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Assessment of the quality of life and functional fitness in elderly people hospitalised at orthopaedic wards

Ocena jakości życia i sprawności funkcjonalnej osób starszych hospitalizowanych w oddziałach ortopedycznych

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Abstract

Introduction. *Quality of life is inextricably bound with the old age. Growing old is believed to be a destructive, progressive and irreversible. The process of growing old is caused by biological factors connected with physical involution as well as social and psychological factors. Functional fitness of an investigated person is one on key elements influencing their quality of life. One must remember that it undergoes numerous organic and functional changes that occur in result of past illnesses and treatment methods.* ***Aim.*** *This paper aimed at specifying subjective quality of life and functional state in elderly patients staying at orthopaedic wards.* ***Material and methods.*** *The investigation was administered in the cohort of 110 patients hospitalised in orthopaedic wards of hospitals in Lublin. The paper employed standardised research tools: the WHOQOL-Bref and the Barthel scale.* ***Results.****Quality of life in the investigated patients comprising the cohort averaged out at 3.33 ± 0.81, whereas their health state self-assessments at 2.70 ± 1.03. The somatic domain scored lowest out of all the component domains (9.93 ± 1.93). Assessments of the three other domains averaged out at similar levels: the psychological domain – 12.51 ± 2.73; the social domain – 12.46 ± 3.13; the environmental domain – 12.31 ± 2.57. The whole cohort scored 66.64 points in the Barthel scale, which the Authors used to assess respondents' functional fitness. 37.27% of the patients were qualified in category I, 43.63% in category II, and 19.10% in category III.* ***Conclusions.*** *Quality of life self-assessment was highest in elderly people hospitalised at orthopaedic wards in the environmental domain. Respondents' age and education level considerably affected respondents' quality of life. Patients' functional fitness was significantly diversified by factors such as: age, marital status, education, residence, and diseases. A positive correlation was discovered in the investigated cohort of elderly patients between quality of life and functional fitness. (Gerontol Pol 2017; 25: 60-65)*

Key words: *quality of life, functional fitness, elderly patients, orthopaedic wards*

Streszczenie

Wstęp*. Jakość życia i starość są ze sobą ściśle związane. Starzenie się postrzegane jest jako proces destrukcyjny, postępujący i nieodwracalny. Proces ten powodują czynniki biologiczne związane z inwolucją fizyczną jak i czynniki psychospołeczne. Jednym z elementów wpływającym na jakości życia osób w wieku podeszłym jest sprawność funkcjonalna badanego. Należy pamiętać, iż podlega ona w tym wieku zmianom organicznym i czynnościowym powstałym w wyniku przebytych chorób, rodzaju leczenia.* ***Cel.*** *Celem pracy było określenie subiektywnej jakości życia oraz stanu funkcjonalnego pacjentów w podeszłym wieku przebywających w oddziałach ortopedycznych.* ***Materiał i metoda.*** *Badania przeprowadzono w grupie 110 pacjentów w podeszłym wieku hospitalizowanych w oddziałach ortopedycznych na terenie miasta Lublina. W pracy wykorzystano dwa wystandaryzowane narzędzia badawcze: skalę WHOQOL-Bref oraz skalę Barthel.* ***Wyniki.*** *W badanej grupie osób starszych ocena jakości życia była na poziomie średniej 3,33 ± 0,81, a samoocena stanu zdro-*

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wia na poziomie 2,70 ± 1,03. Z dziedzin składowych najniżej oceniona została dziedzina somatyczna (9,93±1,93). Ocena trzech pozostałych dziedzin kształtowała się na podobnym poziomie: psychologiczna 12,51 ± 2,73; socjalna 12,46 ± 3,13; środowiskowa 12,31 ± 2,57. Dokonując oceny sprawności funkcjonalnej skalą Barthel, dla całej grupy uzyskano wynik na poziomie średniej 66,64 pkt. Do kategorii I zakwalifikowano 37,27% badanych, w kategorii II znalazło się 43,63% pacjentów, a w kategorii III było 19,10%. ***Wnioski.*** *Samoocena jakości życia przez osoby starsze hospitalizowane na oddziałach ortopedycznych najwyższa była w zakresie dziedziny środowiskowej. Wiek i poziom wykształcenia istotnie wpływają na ocenę jakości życia badanych. Sprawność funkcjonalną badanych istotnie różnicowały takie czynniki jak: wiek, stan cywilny, wykształcenie, środowisko zamieszkania oraz rodzaj choroby. Stwierdzono dodatnią zależność pomiędzy oceną jakości życia a sprawnością funkcjonalną badanej grupy osób starszych. (Gerontol Pol 2017; 25: 60-65)*

Słowa kluczowe: *jakość życia, sprawność funkcjonalna, osoby starsze, oddziały ortopedyczne*

Introduction

Quality of life is inextricably bound with the old age. Growing old is believed to be a destructive, progressive and irreversible. The process of growing old is caused by biological factors connected with physical involution as well as social and psychological factors. Elderly people have difficulties related to deteriorating health state. Functional and psychological fitness of their organisms diminish as they grow older [1].

