groups, only 1% of the seniors could not complete the Get Up & Go test due to health reasons. The performance of the largest number of seniors was below average on the 30-second chair stand test – 47.29% of Polish seniors and 58.18% of Slovak seniors. The least numerous group were seniors who performed above average on the 30-second chair stand test. The Polish and Slovak study groups were not identical in terms of the analyzed parameters, which indicates the influence of other factors that are the subject of further research by the authors (Tab. 1).

The mean level of satisfaction with the quality of life (Q1) was marked at 4 points on the WHOQOL-bref scale in both compared groups of subjects. The average satisfaction with health (Q2) was marked at 3 points in both groups of respondents compared. Physical domain scores were significantly higher among Polish seniors than among Slovak seniors ( $p=0.000$ ). In contrast, the psychological domain ( $p=0.000$ ) and environmental domain ( $p=0.029$ ) were rated significantly higher in seniors from Slovakia

**Table 1.** Biometric characteristics

SOCIO-DEMOGRAPHIC DATA		Poland		Slovakia		p
		n	%	n	%	
Gender	males	297	35.74	280	39.83	2.714 df=1 $p=0.099$
	females	534	64.26	423	60.17	
Education	primary	141	16.97	107	15.22	25.771 df=3 $p=0.000$
	vocational	355	42.72	225	32.01	
	secondary	244	29.36	280	39.83	
	higher	91	10.95	91	12.94	
Place of residence	urban	429	51.69	325	46.23	4.534 df=1 $p=0.033$
	rural	401	48.31	378	53.77	
Age	60–74	617	74.25	435	61.88	28.638 df=2 $p=0.000$
	75–89	209	25.15	256	36.42	
	>90	5	0.60	12	1.71	
Marital status	single	52	6.26	34	4.84	75.989 df=3 $p=0.000$
	in a relationship	486	58.48	397	56.47	
	divorced	128	15.40	31	4.41	
	widowed	165	19.86	241	34.28	
Living arrangements	living alone	154	18.53	185	26.17	212.36 df=3 $p=0.000$
	living only with a partner	278	33.45	281	39.97	
	living with a family	368	44.28	101	14.37	
	living with a partner and children	31	3.73	137	19.49	
BMI	underweight	7	0.84	5	0.71	11.081 df=4 $p=0.026$
	normal	260	31.29	174	24.75	
	overweight	363	43.68	360	51.21	
	obesity class 1	148	17.81	115	16.36	
	obesity class 2	53	6.38	49	6.97	
Physical function measured with a Get Up & Go test	did not participate	9	1.08	8	1.14	68.965 df=4 $p=0.000$
	< 10 sec	346	39.83	160	22.76	
	10–19 sec	314	37.79	380	54.05	
	20–29 sec	71	8.54	86	12.23	
	≥ 30 sec	91	10.95	69	9.82	
Risk of falling measured with the 30-second chair stand test	below average	393	47.29	409	58.18	21.5 df=2 $p=0.000$
	average	372	44.77	234	33.29	
	above average	66	7.94	60	8.53	

n – total number of subjects; % – percentage of total number of subjects

than in those from Poland. In the group of Polish seniors, the environmental domain was rated the highest and the psychological domain the lowest; in the group of Slovak seniors the environmental domain was also rated the highest, while the physical domain was rated the lowest (Tab. 2).

**Table 2.** Quality of life among the groups of Polish and Slovak participants

Quality of life measured on WHOQOL scale	Polish M±SD	Slovak M±SD	Statistical significance
Q1	3.80±0.78	3.62±0.78	U=252156.0 / <b>p=0.000</b>
Q2	3.28±0.90	3.14±0.92	U=265729.5 / <b>p=0.001</b>
Physical domain	64.90±17.38	61.33±18.53	U=259573.5 / <b>p=0.000</b>
Psychological domain	62.05±16.01	66.07±16.46	U=252191.0 / <b>p=0.000</b>
Social domain	65.32±17.29	64.75±17.57	U=287803.0 / p=0.615
Environmental domain	68.51±13.16	69.95±15.96	U=273367.5 / <b>p=0.029</b>

M – mean; SD – standard deviation; Mann – Whitney U test

A statistically significant difference was found when analyzing the relationship between marital status and assessed level of the quality of life. Further analysis using the Mann-Whitney U test showed that the highest levels

of satisfaction with their quality of life, satisfaction with their health and with physical, psychological, social and environmental domains, were found in married participants, compared with the other groups (Tab. 3).

