STUDY ON THE FACTORS INFLUENCING THE QUALITY OF LIFE OF OLDER ADULTS

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Abstract. The purpose of the paper is to identify the factors influencing the quality of life of retired older adults from urban areas in Romania. The research question is whether their socio-demographic indices, chronic conditions, body mass index, eating habits, sleep, way of spending free time and physical activity correlate with the Quality of Life Index. The research included 172 retired older adults from urban areas in Romania, who expressed their interest in the activities proposed by the research team to promote a healthy lifestyle and who met the required inclusion criteria. To identify the factors influencing the quality of life of older adults in Romania, all participants were invited to complete the Quality of Life Questionnaire – Short form (WHOQOL-BREF) proposed by the World Health Organization. In addition, the research participants completed a questionnaire that included items about: certain socio-demographic characteristics; health status; height, weight; eating habits; night sleep; way of spending free time. Participants indicated the leisure activities performed in the previous week and filled in the Physical Activity Scale for the Elderly. Statistics showed that the Quality of Life Index did not correlate with the marital status, gender, level of education and monthly income of the research participants or the PASE total score. It can be highlighted that, for the older adults investigated by us, the most important factors for their quality of life are: health, diet, sleep, spending free time and, to a certain extent, physical activity. Among the PASE indices, the Quality of Life Index poorly correlated only with leisure physical activity.

Keywords: active lifestyle, aging, health.

Introduction

The growing number of older adults worldwide leads specialists to pay more attention to the phenomenon of aging population and their quality of life, against the background of possible threats to their health status. In Europe, the proportion of older population is expected to almost double by 2080 compared to 2014 (Eurostat, 2021; United Nations, 2015).

The quality of life of older adults lies in the interaction of several factors, the most numerous approaches in the literature referring to the provisions of the World Health Organization according to which this aspect cannot be assessed outside the physical, psychological, social, cultural, mental and spiritual areas (The WHOQoL Group, 1995).

The quality of life of older adults is an indicator of their state of health and well-being (Ćwirlej-Sozańska et al., 2018), reflecting their functioning and level of activity in the environment in which they live. Chronic conditions and environmental factors have a negative impact on the quality of life of older individuals (Gobbens & van Assen, 2018), which involves increasing interest in identifying the most appropriate care services for them. It is well known that older adults need to benefit from multidisciplinary interventions based on close monitoring, engagement in various activities and physical demands (Ćwirlej-Sozańska et al., 2018).

The quality of life of older adults is strongly influenced by the physical activity in which they participate (Vagetti et al., 2014; Vanleerberghe et al., 2017), the benefits of exercise on the participants' mental (Stewart et al., 2003) and physical health (Bowling et al., 2002) being widely recognised. In older adults, physical activity has been shown to improve cardiac fitness, help regulate metabolism (Chodzko-Zajko et al., 2009), reduce the risk of falls (Fernández-Argüelles et al., 2015) and prevent cognitive decline (McPhee et al., 2016). However, older adults avoid engaging in exercise programmes and adopt a sedentary lifestyle, which exposes them to the risk of illness, loss of functional independence and diminished quality of life. Elderly clubs are a viable alternative to maintaining an active lifestyle for older adults, being an opportunity for those living in cities/towns where local authorities provide such services (Wendt Böhm et al., 2016).

The *purpose* of the paper is to identify the factors influencing the quality of life of retired older adults from urban areas in Romania. The research question is whether their socio-demographic indices, chronic conditions, body mass index, eating habits, sleep, way of spending free time and physical activity correlate with the Quality of Life Index.

Methodology

Participants

The research included 172 retired older adults from urban areas in Romania, who expressed their interest in the activities proposed by the research team to promote a healthy lifestyle and who met the required inclusion criteria. Only older adults who did not show serious health issues, were functionally independent and had no problem understanding the content of the questions were included in the research. Participants voluntarily joined the study and signed an informed consent after the Local Research Ethics Commission approved the research protocol (939/8 April 2019).