Numerous authors point out that quality of life ought to be analysed both in its subjective and objective dimensions in all research undertaken for the sake of modern medicine. Subjective components include indicators such as: physical – pain, mood, ailments; psychological – hope, depression, dignity; social – ways of spending free time, satisfaction with work; interpersonal – social support, conflicts with a spouse. Objective indicators include: health state based on laboratory tests, diagnosis connected with psychopathology, socio-economic position – income, residential conditions, a number and quality of social contacts [2].

Functional fitness of an investigated person is one of the elements considerably affecting elderly people's quality of life. One must remember that in an elderly age the fitness undergoes organic and functional changes occurring in result of past illnesses and treatment methods. Functional efficiency of elderly people is defined as an ability to undertake basic activities of everyday life independently, and it is measured by a degree of independence and self-reliance at one's place of abode [2].

Aim

The paper aimed at specifying subjective quality of life and a functional state of elderly patients staying at orthopaedic wards.

Material and methods

The investigation was administered in the cohort of 110 patients hospitalised in orthopaedic wards of Lublin hospitals. The study had been approved by heads of individual hospitals. Participation in the investigation was voluntary and proceeded with obtaining consent from each patient. The research cohort was comprised of 56.40% of males and 43.60% of females. Respondents' age ranged from 65 to 93. Detailed characteristics of the cohort are presented in Table I.

Table I. Socio-demographic characteristics of the research cohort

		%
Gender	Female	43.60
	Male	56.40
Age	65-74 years old	39.10
	75-89 years old	48.20
	90+ years old	12.70
Marital status	Single	24.50
	Married	40.00
	Widow/Widower	35.50
Education	Elementary	21.00
	Vocational	25.30
	Secondary	28.20
	Higher	25.50
Lives	With family	51.40
	Alone	34.80
	In social welfare homes	13.80

The paper employed standardised research tools: the WHOQOL-Bref and the Barthel scale.

The WHOQOL-Bref scale is used for assessing quality of life in both healthy and sick people. It is comprised of 26 questions that allow obtaining information on the quality of life in aspects of physical, psychological, social and environmental domains. Furthermore, it also features two separately assessed questions on the general perception of the quality of life and subjective satisfaction with one's health [3,4].

Barthel Scale is employed for assessing functional fitness and allows to evaluate the degree of patients' inde-

pendence. Depending on their range of independence, a patient can score from 0 to 100 points. Three categories of patients were established based on the assessment of everyday life activities: category I (100-86 points) was comprised of patients dealing well with everyday life activities, category II (21-85 points) was comprised of patients failing to deal with some everyday life activities, category III (0-20 points) was comprised of patients unable to perform most everyday life activities [5,6].

Research findings were analysed statistically. $P \leq 0.05$ was adopted as a significance level that indicated a statistically significant difference or a correlation.

Results

Quality of life in the investigated cohort of elderly people averaged out at 3.33 ± 0.81, whereas self-assessment of their quality of life averaged out at 2.70 ± 1.03. The somatic domain scored lowest out of all the component domains (9.93 ± 1.93). Assessments of the three other domains averaged out at similar levels: the psychological domain – 12.51 ± 2.73; the social domain – 12.46 ± 3.13; the environmental domain – 12.31 ± 2.57.

The whole cohort scored 66.64 points in the Barthel scale, which the Authors used to assess respondents' functional fitness. 37.27% patients were qualified in category I, 43.63% in category II, and 19.10% in category III. Males made better general self-assessments of their lives (3.40 ± 0.77) as well as their health state (2.75 ± 1.08). However, these differences were not statistically significant. Having analysed quality of life in relation to respondents' age, the Authors found patients from the youngest age bracket to assess their quality of life best. Lowest assessment results were found in the oldest age bracket and the difference was statistically significant. Married people assessed their quality of life better in all aspects than single patients. However, the difference was statistically significant only in psychological and social domains. Education was found to differentiate self-assessment of respondents' quality of life significantly – the higher the patients' education level, the higher their quality of life. Detailed analysis of the quality of life assessment in relation to sociodemographic variables is presented in Table II.