The non-parametric Kruskal-Wallis test was used in the course of analysis, in which it was observed that the place of residence had a significant influence on the quality of life assessment among Polish subjects in terms of satisfaction with their quality of life, satisfaction with their health status, and with all 4 domains (physical, psychological, social and environmental). The analysis performed using Mann-Whitney U test found that the lowest quality of life, in comparison with the other groups, was observed in participants living alone. The highest quality of life was found in participants living in multi-generational households (Tab. 4).

The correlation between the quality of life of Polish and Slovak subjects was analyzed with respect to age. Spearman's rank correlation analysis revealed significant negative correlations between the age of the subjects in the Polish and Slovak groups in terms of satisfaction with their quality of life, satisfaction with health and physical, psychological and social domains (p = 0.000), and environmental domain

**Table 3.** Assessment of quality of life by marital status

WHOQOL-BREF Quality of life	MARITAL STATUS									
	Polish				H(df)/p	Slovak				H(df)/p
	single	in a relationship	divorced	widowed		single	in a relationship	divorced	widowed	
Q1	3.35 (0.88)	3.9 (0.75)	3.73 (0.87)	3.72 (0.74)	H(3)=29.851 <b>p=0.000</b>	3.47 (0.93)	3.77 (0.75)	3.32 (0.7)	3.42 (0.79)	H(3)=35.906 <b>p=0.000</b>
Q2	2.98 (0.92)	3.39 (0.9)	3.15 (0.89)	3.16 (0.9)	H(3)=20.139 <b>p=0.000</b>	3.35 (1.13)	3.20 (0.91)	3.16 (0.97)	3.00 (0.89)	H(3)=9.702 <b>p=0.021</b>
Physical domain	57.75 (17.52)	68.04 (16.69)	63.31 (16.68)	59.13 (17.75)	H(3)=49.193 <b>p=0.000</b>	63.94 (18.78)	63.89 (17.6)	60.65 (19.15)	56.83 (19.17)	H(3)=22.141 <b>p=0.000</b>
Psychological domain	54.42 (18.29)	64.46 (15.22)	61.01 (16.33)	58.13 (15.82)	H(3)=31.222 <b>p=0.000</b>	61.29 (17.7)	69.56 (15.26)	61.84 (17.41)	61.54 (16.76)	H(3)=38.841 <b>p=0.000</b>
Social domain	48.33 (18.24)	70.33 (14.68)	60.58 (18.73)	59.59 (16.89)	H(3)=116.297 <b>p=0.000</b>	62.85 (19.28)	67.3 (17)	59.52 (14.37)	61.48 (18.01)	H(3)=21.809 <b>p=0.000</b>
Environmental domain	62.71 (16.8)	69.79 (12.66)	68.58 (13.08)	66.52 (12.78)	H(3)=15.423 <b>p=0.001</b>	69.03 (15.58)	71.79 (15)	63.06 (16.36)	67.93 (17.08)	H(3)=12.537 <b>p=0.006</b>

M – mean; (SD) – standard deviation; H – Kruskal-Wallis H test;