Depending on the involvement of participants in the socio-educational programmes offered by Elderly Clubs under the auspices of the General Directorates of Social Assistance and Child Protection, they were divided into two groups: Participants in Elderly Clubs (PEC) and Non-Participants in Elderly Clubs (NPEC).

Procedure

The current research is part of a broader scientific approach aimed at analysing the barriers and facilitators that appear when older adults are challenged to adopt an active lifestyle and combat the negative effects of sedentariness. The first analysis of these factors has already been published (Urzeala et al., 2021), so we consider that this follow-up study complements the picture about the lifestyle of the participating older adults.

To identify the factors influencing the quality of life of older adults in Romania, all participants were invited to complete the Quality of Life Questionnaire – Short form (WHOQOL-BREF) proposed by the World Health Organization (1996).

In addition, the research participants completed a questionnaire that included items about: certain socio-demographic characteristics such as age, gender, marital status, level of education

and monthly income; health status, namely the existence or absence of a diagnosis of chronic disease; height, weight; eating habits; night sleep; way of spending free time. Participants indicated the leisure activities performed in the previous week, choosing from the following: meeting friends, neighbours; reading, studying; watching TV, listening to music; going to the theatre, cinema, concerts or exhibitions; walks, trips; sports; hobbies.

Moreover, the already published results about the level of engagement in physical activity obtained by applying the Physical Activity Scale for the Elderly (PASE) were analysed in correlation with the results recorded by the World Health Organization (WHO). This scale (New England Research Institutes, 1991) includes questions about leisure physical activities, housework physical activities and occupational physical activities (paid or volunteer work) performed by older adults in the previous week. Their responses were analysed in compliance with the PASE Manual. Because the participants were retired and stated they had not been engaged in volunteer work, there was no need to analyse occupational physical activities.

The investigated older adults completed all questionnaires in the paper-and-pencil format, in the presence of a specialist, the allotted time being between 40 minutes and 1 hour, with a focus only on their habits in the previous week. Statistical data analysis was performed using SPSS v20 to calculate: the normality of data distribution by Skewness and Kurtosis coefficients (Howell, 2013), *t* test for independent samples, the Wilcoxon (Mann-Whitney) test with a significance set at $p < 0.05$ and Spearman's correlations between paired data.

Results

1. Socio-demographic indices

The research involved 59 men and 113 women from urban areas, with an average age of 71 years (Figure 1), of whom 67 were married, 5 were in unofficial relationships, 26 were divorced, 68 were widowed and 6 were single. Of them, 107 stated that they used to participate in the activities proposed by Elderly Clubs. Most of these adults had completed higher education (27.3%) or high school (23.3%). The level of monthly income for 54.7% of them was between 1001 and 2000 lei.
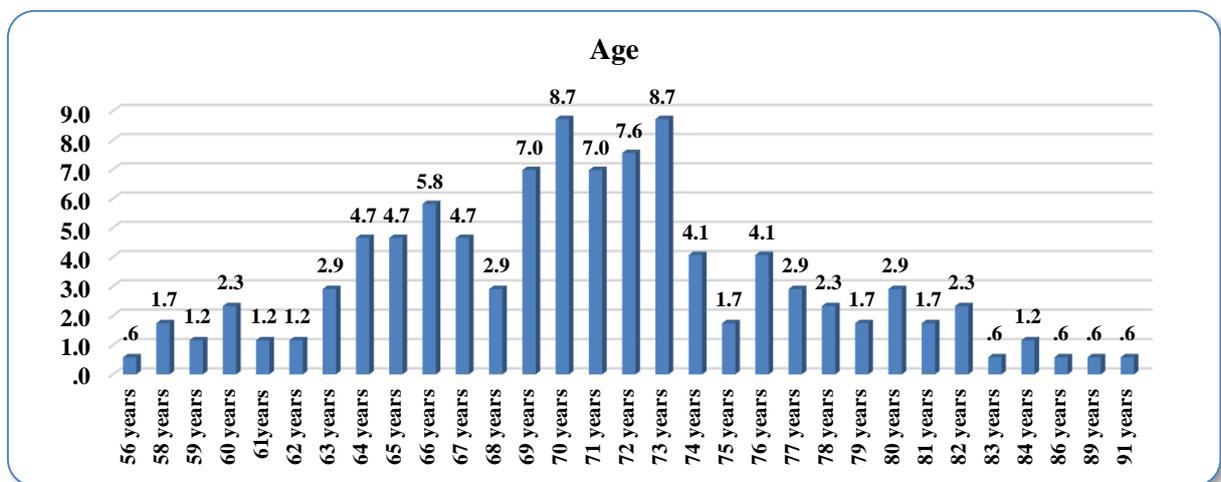

