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# Quality of life vs. old people's functioning at the time of the COVID-19 pandemic

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## ABSTRACT

**Introduction:** The whole world is dealing with the consequences of the SARS-CoV-2 virus, which affected mostly elderly people. The COVID-19 pandemic has made it practically impossible for elderly people to function independently. Taking into consideration the elderly population and its prognosis, the evaluation of the elderly people's quality of life is more and more important. Both doctors and people involved in medicare claim that there is a need for investigating elderly people's life quality because the health problems which decide about this quality make effective treatment more difficult.

**Aim of the study:** The aim of this paper is to evaluate the quality of life and functionality as far as doing daily chores by elderly people is concerned and the factors which decide about it at the time of the Covid-19 pandemic.

**Material and methods:** The research was done with a group of 1008 people (705 women, 302 men) at the age of 60–97 (approximately  $71.0 \pm 8.1$ ). The questionnaire which was used was created by the people who carried out the survey and the Polish scale WHOQOL-AGE was used to evaluate the quality of life. Independent functioning in a group was evaluated by means of the Lawton Instrumental Activities of Daily Living Scale (IADL).

**Results:** The approximate result of evaluating the quality of life using the WHOQOL-AGE scale was  $67.20 \pm 15.61$ . Social and demographic factors which decide about the quality of life in a statistically significant way are: age ( $p < 0,000$ ), education ( $p < 0,000$ ), place of living ( $p < 0,029$ ), marital status ( $p < 0,000$ ), economic situation ( $p < 0,000$ ), the status of living ( $p < 0,019$ ), status of dexterity ( $p < 0,000$ ) and professional status before retirement ( $p < 0,018$ ).

**Conclusion:** There is a need for many activities to improve the life quality of elderly people in every aspect of life. Those activities should take into consideration the life situation, functioning status, and elderly people's expectations. Actions taken with the aim of improving elderly people's life quality should involve interdisciplinary monitoring of health as well as promotion of physical activity, which will improve elderly people's ability to perform complex daily activities (IADL).

**Key words:** quality of life, older adults, Lawton Instrumental Activities of Daily Living Scale, WHOQOL-AGE

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## Introduction

The COVID-19 pandemic has made it impossible for elderly people [1] to function independently because of many restrictions introduced into the social sphere of life: moving around, participation in masses and educational activities (University of the third age — UTW), prohibition of family gatherings, prohibition of people meeting in groups larger than 5 people, temporary discontinuation of hotels, institutions of culture, sports events, as well as in the medical sphere: contacting

doctors by phone as a recommended form of medical treatment, temporary discontinuation of sanatoria and rehabilitation activities unless the quality of life [2] is seriously threatened. The speed of aging, as well as the quality of aging, are taken into account by specialists investigating the problem of old age and this will help to use the right kind of help enabling a favourable aging process [3]. The need for investigating the elderly people's quality of life is signaled by doctors and people connected with medicare [4] because health problems make effective treatment more difficult [5]. Old

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age is an important stage in people's lives because it is a culmination of the whole life [6], and elderly people are our past as well as our future [7]. At the end of 2017, the number of people at the age of 60 and more in Poland was over 24 % whereas in 2050 this number will be over 40% of the general population in the country [8]. The prognosis for Poland in 2060 points to the processes of aging becoming even more serious and it means that our population will be one of the oldest in Europe. [9]. Caring for old people who live in the house in order to satisfy their health care needs is crucial and this fact will always be unquestionable [10]. The basic duty of the people who provide others with social benefits is to focus on improving elderly people's quality of life at the time of the COVID-19 pandemic or keeping it the way it used to be [11]. The process of aging causes significant changes in the needs and demands of the health care system in every country [3]. The transition from home care to institutional care is potentially more effective and economical but unfortunately in Małopolska (this is not an exception), it does not affect favourably elderly people's quality of life [12]. Taking into consideration the predictions concerning the aging population the assessment of elderly people's quality of life is more and more important [3]. Assessment of life quality should also be an integral part of diagnosis in the process of treating patients. Therefore the authors decided to examine the factors connected to the quality of life in a group of elderly people living at home at the time of the COVID-19 pandemic.

## Aim of the study

The aim of the paper was to assess the quality of life and to identify the factors which were significantly determining the quality of life and dexterity while doing everyday chores by the people at the age of 60 and older living in Małopolska during the COVID-19 pandemic.