**Table 4.** Quality of life assessment by living arrangements

WHOQOL-BREF Quality of life	LIVING ARRANGEMENTS									
	Polish				H(df)/p	Slovak				H(df)/p
	single	with a partner	with a family	with partner and children		single	with a partner	with a family	with partner and children	
Q 1	3.48 (0.88)	3.81 (0.81)	3.91 (0.7)	4.00 (0.58)	H(3)=33.434 <b>p=0.000</b>	3.41 (0.77)	3.72 (0.78)	3.45 (0.83)	3.82 (0.71)	H(3)=32.865 <b>p=0.000</b>
Q 2	2.98 (0.89)	3.29 (0.93)	3.37 (0.89)	3.55 (0.77)	H(3)=23.449 <b>p=0.000</b>	3.08 (0.94)	3.09 (0.94)	3.08 (0.9)	3.37 (0.86)	H(3)=11.93 <b>p=0.008</b>
Physical domain	58.55 (17.89)	65.61 (17.69)	66.39 (16.69)	72.35 (11.81)	H(3)=30.943 <b>p=0.000</b>	59.82 (18.77)	60.88 (19.13)	56.83 (19.34)	67.61 (14.59)	H(3)=20.277 <b>p=0.000</b>
Psychological domain	55.9 (16.87)	63.33 (16.12)	63.28 (15.11)	66.42 (14.27)	H(3)=26.468 <b>p=0.000</b>	61.79 (16.79)	66.59 (16.13)	63.22 (15.24)	72.85 (15.35)	H(3)=40.7 <b>p=0.000</b>
Social domain	54.57 (19.65)	66.09 (16.94)	68.73 (14.61)	71.39 (16.32)	H(3)=61.497 <b>p=0.000</b>	59.90 (18.3)	66.00 (16.9)	63.45 (17.45)	69.66 (16.46)	H(3)=26.503 <b>p=0.000</b>
Environmental domain	63.55 (14.58)	69.01 (13.1)	69.79 (12.09)	73.55 (12.86)	H(3)=25.329 <b>p=0.000</b>	67.41 (16.72)	70.12 (15.76)	69.94 (16.49)	73.01 (14.53)	H(3)=8.617 <b>p=0.035</b>

M – mean; (SD) – standard deviation; H – Kruskal-Wallis H test

(in Poland –  $p=0.007$ ; in Slovakia –  $p=0.003$ ). The scores in the above-mentioned domains decreased with age (Tab. 5).

The level of the quality of life was analyzed with respect to the education level of Polish and Slovak seniors. When examining a group of Polish seniors in the areas of satisfaction with their health ( $p=0.009$ ), physical ( $p=0.000$ ), psychological ( $p=0.030$ ) and social ( $p=0.003$ ) domains, a significant statistical difference was found with regard to education. In the Slovak group of seniors, a significant statistical difference was found when examining quality of life with regard to education level in terms of satisfaction with their quality

of life, and satisfaction with their health, as well as in the physical, psychological and social domains ( $p=0.000$ ), and in the environmental domain ( $p=0.001$ ) (Tab. 6).

In the Polish group, there were no significant statistical differences between men and women in terms of quality of life. The Slovak senior group showed a statistically significant difference in the psychological domain with respect to gender ( $p=0.010$ ). Further analysis using the Mann-Whitney test showed that Slovak men had the highest level of quality of life assessment in the psychological domain, in comparison with Slovak women (Tab. 7).

**Table 5.** Quality of life assessment by age

WHOQOL-BREF Quality of life	AGE OF PARTICIPANTS							
	Polish			rho/p	Slovak			rho/p
	60–74	75–89	>90		60–74	75–89	>90	
Q1	3.85 (0.79)	3.67 (0.74)	3.4 (0.89)	-0.121 <b>p=0.000</b>	3.71 (0.76)	3.46 (0.83)	3.58 (0.67)	-0.145 <b>p=0.000</b>
Q2	3.36 (0.9)	3.04 (0.91)	3.00 (0)	-0.157 <b>p=0.000</b>	3.25 (0.9)	2.94 (0.92)	3.5 (1.09)	-0.151 <b>p=0.000</b>
Physical domain	67.53 (17.12)	57.59 (15.77)	45.2 (17.64)	-0.275 <b>p=0.000</b>	64.91 (17.74)	55.39 (18.44)	58.33 (17.17)	-0.245 <b>p=0.000</b>
Psychological domain	63.34 (15.98)	58.45 (15.54)	52.6 (16.47)	-0.135 <b>p=0.000</b>	68.94 (16.42)	61.38 (15.51)	62.08 (14.79)	-0.236 <b>p=0.000</b>
Social domain	67.01 (17.12)	60.5 (16.93)	58.8 (18.17)	-0.174 <b>p=0.000</b>	67.03 (17.55)	61.33 (16.79)	55.08 (20.99)	-0.160 <b>p=0.000</b>
Environmental domain	69.22 (13.28)	66.62 (12.63)	60.00 (13.58)	-0.093 <b>p=0.007</b>	71.32 (16.22)	67.82 (15.42)	65.75 (13.57)	-0.111 <b>p=0.003</b>