Figure 1. Number and age of participants

2. Health status

Regarding the health status of participants, it was noticed that they were diagnosed with heart disease in a percentage of 38.4%, with rheumatic and/or osteo-articular disorders in a percentage of 16.3%, with diabetes - 8.7% and other conditions - 18%, while 18% of them did not respond to this question.

In the case of PEC, 39.7% had heart disease, 16.5% had rheumatic and/or osteo-articular disorders, 8.3% were diagnosed with diabetes, 19% were diagnosed with other conditions, and 16.5% did not respond to this question. As for NPEC, 35.3% had heart disease, 15.7% had rheumatic and/or osteo-articular disorders, 9.8% had diabetes, 17.6% were diagnosed with other conditions, and 21.6% did not respond to this question.

3. Body mass index

Body mass index (BMI) was calculated based on the height and weight of participants. According to statistical analysis, all of them fell into the overweight category (BMI = 25-29.9), recording an average value of $27.38 \leq 3.82$ for PEC and an average value of $27.94 \leq 4.13$ for NPEC. The *t* test at $p > 0.05$ did not show statistically significant differences between the two groups of participants.

Responses to question Q27, "Do you know what body weight you should have in relation to your height?", revealed that there were statistically significant differences between PEC and NPEC, the Wilcoxon test indicating a *Z* score equal to -2.548 at $p = 0.011$, with a small effect size (r = 0.2).

4. Eating habits

To provide an overview of participants' food preferences, we present Table 1 below (we mention that not everyone answered all the items of the questionnaire in terms of eating habits).

Table 1. *Descriptive statistics for participants' eating habits*

	Group	N	Mean	Std. Deviation	Std. Error Mean
Fresh milk	NPEC	56	1.43	1.962	.262
	PEC	86	2.37	2.493	.269
Yogurt	NPEC	63	2.44	2.161	.272
	PEC	92	3.11	2.289	.239
Cheese	NPEC	62	2.44	1.636	.208
	PEC	102	3.27	2.274	.225
Eggs	NPEC	63	1.76	.712	.090
	PEC	99	1.77	1.096	.110
Fish	NPEC	62	1.03	1.008	.128
	PEC	90	1.39	1.088	.115
Chicken	NPEC	65	2.11	1.324	.164
	PEC	96	2.06	1.653	.169
Pork	NPEC	59	1.59	1.275	.166
	PEC	89	1.44	1.022	.108
Beef	NPEC	60	.68	1.033	.133
	PEC	79	.94	.852	.096
Meat products	NPEC	58	1.19	1.420	.186
	PEC	83	1.10	1.294	.142
Animal fat	NPEC	63	1.40	1.277	.161
	PEC	91	1.44	.968	.102
Vegetal fat	NPEC	64	2.19	1.798	.225
	PEC	92	2.04	2.059	.215
Fried food	NPEC	61	1.54	1.285	.165
	PEC	82	.90	.869	.096
Potatoes	NPEC	61	1.74	.835	.107
	PEC	95	1.36	.837	.086
Fresh vegetables	NPEC	65	2.46	1.640	.203
	PEC	96	2.93	1.964	.200
Cooked vegetables	NPEC	58	2.21	1.484	.195
	PEC	95	2.97	2.141	.220
Dried pulses	NPEC	61	1.25	.809	.104
	PEC	90	1.46	.985	.104
Fresh fruit	NPEC	64	3.69	2.436	.304
	PEC	99	4.35	2.447	.246
Cereal-derived products	NPEC	60	1.78	1.195	.154
	PEC	90	1.79	1.488	.157
Sugar	NPEC	63	2.02	2.440	.307
	PEC	82	2.29	2.683	.296
Honey	NPEC	62	1.47	1.871	.238
	PEC	92	1.86	2.020	.211
Jam	NPEC	60	1.03	1.402	.181
	PEC	83	1.05	1.103	.121
Compote	NPEC	60	.65	.799	.103
	PEC	84	.77	.896	.098
Bread	NPEC	64	5.00	2.423	.303
	PEC	95	4.52	2.637	.271
Chicken skin	NPEC	65	1.86	.864	.107
	PEC	105	1.61	.753	.073
Pork fat	NPEC	65	1.77	.806	.100
	PEC	106	1.50	.573	.056
Pastry	NPEC	65	1.91	.678	.084
	PEC	106	2.14	.723	.070