## Material and methods

The research was done among 1008 old people living in Małopolska in Nowotarski district, which is home to about 191 thousand people, out of whom about 34 thousand (17.8%) were 60 or older [13]. It means 2.9% of people at the age > 60 in this area. The data was collected between March 2020 and February 2021. After an old person's conscious agreement was made by phone, the authors visited old people at home to get a written conscious agreement and to collect data. The method was a diagnostic survey with the use of the questionnaire and WHOQOL-AGE scale to assess the quality of life in a version adapted to the Polish reality by Zawisza et al. And Lawton Instrumental Activities of Daily Living Scale (IADL).

**Table 1.** Biometric characteristics of participants

Social and demographic factors		n = 1008	%
Gender	Women	706	69.9
	Men	302	30.1
Education	Primary	235	23.5
	Vocational	373	37.2
	Secondary	272	27.0
	University	128	12.3
Marital status	Single	49	4.8
	Married	528	52.6
	Widow/widower	402	39.8
	Cohabitation	29	2.8
Age	60–74	691	68.5
	75–89	296	29.5
	≥ 90	21	2.0
Place of living	Village	599	59.4
	City	409	40.6
Economic situation	Bad	157	15.6
	Average	360	35.7
	Good	491	48.7
Professional status	White-collar work	247	24.5
	Blue-collar work	536	53.2
	Farming	160	15.9
	Other	65	6.4
Status of living	Alone	158	18.5
	With family	700	81.5
IADL	Low level of dexterity	95	9.4
	Medium level of dexterity	139	13.8
	High level of dexterity	774	76.8

WHOQOL-AGE scale assesses the level of life quality using 13 questions that are focused on matters important to elderly people. The subscale assessing the level of satisfaction includes questions from Q1 to Q8, another subscale assessing fulfillment of expectations includes questions from Q9 to Q13 and Q1. The final result is the arithmetic average from two subscales. WHOQOL-AGE determines the level of life quality on a scale of 0 to 100, which enables comparing the obtained results with other scales (eg. Whoqol-Bref). Higher scores mean a higher level of quality of life [14].

While evaluating using the WHOQOL-AGE scale the average quality of life was 67.20 points (SD = 15.61). In the subscale 1 (satisfaction) the average was 69.09 points (SD = 15.17), and in subscale 2 (satisfaction of expectations) — 65.31 points (SD = 17,89). Subscale 1 — satisfaction obtained a higher average

**Table 2.** Descriptive statistics for the scale evaluating the quality of life (WHOQOL-AGE)

	Age	Average	Median	SD	Min.	Max.
WHOQOL-AGE	60–74	68.70	70.92	15.75	4.90	100.00
	75–89	64.40	66.62	14.91	14.01	91.62
	≥ 90	57.32	57.92	11.93	36.40	80.59
Total		67.20	67.30	15.61	4.90	100.00
Subscale 1 — satisfaction	60–74	70.78	73.08	15.22	3.85	100.00
	75–89	65.80	67.31	14.51	17.31	98.08
	≥ 90	59.71	63.46	11.74	36.54	78.85
Total		69.09	71.15	15.17	3.85	100.00
Subscale 2 — satisfaction of expectations	60–74	66.61	67.86	17.96	3.57	100.00
	75–89	63.01	64.88	17.53	7.14	95.24
	≥ 90	54.93	52.38	14.34	28.57	88.10
Total		65.31	66.67	17.89	3.57	100.00

scoring in the group than subscale 2 — the satisfaction of expectations (Tab. 2)

Independent functioning is assessed by the Lawton Instrumental Activities of Daily Living Scale (IADL). This scale allows determining how well a given person can perform daily duties like using the phone, reaching far-away places, doing shopping, making meals, DIY, cleaning, taking medicine, responsibly spending money. The people who were questioned were divided into three groups according to IADL: 8–18 points as dependent people, 15–19 points as people partially dependent, and ≥ 20 points as independent people [15].

### Statistical analysis

Standard descriptive statistics were used: medium (M), median (Me), standard deviation (SD), minimum (Min.), maximum (Max.). In the separate categories of independent variables, there are medium indicators. To measure the correlation V Kramer’s coefficient was used. In the case of ordinal variables, rho Spearman’s correlation coefficient was used. The collected material was entered into the IBM SPSS Statistics database which was prepared for the needs of this research.

## Results

In the group of 1008 people over 60 years old there were 706 women and 302 men, the average age was 71 years old (SD = 8.1). Over half of the people surveyed were from cities, the majority had vocational education 37.2%. 52.6% of people were married, and 39, were widows and widowers. Health is a factor decisive about the quality of life. The most

numerous group 76.8% were elderly people who were very fit (evaluated by IADL scale). The average result of assessing complex daily activities (IADL) is 21,1 points, which indicates that the people who were surveyed can live independently. The majority (69.1%) used to do manual work, every fourth person (24.5%) before retiring used to do white-collar work. The financial status of 48.7% of people was good, and only 15.6% of people said that their financial situation was bad. Table 1 shows the social and demographic data of the questioned people in detail.