M – mean; (SD) – standard deviation; rho – Spearman's rank correlation coefficient

**Table 6.** Quality of life assessment by education level

WHOQOL-BREF Quality of life	EDUCATION LEVEL									
	Polish				rho/p	Slovak				rho/p
	primary	vocational	secondary	higher		primary	vocational	secondary	higher	
Q1	3.75 (0.83)	3.78 (0.74)	3.85 (0.79)	3.85 (0.87)	0.058 $p=0.097$	3.36 (0.86)	3.52 (0.81)	3.73 (0.73)	3.8 (0.73)	0.186 <b>p=0.000</b>
Q2	3.25 (0.86)	3.18 (0.88)	3.39 (0.90)	3.42 (1.04)	0.090 <b>p=0.009</b>	2.93 (0.97)	3.06 (0.97)	3.2 (0.85)	3.42 (0.88)	0.158 <b>p=0.000</b>
Physical domain	62.24 (17.23)	63.55 (17.29)	67.57 (15.93)	67.08 (20.6)	0.121 <b>p=0.000</b>	53.96 (20.6)	60.17 (19.1)	62.87 (16.91)	68.14 (16.27)	0.191 <b>p=0.000</b>
Psychological domain	59.48 (15.32)	61.96 (15.81)	63.6 (15.79)	62.19 (18.07)	0.075 <b>p=0.030</b>	59.65 (17.1)	64.65 (17.08)	68.31 (15.58)	70.24 (14.27)	0.195 <b>p=0.000</b>
Social domain	62.58 (16.4)	65.05 (17.25)	65.93 (17.95)	69.00 (16.56)	0.102 <b>p=0.003</b>	59.98 (18.79)	63.91 (17.58)	66.25 (16.82)	67.82 (17.38)	0.137 <b>p=0.000</b>
Environmental domain	67.74 (12.66)	68.38 (13.07)	68.5 (13.22)	70.24 (14.19)	0.033 $p=0.345$	64.29 (16.25)	70.41 (16.6)	70.89 (15.65)	72.55 (13.57)	0.120 <b>p=0.001</b>

M – mean; (SD) – standard deviation; rho – Spearman's rank correlation coefficient

**Table 7.** Quality of life assessment by gender

WHOQOL-BREF Quality of life	GENDER							
	Polish			U/p	Slovak			
	Males	Females	U/p		Males	Females	U/p	
Q1	3.76 (0.81)	3.82 (0.77)	U=75657	$p=0.216$	3.65 (0.83)	3.60 (0.76)	U=56879	$p=0.331$
Q2	3.27 (0.93)	3.29 (0.90)	U=78720.5	$p=0.853$	3.19 (0.95)	3.10 (0.91)	U=56764	$p=0.326$
Physical domain	64.85 (18.05)	64.93 (17.03)	U=78447.5	$p=0.796$	62.48 (18.46)	60.57 (18.57)	U=55951.5	$p=0.212$
Psychological domain	62.36 (16.41)	61.87 (15.80)	U=76473.5	$p=0.389$	67.92 (16.70)	64.85 (16.21)	U=52459.5	<b>p=0.010</b>
Social domain	66.08 (17.71)	64.90 (17.07)	U=75989.5	$p=0.311$	64.9 (17.53)	64.65 (17.62)	U=58863.5	$p=0.891$
Environmental domain	68.35 (13.37)	68.60 (13.07)	U=78757	$p=0.869$	71.00 (16.00)	70.00 (16.00)	U=56657	$p=0.327$