Regarding participants' eating habits, the calculated Spearman correlations highlighted a weak positive association ($\rho = 0.201$) at $p < 0.01$ between the pun PEC/NPEC groups and the

responses to question Q31, "How many main meals do you eat each day?". A weak negative correlation ($\rho = 0.201$) at $p < 0.01$ was also recorded between the PEC/ NPEC groups and the responses to question Q36, "On average, how many slices of bread do you eat each day?"

Moreover, Participation/Non-participation in club activities has a weak (or very weak) positive correlation with the consumption of: fresh milk ($\rho = 0.213$, $p < 0.01$), yogurt ($\rho = 0.171$, $p < 0.05$), cheese ($\rho = 0.166$, $p < 0.05$), fish ($\rho = 0.218$, $p < 0.01$), beef ($\rho = 0.189$, $p < 0.05$) and pastry ($\rho = 0.161$, $p < 0.05$). In addition, Participation/Non-participation in club activities has a weak negative correlation with the consumption of: fried food ($\rho = -0.298$, $p < 0.01$), potatoes ($\rho = -0.241$, $p < 0.01$) and pork fat ($\rho = -0.152$, $p < 0.05$).

5. Sleep

As regards the night's sleep, 12.2% of participants sleep less than 5 hours, 63.5% sleep between 5 and 8 hours, and 24.4% sleep more than 8 hours. They use to fall asleep before 11 pm in a percentage of 41.9%, and after 11 pm, in a percentage of 58.1%.

For PEC, the night's sleep lasts less than 5 hours (13.2%), between 5 and 8 hours (62.8%) and more than 8 hours (24%). The PEC group stated that they used to fall asleep before 11 pm in a percentage of 37.2%, and after 11 pm, in a percentage of 62.8%.

For NPEC, the night's sleep lasts less than 5 hours (9.8%), between 5 and 8 hours (64.7%) and more than 8 hours (25.5%). The NPEC group stated that they used to fall asleep before 11 pm in a percentage of 52.9%, and after 11 pm, in a percentage of 47.1%.

6. Spending free time

Participants' preferences for spending their free time are shown in Table 2.