Having assessed functional fitness with the Barthel scale, the Authors found the research cohort to average

Table II. Sociodemographic variables vs WHOQOL-Bref assessment

Variable		General quality of life (1-5)	Health state assessment (1-5)	Somatic (4-20)	Psychological (4-20)	Social (4-20)	Environmental (4-20)
Gender	Female	3.22±0.85	2.62±0.95	9.79±1.73	12.27±2.54	12.43±2.84	12.31±2.40
	Male	3.40±0.77	2.75±1.08	10.03±2.08	12.69±2.86	12.48±3.35	12.30±2.71
	Statistical analysis	t=-1.113 p=0.267	t=-0.671 p=0.503	t=-0.645 p=0.519	t=-0.805 p=0.422	t=-0.076 p=0.938	t=0.012 p=0.990
Age	65-74 years old	3.53±0.76	2.90±1.06	10.62±2.12	13.32±2.82	13.39±3.13	13.11±2.45
	75-89 years old	3.22±0.84	2.60±0.96	9.52±180	12.20±2.55	11.90±3.21	11.92±2.62
	90+ years old	3.07±0.73	2.42±1.08	9.28±0.99	11.14±2.38	11.71±2.05	11.28±2.19
	Statistical analysis	H=4.805 p=0.009	H=2.820 p=0.244	H=10.505 p=0.005	H=8.024 p=0.018	H=9.208 p=0.010	H=9.338 p=0.009
Marital status	Single	3.24±0.78	2.69±0.99	9.75±1.84	11.96±3.14	11.96±3.14	12.01±2.59
	Married	3.45±0.84	2.70±1.09	10.18±2.04	13.29±2.40	13.20±2.98	12.75±2.50
	Statistical analysis	t=-1.343 p=0.181	t=-0.037 p=0.969	t=-1.128 p=0.261	t=-2.531 p=0.012	t=-2.057 p=0.042	t=-1.473 p=0.143
Education	Elementary	2.95±0.82	2.34±0.98	9.08±1.95	11.08±2.50	11.39±2.51	11.13±2.22
	Vocational	3.21±0.68	2.64±1.02	9.67±2.02	12.50±2.44	12.25±3.40	12.03±2.72
	Secondary	3.35±0.87	2.54±0.88	9.78±1.37	12.60±2.57	12.52±3.04	12.54±2.66
	Higher	3.71±0.71	3.21±1.06	11.03±1.89	14.07±2.67	13.78±3.09	13.28±2.25
	Statistical analysis	F=4.239 p=0.007	F=3.757 p=0.013	F=5.299 p=0.001	F=6.066 p=0.000	F=2.784 p=0.044	F=3.342 p=0.022
Lives	With family	3.35±0.79	2.64±1.03	10.16±1.82	13.01±2.22	12.66±2.90	12.53±2.23
	Alone	3.31±0.84	2.84±1.07	10.10±2.01	12.36±2.90	12.42±3.26	12.21±2.81
	In social welfare homes	3.20±0.86	2.53±0.91	8.80±1.74	11.06±3.53	11.86±3.77	11.66±3.24
	Statistical analysis	H=0.267 p=0.874	H=1.094 p=0.578	H=7.963 p=0.018	H=4.441 p=0.108	H=0.392 p=0.821	H=1.782 p=0.410

Table III. Sociodemographic variables vs mean values of Barthel scale assessments

Variable		M	SD	Statistical analysis
Gender	Female	67.03	31.40	t=0.130
	Male	66.29	31.72	p=0.896
Age	65-74 years old	81.74	20.46	**H=30.589**
	75-89 years old	65.85	30.48	**p=0.000**
	90+ years old	23.21	17.82	
Marital status	Single	59.39	33.78	**t=3.280**
	Married	77.50	24.07	**p=0.001**
Education	Elementary	39.13	30.08	**F=11.110**
	Vocational	71.42	27.41	**p=0.000**
	Secondary	67.74	29.74	
	Higher	83.21.	22.98	
Lives	With family	69.28	29.99	**H=6.893**
	Alone	70.92	30.59	**p=0.031**
	In social welfare homes	44.33	32.23	

out at 66.64 point. 37.27% of respondents were qualified to category I, 43.63% were qualified to category II, and 19.10% were qualified to category III. Assessment of males' and females' fitness averaged out at similar levels: respectively 66.03 points and 66.29 points. Patients from the youngest age bracket enjoyed best fitness (81.74 points), and oldest respondents had lowest functional fitness (23.21 points). Married people functioned better with respect to everyday life activities (77.50 points). Respondents with higher education enjoyed best functional fitness (83.21 points). Analysis of the findings proved there was a statistically significant correlation (with the exception of gender) between analysed variables and the assessment of respondents' functional fitness (Table III).