M – mean; (SD) – standard deviation; U – Mann-Whitney U test

**Table 8.** Perceived quality of life by place of residence

WHOQOL-BREF Quality of life	PLACE OF RESIDENCE					
	Polish			Slovak		
	Urban area	Rural area	U/p	Urban area	Rural area	U/p
Q1	3.81 (0.78)	3.80 (0.8)	U=85293.5 p=0.814	3.62 (0.84)	3.62 (0.75)	U=60295.5 p=0.645
Q2	3.26 (0.91)	3.30 (0.91)	U=84475 p=0.637	3.11 (0.94)	3.16 (0.91)	U=59937 p=0.559
Physical domain	65.02 (17.15)	64.74 (17.68)	U=85003.5 p=0.768	61.87 (18.54)	60.87 (18.55)	U=60009.5 p=0.596
Psychological domain	62.03 (15.9)	62.03 (16.16)	U=85718 p=0.931	66.05 (16.78)	66.09 (16.21)	U=61075 p=0.895
Social domain	65.05 (17.53)	65.6 (17.08)	U=84157 p=0.585	63.62 (18.04)	65.71 (17.13)	U=57689.5 p=0.159
Environmental domain	68.27 (13.19)	68.77 (13.17)	U=83869 p=0.529	69.81 (16.3)	70.07 (15.7)	U=60960.5 p=0.862

M – mean; (SD) – standard deviation; U – Mann-Whitney U Test

No statistically significant differences were found concerning the quality of life between the groups of seniors participating in the study with respect to their place of residence.

## DISCUSSION

With the increase in life expectancy, it is becoming increasingly important to study factors that positively affect aging and the quality of life in old age, which is why assessing quality of life among people aged 60 and over should be an important part of diagnosis. Investing in preventive care is crucial to improving the health of the seniors worldwide, and thus their quality of life [10]. The literature supports the notion that an individual's quality of life can be determined by socio-demographic factors (unchangeable) and those that are subject to change, such as education level, place of residence, living arrangements, and marital status [11, 12, 13, 14, 15, 16, 17]. The influence of socio-demographic factors on quality of life in the elderly seems to vary considerably in different populations, which may be due to the fact that different instruments are used to measure quality of life [11]. According to Glowacka et al., the use of different methodologies for assessing the functional capacity and quality of life of the elderly hinders the interpretation, comparison and practical application of the results, and also makes it impossible to compare the obtained data from an interdisciplinary perspective [18].

In the current study, the authors compared the quality of life among people over 60 in Poland and Slovakia, deliberately using a single tool validated for a given country. Own research showed that, with the exception of the social domain, there were no significant differences in the assessment of quality of life. However, there was no cut-off point to indicate higher or lower quality of life. It would be useful if there was a cut-off point to better define perceived satisfaction with quality of life and satisfaction with health in older people. Having considered the best cut-off point estimated by Barbosa Silva et al. [19] at 60 points for the WHOQOL-bref instrument as a predictor of quality of life in seniors  $\geq 60$  years of age, in the current study a good quality of life was found in both Polish and Slovak seniors in all 4 domains of life.

The study by Kučiaková et al. to find the quality of life of Slovakian seniors studying at the University of the Third Age, showed that the level of individual overall perception of quality of life was higher than in the Slovakian population in the authors' own study – marked at 3.86. The level of

individuals' perceived state of health at 3.60 was also higher than in the authors' own study [20]. The level of satisfaction with quality of life of Polish seniors was marked at 3.80, and the level of satisfaction with health was at marked at 3.28. Ćwirlej-Sozańska et al., in a study of 973 people aged 60–80 years and living in rural areas of southeastern Poland, showed that the mean level of satisfaction with quality of life among Polish seniors was marked at 3.58, and the mean level of satisfaction with health was marked at 3.40 [21]. In the current study, the environmental domain was rated the highest among both the Polish and Slovak populations. In turn, physical domain was rated the lowest by Slovak participants, whereas the psychological domain was rated the lowest by the Polish participants.