Table 2. *Descriptive statistics for spending free time*

	Club Group	N	Mean	Std. Deviation	Std. Error Mean
Friends	NPEC	57	1.33	.476	.063
	PEC	92	1.53	.502	.052
Reading	NPEC	60	1.43	.500	.065
	PEC	82	1.55	.501	.055
TV, music	NPEC	64	1.86	.350	.044
	PEC	95	1.82	.385	.040
Theatre, exhibitions	NPEC	61	1.15	.358	.046
	PEC	95	1.56	.499	.051
Walks, trips	NPEC	63	1.41	.496	.063
	PEC	95	1.74	.443	.045
Sport	NPEC	59	1.07	.254	.033
	PEC	68	1.28	.452	.055
Hobby	NPEC	56	1.11	.312	.042
	PEC	68	1.26	.444	.054

After analysing Spearman's correlations, it has been noticed that Participation/Non-participation in club activities has weak positive associations with meeting friends ($\rho = 0.194$, $p < 0.05$), playing a sport ($\rho = 0.274$, $p < 0.01$) and engaging in a hobby ($\rho = 0.198$, $p < 0.05$). The scores of older adults participating in club activities are slightly higher than the scores of those who do not take part in such activities.

Participation/Non-participation in club activities also has moderate positive correlations with going to the theatre or exhibitions ($\rho = 0.409$, $p < 0.01$), as well as walking or going on

trips ($\rho = 0.325$, $p < 0.01$). The scores of older adults participating in club activities are higher than the scores of those who do not take part in such activities.

7. PASE

The PASE results have already been presented in a previously published article. For this reason, we make reference here only to the most relevant issues that have been further analysed in relation to quality of life. There are significant differences [$t_{adjusted}(168.45) = 3.35$, $p = 0.001$] between the *Leisure activities* of Participants and Non-Participants in the activities proposed by Elderly Clubs. The effect size is very large ($d = 2.14$). Participants in club activities get more engaged in leisure activities than Non-Participants (M = 96.81, SD = 24.05 compared to M = 52.69, SD = 13.15).

8. WHO

Table 3. *Descriptive statistics*

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
WHO	172	28.00	70.00	52.49	7.67	-.238	.185	.115	.368
Valid N (listwise)	172								

All variables analysed in this study have a normal distribution. The absolute Skewness coefficient is less than 1 (Morgan et al., 2013) or the values of the indicators of symmetry (Skewness) and flattening (Kurtosis) are within the limits considered as normal, in the sense that they do not exceed the value 3 for Skewness and the value 8 for Kurtosis (Kline, 2011). Descriptive statistics are presented in Table 3.

The effect of the *Participation/Non-Participation in club activities* variable on the WHO variable was then verified using the Independent Samples Test (Table 4).

Table 4. *Independent Samples Test*

	Levene's Test for Equality of Variances		t Test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
WHO	.334	.564	-3.192	170	.002	-3.752	1.175	-6.073	-1.432

Therefore, the distributivity and homogeneity conditions have been met. The Independent Samples Test was applied and it was statistically demonstrated that there was a significant difference between the groups of *Participants* and *Non-Participants* in club activities as regards *WHO* [$t(170) = 3.19$, $p = 0.002$], with an average effect size ($d = 0.50$). The *WHO* average score (M = 50.15, SD = 7.28) is lower for *Non-Participants* in club activities compared to the average score for *Participants* in club activities (M = 53.91, SD = 7.59).

Spearman's correlations between WHO and the other factors influencing quality of life, which were taken into account in this analysis, have highlighted the following aspects: WHO has a weak positive correlation ($r = 0.232$, $p < 0.01$) with Participation/Non-Participation in club activities; WHO does not correlate with socio-demographic indices or calculated BMI.

Correlations were identified between WHO and certain food preferences as follows: a weak negative correlation with the consumption of fried food, $r = -0.192$ ($p < 0.05$); a weak positive correlation with the consumption of yogurt, $r = 0.243$ ($p < 0.01$); a weak negative correlation with the consumption of potatoes, $r = -0.198$ ($p < 0.05$); average positive correlations with the consumption of fresh vegetables, $r = 0.319$ ($p < 0.01$), and cooked vegetables, $r = 0.305$ ($p < 0.01$); a weak positive correlation with the consumption of fish, $r = 0.171$ ($p < 0.05$); an average positive correlation with the consumption of fresh fruit ($p < 0.01$); a weak positive correlation with the consumption of honey, $r = 0.196$ ($p < 0.05$).