The study also specified quality of life assessment in relation to the level of the functional fitness. A statistically significant correlation was found between quality of life and Barthel scale points – the better quality of life assessment, the greater the level of functional fitness (Table IV).

Table IV. Correlation between WHOQOL-Bref and Barthel scales

WHOQOL-Bref	Barthel
Q1	R=0.2710; p=0.004
Q2	R=0.3008; p=0.001
Somatic	r=0.4178; p=0.000
Psychological	r=0.3885; p=0.000
Social	r=0.2167; p=0.023
Environmental	r=0.3810; p=0.000

R- rang Spearman's correlation r- Pearson's correlation

Discussion

The concept of quality of life is multidimensional. Specific definitions most often refer to health-related quality of life (HRQOL). Mostly, they are directly connected with an individual's health state. For instance, Berzon et al. [7] define quality of life as an influence of a disease and its treatment on a patient's functioning and their quality of life assessment. According to Schipper et al. [8], quality of life consists in consequences of a disease and its treatment in patient's perception. Patrick proposes a broader definition, where quality of life is a value that is basically life, which is altered by damage, a functional state and social opportunities of a patient in result of an injury, a disease and its treatment [9].

An investigation administered in a cohort of seniors from the Lublin area [10] proved quality of life assessment to be rather high in all the domains. However, findings reported in this paper show quality of life self-assessment by elderly patients at orthopaedic wards to be rather low. At the same time, results of other studies by Fidecki et al. [11] in a research pool of the elderly from long-term institutional care proved their quality of life to be even lower. Nevertheless, respondents of that investigation, similarly to patients investigated in this study, assessed their health state to be lowest. All these findings clearly suggest that seniors staying in their home environment make best quality of life self-assessment. On the other hand, the elderly staying in institutionalised care have lowest quality of life assessments. Capability of self-care, i.e. functional fitness is to be equalled with independence of others while meeting one's basic everyday needs. These needs include: mobility, feeding, controlling physiological activities, and taking care of personal hygiene [12].

Changes that occur in one's motor system due to the growing old process affect its efficiency. Changes in body posture, in walking, and an increased risk of falls are all consequences of growing old processes [13].

Authors' own research proved that the greatest group of patients were qualified to fitness category II, which exhibits deficits in functional fitness and a need for help in everyday life activities. Authors' own research proved functional fitness to deteriorate with age. Lowest scores were obtained by 90-year-olds and older people. A correlation between age and fitness of the elderly is also confirmed in findings of other authors [14]. Authors of this paper also found a correlation between functional fitness and marital status – married people functioned better. These results were confirmed by investigations of Wysokiński et al. [15], whose findings showed married and widowed people to function better than the single. Our results also exhibited a strong correlation between education and elderly people's fitness assessment. Those with higher education enjoyed by far best assessments, while those with elementary education had poorest assessments. Investigations by Rybka et al. [16] confirmed our results. Studies by other authors also showed correlations between education and elderly peoples' functional fitness.

Functional fitness of patients with orthopaedic problems considerably affects their quality of life. Stiffness in the joints causes an increased risk of falls and injuries to the motor system. These are most often injuries to shoulder, elbow, and wrist joints [17]. Reduced mobility range in joints may result in chronic disability [18]. Research by other authors [19-21] demonstrates that quality of life in people after orthopaedic treatment deteriorates. Problems to do with fitness occur in everyday life. Pain problems related to the motor system are a frequent cause of deteriorated fitness, but it may also be caused by a decrease in joint mobility, and lower mood.

Conclusions

1. Quality of life self-assessment made by elderly people hospitalised at orthopaedic wards was highest within the scope of the environmental domain.
2. Age and education considerably differentiated respondents' quality of life assessments.
3. Respondents' functional fitness was considerably differentiated by factors such as: age, marital status, education, residence, and a type of illness.
4. A positive correlation was found between quality of life assessment and functional fitness in the investigated cohort of elderly people.

Conflict of interest
None

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