In the study by Kučiaková et al., the physical domain was rated the highest and the social domain the lowest by Slovak seniors. In contrast, in Soósová's study among Slovak elderly people living in the Košice region, whose average age was 74.47 years, the physical domain was rated the lowest at 51.61 and the social domain the highest at 62.25 [11]. Both in the study by Kučiaková et al. [20] and the study by Soósová [13], the WHOQOL-bref questionnaire was used to measure quality of life. The results of a study by Ausín et al. of 555 people aged 65–84 living in Madrid, Spain, indicated that the physical domain was rated the lowest ( $68.23 \pm 18.46$ ), and the social domain the highest ( $76.09 \pm 16.34$ ) [14]. A study by Gobbens and Remmen among 1492 Dutch people aged  $\geq 50$  years indicated that seniors had the lowest level of quality of life in the social domain, and the highest in the environmental domain [15]. Ahaji's cross-sectional study of a random sample of 537 people aged 60 and over, found that only 8.8% of subjects perceived themselves to be in good health [22].

Assessment of the impact of demographic, socio-economic and health-related factors on the quality of life of seniors was the focus of studies conducted by many specialists [11–17, 20–25]. Soósová [11] demonstrated that life without a partner is negatively correlated with quality of life. Bilgili and Arpacı [12] and Gambin et al. [14] also reported higher quality of life scores among older married adults. Lee et al. found that quality of life was higher in elderly people living with a spouse than in elderly people without a spouse [13]. In the study by Gobbens and Remmen, marital status was significantly correlated with all domains of life [15]. Results of the current study for subjects over 60 years of age from Poland and Slovakia are consistent with studies by Soósová [11], Bilgili and Arpacı [12], Lee et al. [13], Gambin et al. [14] and Gobbens and Remmen [15].

Chruściel et al. [23] conducted a study on a group of 588 people aged over 60 and living in rural areas of eastern Poland. Those living with families were statistically significantly different from those living alone. A study by Kowalczyk et al. [25] and Pacholek et al. [17], also confirmed that the quality of life of people aged 60 and over and living in a household with a family, is higher than those living alone. Level of satisfaction with quality of life in the study by Chruściel et al. [23] of those living with family was rated at 3.62 and those living alone at 3.35. The results of the current study indicate that the level of satisfaction with quality of life of Polish people aged over 60 living with family and living alone was higher. In turn, subjects living with a family in Slovakia reported satisfaction with their quality of life at 3.45, those living with a family and spouse at 3.82, and those living alone at 3.41. The mean level of satisfaction with one's health in the study by Chruściel et al. [23] by those living with family was rated at 3.30 and those living alone at 3.18. The current study shows that among Polish seniors the mean level of satisfaction with their health in those living with family was higher and in those living alone, which was lower than in the study of Chruściel et al. In contrast, the results of the authors' own study of Slovak seniors indicated that the mean level of self-assessed health status for those living with family was marked at 3.08, those living with family and spouse at 3.37, and those living alone at 3.07. According to Chruściel et al. living with relatives is beneficial for seniors, as it results in better physical, psychological and social outcomes. Loneliness, which is often associated with old age, leads to a decline in the quality of life [23].