Among the factors determining elderly people’s life quality, the most statistically significant bond was observed in the correlation in all areas of life quality among elderly people ( $p < 0,000$ ), education ( $p < 0,000$ ), marital status ( $p < 0,000$ ), economic situation ( $p < 0,000$ ) and the level of dexterity ( $p < 0,000$ ). Social and demographic factors which proved to be connected to a higher level of life were: younger age, higher education, living in the city, married people, good financial situation, living with a family, being fit, and doing white-collar jobs before retiring (Tab. 3)

During the survey assessment of elderly people’s independent functioning, using the Lawton Instrumental Activities of Daily Living Scale (IADL). As a result of the analysis using V Kramer’s test and Spearman’s correlation test, in relation to social and demographic test, no connection between gender/place of living and the level of dexterity was seen. On the basis of the test, it was noted, however, that there was a significant difference in the evaluation of complex activities (IADL) in terms of variables: education, marital status, age, place of living, financial, situation, and professional status (table 4).

**Table 3.** Social and demographic variables vs quality of life

Social and demographic factors		Quality of life		
		WHOQOL AGE	Subscale 1 — satisfaction	Subscale 2 — meeting expectations
Gender	Women	67.80	69.29	66.32
	Men	65.79	68.62	62.96
V Kramer's correlation		0,786 p > 0.05 (0,167)	0,224 p > 0.05 (0,268)	0,348 p > 0.05 (0,163)
Education	Primary	62.46	64.01	60.91
	Vocational	64.65	66.90	62.39
	Secondary	70.54	72.86	68.22
	University	73.07	73.59	72.56
Spearman's correlation		0,237 p < 0.05 (0,000)	0,238 p < 0.05 (0,000)	0,209 p < 0,5 (0,000)
Marital status	Single	60.81	64.30	57.32
	Married	70.66	72.25	69.07
	Widow/widower	64.01	66.09	61.94
	Cohabitation	58.75	60.81	56.69
V Kramer's correlation		0,824 p < 0.05 (0,000)	0,288 p < 0.05 (0,000)	0,408 p < 0.05 (0,000)
Age	60–74	68.70	70.78	66.61
	75–89	64.40	65.80	63.01
	≥ 90	57.32	59.71	54.93
Spearman's correlation		-0,165 p < 0.05 (0,000)	-0,194 p < 0.05 (0,000)	-0,120 p < 0.05 (0,000)
Place of living	Village	65.57	67.70	63.44
	City	69.58	71.12	68.05
V Kramer's correlation		0,806 p < 0.05 (0,029)	0,233 p > 0.05 (0,153)	0,410 p < 0.05 (0,000)
Financial situation	Bad	47.93	54.46	41.41
	Average	64.13	67.99	60.28
	Good	75.60	74.57	76.64
Spearman's correlation		0,620 p < 0.05 (0,000)	0,417 p < 0.05 (0,000)	0,714 p < 0.05 (0,000)
Professional status	White-collar job	71.02	72.11	69.94
	Blue-collar job	64.97	66.94	63.00
	Farming	65.46	67.32	63.60
	Other	50.85	56.12	45.58
V Kramer's correlation		0,828 p < 0.05 (0,018)	0,298 p < 0.05 (0,000)	0,447 p < 0.05 (0,000)
Status of living	Alone	62.08	63.29	60.87
	With family	67.22	69.31	65.13
V Kramer's correlation		0,834 p < 0.05 (0,019)	0,315 p < 0.05 (0,000)	0,421 p < 0.05 (0,002)
IADL	Low level of dexterity	47.84	50.31	45.36
	Medium level of dexterity	58.03	59.74	56.32
	High level of dexterity	71.19	73.04	69.34
Spearman's correlation		0,440 p < 0.05 (0,000)	0,444 p < 0.05 (0,000)	0,390 p < 0.05 (0,000)