WHO has a weak negative correlation with the time at which participants use to fall asleep at night ($r = -0.193$, $p < 0.05$).

Regarding the way of spending leisure time, WHO has revealed the following aspects: an average positive correlation with meeting friends, $r = 0.308$ ($p < 0.01$); a weak positive correlation with reading, $r = 0.243$ ($p < 0.01$); a weak positive correlation with going to the theatre or exhibitions, $r = 0.243$ ($p < 0.01$). Weak positive correlations were also identified between WHO and walks or trips, $r = 0.260$ ($p < 0.05$), as well as between WHO and leisure sport, $r = 0.199$ ($p < 0.05$).

Concerning PASE, a very weak positive correlation was identified between WHO and PASE leisure ($r = 0.124$, $p < 0.05$).

Discussion

The research has provided information about the lifestyle of older adults and highlighted certain factors that correlate with the quality of life in this segment of the population.

Regarding socio-demographic indices, it has been noticed that the number of women participating in the research is higher than that of men and more female older adults take part in the activities proposed by Elderly Clubs. Other studies revealed that the participation of older adults in social activities has positive effects on the physical and mental health of this population (Tomioka et al., 2017; Rada, 2021).

Participants stated that they had been diagnosed with age-specific chronic conditions, mentioning rheumatic or osteo-articular disorders, heart disease, diabetes and more. In addition, their BMI values indicated a low/moderate health risk, but they showed excess body weight predisposing them to health problems. However, BMI is not considered to be relevant for assessing the condition of older adults but recommends investigating their functional status through muscle mass and functionality, namely strength and physical capability (Riobó Serván et al., 2015). Specialists point out that patients with rheumatoid arthritis report pain, fatigue, sleep disturbances, loss of appetite, bad moods, etc., and all these factors influence their perception of quality of life (Tański et al., 2021).

The analysis of eating habits is extremely important in relation to the analysis of the quality of life of older adults and the risks to which they are exposed (Smoliner et al., 2008). In the present research, the quality of life correlated with the consumption of fried food, yogurt, potatoes, fresh vegetables, cooked vegetables, fish, fresh fruit and honey. Moreover, we can state that older adults who participate in club activities consume more fresh milk, yogurt, cheese, fish, beef and pastry compared to those who do not engage in such activities. At the

same time, older adults who participate in club activities consume less fried food, potatoes and pork fat compared to those who do not engage in such activities.

The Quality of Life Index did not correlate with the marital status, gender, level of education and monthly income of the research participants or the PASE total score. It can be highlighted that, for the older adults investigated by us, the most important factors for their quality of life are: health, diet, sleep, spending free time and, to a certain extent, physical activity. Among the PASE indices, the Quality of Life Index poorly correlated only with leisure physical activity. In contrast to the results of the present research, a study of the Japanese population has demonstrated that sports activity plays an important role in the quality of life of older adults, contributing to decision-making preferences in end-of-life treatment (Kasuga et al., 2021). For the population participating in our study, it has been noticed that meeting friends, going to the theatre/exhibitions and walks/trips are considered to ensure a superior quality of life.

Study limitations

The number of participants can be considered as a limitation to this study, especially since only older adults from urban areas have been investigated. Further research is needed to address older adults from rural areas as well.

Particular attention should be paid to the generalisation of research results, given that the identified correlations do not demonstrate the existence of causal relationships between the analysed factors and quality of life.

Conclusion

Participation in the activities proposed by Elderly Clubs translates into a healthy lifestyle that positively influences the quality of life of older adults.

When assessing quality of life in older adults, it is necessary to analyse several factors, including health, eating habits, sleep, physical activity and preferences for spending free time.

Leisure physical activities play an important role in the perception of quality of life by older adults, which is why their involvement in exercise programmes appropriate to their abilities should be encouraged.

Authors' Contribution

All authors have equally contributed to this study and should be considered as main authors.

Acknowledgments

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