Sošová reported a lower quality of life among the oldest Slovak people [11], and the study by Gobbens and Remmen also showed that older age was associated with lower quality of life [15]. The findings of Ausín et al. [16], Pacholek et al. [17] and Kowalczyk et al. [24], also confirm that quality of life deteriorates with age. Puszczalowska-Lizis et al. found statistically significant differences in terms of quality of life in the psychological domain in women aged 65–74 ( $61.96 \pm 11.13$ ) and 75–84 ( $55.00 \pm 10.75$ ) [25]. According to Layte et al. [26], increased longevity can be associated with an increase in quality of life as long as it is accompanied by a reasonable level of mental and physical health, and high-quality social relationships. The results of the current study on Polish seniors confirm that older age is associated with lower quality of life, and in Slovak seniors is in line with the findings of Layte et al. [26], but only among a group of 75–89-year-olds and those over 90-year-olds.

Sošová observed a higher quality of life among older people with higher education [11]. According to a study by Gambin et al. involving 197 elderly Brazilians, having more years of education was associated with higher scores in psychological and social relationships, as well as in environmental quality of life [14]. The results of a study by Kowalczyk et al. [24] on a group of 1,008 seniors from southern Poland, showed a significantly higher level of quality of life in people with higher levels of education. The results of the current study confirmed this trend, especially among Slovak seniors.

The results of a study by Ausín et al. showed that overall quality of life was lower in women than in men [16]. However, in the social domain, women had a higher quality of life ( $77.94 \pm 16.44$ ) than men ( $74.11 \pm 16.03$ ) [16]. In a study by Puszczalowska-Lizis et al., in the social domain, women in the 65–74 age group ( $62.25 \pm 18.05$ ) had a higher quality of

life than men in the 65–74 age group ( $61.18 \pm 21.69$ ), while those in the 75–84 age group were at the same level (women –  $58.30 \pm 17.56$ ; men –  $58.08 \pm 14.57$ ) [25]. The aim of study conducted by Bilgili and Arpacı [12] was to investigate the factors influencing the quality of life of people aged 60 and over in Turkey. The results indicated that the quality of life of the elderly, in addition to gender, was influenced by such variables as age, education level, marital status, income, health status, living arrangements or having children. In contrast, the results of a study by Kowalczyk et al. [24] did not prove that gender was among the determinants of quality of life in the elderly. In the current study, a significantly lower quality of life was reported only in the psychological domain in women, compared to men in the group of Slovak seniors.

The study by Ćwirlej-Sozańska et al. [21] aimed to assess the quality of life in 973 elderly people living in rural areas of south-eastern Poland. All of the evaluated domains of quality of life were above the median of the scale. The highest score was found in the social domain ( $67.35 \pm 17.31$ ), and the lowest in the physical domain ( $58.74 \pm 14.80$ ). The result for quality of life in psychological domain was  $60.04 \pm 12.92$  and  $63.87 \pm 16.76$  in the environmental domain [21]. In addition, the results of a study by Kowalczyk et al. [24] also indicated that place of residence was significantly correlated with higher standard of living. People aged 60 and over living in urban areas (69.58) demonstrated a higher level of quality of life than those living in rural areas (65.57) [24]. The results of the current study indicate that place of residence was not a factor significantly correlated with quality of life in both the Polish and Slovak groups of seniors.

The concept of quality of life is difficult to define, but its assessment is now in line with a holistic approach to each patient [27]. This is especially true for adults aged 60 and over because it is widely accepted that 'a shorter life with quality is better than a longer one without it' [28]. Physical function of the elderly is one of the factors that determines quality of life; therefore, it is recommended that widely available psychical function assessment tools are used in daily practice for an in-depth fall risk assessment in seniors.

## CONCLUSIONS

Based on the obtained results, the following conclusions were formulated:

1. Satisfaction with the quality of life was rated higher than satisfaction with health in both the Polish and Slovakian study groups.
2. Statistically significant differences were found in the evaluation of the physical, psychological and environmental domains, while the social domain showed no such significance. The physical domain was rated higher by Polish seniors, while the psychological and environmental domains were rated higher by seniors from Slovakia.
3. Statistically significant correlations were found between such data as age, marital relationship, and living in a multi-generational household, both in the Polish and Slovak groups of seniors. No such correlations were found by gender, place of residence or in single households.

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