**Table 4.** Surveyed people's efficiency Lawton's scale according to social and demographic factors

Social and demographic factors		Level of dexterity (IADL)		
		Low	Average	High
Gender	female	8.9%	15.6%	75.5%
	male	9.5%	13.0%	77.5%
V Kramer's			0,034 p > 0.05 (0,560)	
Education	Primary	15.3%	20.4%	64.4%
	Vocational	12.0%	13.2%	74.9%
	Secondary	3.6%	10.4%	85.9%
	University	1.8%	8.0%	90.3%
Spearman's correlation			0,222 p < 0,05 (0,000)	
Present marital status	Single	8.3%	22.9%	68.8%
	Married	4.5%	9.6%	85.8%
	Widow/widower	15.4%	18.7%	65.9%
	Cohabitation	13.8%	6.9%	79.3%
V Kramer's			0,172 p < 0.05 (0,000)	
Age	60-74	4.1%	9.4%	86.5%
	75-89	18.9%	23.3%	57.8%
	≥ 90	47.6%	23.8%	28.6%
Spearman's correlation			-0,355 p < 0.05 (0,000)	
Place of living	Village	11.5%	14.9%	73.6%
	City	6.1%	12.2%	81.7%
V Kramer's			0,104 p < 0,05 (0,004)	
Financial situation	Bad	22.9%	22.3%	54.8%
	Average	8.3%	15.0%	76.7%
	Good	5.7%	10.2%	84.1%
Spearman's correlation			0,218 p < 0,05 (0,000)	
Type of work	White-collar job	2.7%	9.0%	88.3%
	Blue-collar job	9.8%	13.9%	76.3%
	Farming	17.9%	17.9%	64.2%
	Other	14.3%	28.6%	57.1%
V Kramer's			0,160 p < 0,05 (0,000)	
Status of living	Alone	8.2%	20.3%	71.5%
	With family	10.0%	13.3%	76.7%
V Kramer's			0,078 p > 0.05 (0,075)	

## Discussion

The whole world is still trying to cope with the results of the SARS-CoV-2 virus, which affected mostly elderly people and those with chronic diseases [16]. The quality of life connects many vital areas of human life, which can be analysed in a multi-level way [17], and the results of its research can be used to prevent a lot of diseases [6]. Evaluation of life quality is now compatible with a holistic approach to every individual patient [18].

On the basis of results obtained from representative research of Polish household budgets in 2017, 60-year-old people and older who lived alone claimed that their financial situation was average, rather bad or bad [8]. In the own research half of the people older than 60 claimed that their financial situation was average and bad. According to the results of the European Research of People's Living Conditions (EU-SILC), almost every fourth person at the age of 60 and older living in Poland claimed that their health in 2017 was good or very good [8]. The results of own research show that every other person over 60 claimed that their health was good or very good. As the results of the last EHIS research show, every third person 65 years old or older had problems with doing everyday chores, eg. Doing the shopping [8]. In this research, 76.8% of Polish elderly people were characterized by a high level of dexterity. In 2018 there were 25.8% of elderly people living alone in Poland [8]. In the own research, analyzing the status of living, 18.5% of the surveyed people claimed to live alone.

All people no matter how old should be able to live a healthy and long life and to guarantee this at the time of fighting the coronavirus people need to have a high standard of living [19]. High quality of life is closely connected to satisfaction and the feeling of satisfaction from life [6]. Assessment of the quality of life was done by Fidecki et al., who researched a group of 264 people at the age of 65-93 years old (average 68 years old). The surveyed group of people who were taking care of chronically sick people claimed that their life quality was, in the WHOQOL-AGE scale, at the level  $74.14 \pm 15.31$ . In subscale 1 it obtained a higher score ( $71.11 \pm 13.88$ ) than subscale 2 ( $69.15 \pm 18.55$ ) [20]. Bartoszek et al. Also researched the quality of elderly people's life quality (those who were caring for chronically sick people at home). In their research, 138 people took part at the age of 59-84, in which case the average age was  $68.57 \pm 11.6$  according to WHOQOL-AGE the average of their life quality was  $70.14 \pm 15.31$  in subscale 1 –  $71.11 \pm 13.88$ , and subscale 2 –  $69.15 \pm 18.55$  [21]. From the research done by Raggi et al. On a representative group of 5639 people, out of whom 2863 people are from Poland (age  $44.6 \pm 18.3$ ) the level of life quality was  $69.9 \pm 14.6$  and it was lower than the life quality of people from Spain ( $n=2256$ ) or Finland ( $n=520$ ), although the

average age of surveyed people in the case of both countries was higher [22]. In the own research, the quality of life was lower than in the mentioned research and it was  $67.20 \pm 15.61$ , in subscale 1 it was  $69.09 \pm 15.17$ , and in subscale 2 it was  $65.31 \pm 17.89$ . The lower level of life quality was noted by Nowicki et al., who researched people over 65 who attended meetings in a senior's club. When evaluated using the WHO-QOL-AGE scale the average quality of the surveyed people was  $64.45 \pm 13.47$ . In subscale 1 (satisfaction) the average was  $66.56 \pm 12.84$ , and in subscale 2 (satisfaction of expectations) –  $58.34 \pm 16.51$  [6]. A lower level of life quality was obtained by Tišanská et al., who researched 403 elderly people at the age of 60-91 (average age was 70), in whose case the average life quality was  $46.66 \pm 8.03$  [23]. In the research done by Tobiasz-Adamczyk et al. In which 5099 people took part (at the age of 50+ and the average age was 66.5 (SD=10.7) the quality of life connected to health (WHOQOL-AGE) for the age group 65-79 was 69.8 in the case of women and 72.3 in the case of men. Men also had a higher level of life quality than women in the age group 80 years old [24]. In their research women presented a higher level of life quality but the result was not statistically significant.

Social and demographic factors proved to be statistically significant correlation factors between their variables and the researched people's life quality. Ćwirlej-Sozań et al.'s research on 973 people aged 60–80 living in rural areas in southeastern Poland (podkarpackie voivodship) showed that the quality of life was lower together with the increase in age [19]. In the research done by Tobiasz-Adamczyk et al., it was noted that there was a correlation between life quality connected to health and age and it was on the level  $p < 0.01$  [24]. The results of the research done by Klompstra et al. on a group of 238 people living at home with three or more chronic diseases, the average age was 82, also showed that a lower level of life quality was significantly connected to age [10]. The research done by Ran et al. on a group of 1636 elderly people showed that old age conduces to a lower level of life quality [11]. In Raggi et al.'s research a negative correlation between life quality connected with health vs age was noted ( $p \leq 0,001$ ) among Polish people, however, this correlation was not noted among people from Finland and Spain [22]. Also, the own research showed that a lower level of life quality was significantly connected to age. Klompstra et al. and Raggi et al. showed that the more fit elderly people were the more able they were to perform complex daily routine activities [10,22]. Raggi et al. also observed that there was no such correlation in the case of people from Finland ( $n=520$ ) and Spain ( $n=2256$ ) between life quality and the level of dexterity (IADL) [22]. The research done by Ran et al. showed that the level of dexterity

measured by the IADL scale was positively correlated with the level of life [11]. In the own research, the authors also showed that there were correlations between variables. In the research done by Ran et al., Raggi et al., Tobiasz-Adamczyk et al. it was noted that there were negative correlations between life quality connected to health and education [11,22,24]. Statistical analysis of the correlation between life quality and the feeling of being lonely showed a significant negative correlation on the level  $p < 0,001$  in the research done by Nowicki et al. The authors observed that together with the rise in the feeling of being lonely the general quality of life deteriorates in subscale 1 (satisfaction) and subscale 2 (meeting expectations) [6]. Tobiasz-Adamczyk et al. also confirm that loneliness is a significant factor that determines a lower level of life quality at later stages of people's lives [24]. This research also proved that the quality of those elderly people lives who live alone is lower than in the case of elderly people living with a family. However, Huang et al. researched 5600 adult Chinese people at the age of 60 and older and research results showed that elderly people living with grown-up children had lower life quality than those who did not live with grown-up children [25]. A strong correlation was observed by Tobiasz-Adamczyk et al. in the case of life quality connected to health (WHOQOL-AGE) in connection to the place of the living and financial situation [24]. In our research, it was also proved that the level of elderly people's life significantly correlates with the financial situation. Our research also proved that variables referring to social and demographic factors correlate with doing complex daily activities (IADL).

## Conclusion

1. Social and demographic factors, such as younger age, higher education, living in the city, being married or with a family, good financial situation, being physically fit, and doing white-collar jobs before retiring proved that those elderly people's life quality was higher.
2. The quality of elderly people's life (living at home) was assessed as above average (satisfaction was assessed higher than meeting expectations). There is a need for complex activities in order to improve the quality of life in all its aspects. Those activities should be concerned with life situations as well as elderly people's functionality and expectations.
3. Social and demographic factors had a significant influence on elderly people's functionality. Those factors were: education, marital status, age, place of living, financial situation, and professional status. Interventions with the aim of improving elderly people's life quality should include interdisciplinary monitoring of health and promotion of physical activity, which will elderly people's abilities to do complex daily activities (IADL).
4. Social policy whose aim is to improve elderly people's life will undoubtedly conduce to growing old in a more healthy way and consequently will make elderly people satisfied with having a higher level of life quality.

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