



ORIGINAL PAPER

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Assessment of disability and quality of life in elderly people in institutional care

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ABSTRACT

Introduction. Increasing incidence of disability among elderly people results in a growing need for long-term care.

Aim. The aim of the study was to assess the disability and quality of life in people over 60 living in institutional care.

Material and methods. The study group included a group of 100 people residing in social welfare homes in south-eastern Poland. The WHODAS 2.0 questionnaire was used to assess disability and the WHOQOL-Bref questionnaire was used to assess the quality of life.

Results. The majority of the respondents had difficulties in getting around (47.94), participation in society (34.29) and self-care (32.40). The lowest level of disability was found in the domain of getting along with other people (6.67). The highest level of quality of life was observed in the environmental domain (63.62), and the lowest in the social domain (37.10). A relationship was found between disability and the quality of life in the study group. Difficulties in terms of getting around and self-care, as well as participation in society had a negative impact on the quality of life.

Conclusion. The residents of social welfare homes were characterized by moderate disability and a good quality of life. The results obtained indicate the domains of functioning that require the greatest support for the residents of social welfare homes. The implementation of programs to improve the performance of basic and complex activities of daily living (ADL) may improve the functional status and quality of life in these people.

Keywords. disability, elderly people, long-term care

Introduction

Recently, a dynamic progress of ageing has been observed in societies. In Poland, the percentage of people over 65 amounted to 13.5% in 2014. According to the forecast

of the Central Statistical Office (CSO), this percentage will reach 34.5% in 2050. It is predicted that the number of European citizens aged at least 65 will increase from 18.9% in 2016 to 29.5% in 2060, while the citizens at least

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80 years old - from 4.6% to 12%.^{1,2,3} The development of medicine resulting in the elongation of elderly people's lives, as well as the growing number of families with a small number of children contribute to this fact.⁴ The phenomenon of longer life of elderly people is not always associated with the extension of health and independence - according to statistics, people over 65 make up nearly 41% of all persons with disabilities in Poland.⁵ This results in a systematic increase in the need for long-term care.⁶ According to the Ministry of Health, in 2012, 42% of people aged 75 years and over 56% of those aged over 75 used long-term care services. According to statistical forecasts, this number will double in the next 20 years.⁷ According to Eurobarometer surveys from 2007, the majority of Europe's population will require long-term care at some stage of their lives.⁸ The observed changes in population structure are a challenge for national and local authorities to provide seniors decent living conditions and its proper quality.^{9,10}

In recent years, a positive change has occurred in the approach to health and rehabilitation of elderly people. The actions undertaken are directed not only to support the patient's health needs, but also emotional and social aspects.^{10,11} This results in the growing interest of many researchers in the subject of functioning and disability of elderly people. According to de Melo Trize et al., the degree of fitness of the elderly is influenced, i.e. by co-morbidities, level of physical activity, lifestyle and pain.¹² Studies by Katta et al. showed that the main determinant of disability are limitations in mobility and performing basic ADL.¹³ Li and Conwell emphasize significant impact of cognitive impairment on the increase of functional disability in the elderly people.¹⁴ Helvik et al. showed that a large percentage of the elderly people placed in institutional care facilities have a deterioration in the ability to perform ADL, which is mainly related to the severity of dementia symptoms, co-morbidities and emotional disorders.¹⁵ Kozicka and Kostka recognized additionally age, strength of the handshake and nutritional status as the most important determinants of functional fitness in the people.¹⁶ The quality of life is inseparably connected with functional capacity, because as many sources conclude, healthy life and fitness still remain the main determinants of high quality of life.^{17,18,19} Mollaoğlu et al. showed that the main factors determining the quality of life include mobility.¹⁷ Yümin et al. included the possibility of maintaining balance, as well as age, marital status and education level among main determinants of quality of life.²⁰ Accompanying the old age, multi-morbidity, which often causes limitations of physical capacity and dependence on others, reduction of funds to finance treatment or depression resulting from lack of support from relatives are only a few of the problems that the elderly people have to deal

with. Each of them can contribute to a significant deterioration of their quality of life.^{18,21,22}

The majority of previous studies on the functional fitness of the elderly were based on the use of the ADL and IADL scale and did not give a full picture of the functioning of these people in everyday life. Therefore, there is urgent need to carry out a multi-aspect analysis of the situation of the elderly people based on the International Classification of Functioning, Disability and Health (ICF) in order to assess difficulties associated with functioning in everyday life, especially in the old age.^{10,11} A tool to assess disability developed by WHO on the basis of ICF is the WHODAS (World Health Organization Disability Assessment Schedule 2.0) questionnaire.²³ It is a tool used by more and more researchers from different countries, and the research carried out so far has confirmed its high psychometric sensitivity in assessing the level of disability of various populations.^{23,24,25} The application of the WHODAS 2.0 questionnaire in the surveys of people covered by institutional care provides the possibility of a multidimensional assessment of factors affecting the functioning of the residents of social welfare homes.²⁶ This tool is considered complementary to the WHOQOL-Bref assessing satisfaction with quality of life. In connection with the above, the analysis of the level of disability and the quality of life of elderly people covered by institutional care was performed. In Poland, this is the first disability assessment of the elderly people covered by institutional care with WHODAS 2.0.

Aim

The aim of the study was to assess the disability and quality of life in people over 60 living in social welfare homes in south-eastern Poland.

Material and methods

The study group consisted of 100 people, aged 60-96, residing in randomly selected social welfare homes in the Podkarpackie province. The residents of 4 social welfare homes were included in the study. There were 69 women and 31 men among the respondents. WHODAS 2.0 and WHOQOL-Bref questionnaires, as well as a questionnaire containing sociodemographics and health status were used in the study.

The level of disability of the respondents was assessed using WHODAS 2.0. The questionnaire enables the assessment of the functioning of people in the last 30 days in six domains of life: understanding and communicating, getting around, self-care, getting along with people, life activities and participation in society. This analysis does not include the domain of life activity, which analyses the difficulties in performing daily activities related to the maintenance of the household, such as: cooking, cleaning, shopping, taking care of oneself and personal belongings. Answers to the questions were

classified in a five-point scale in which, along with the increase in the score obtained, the severity of the problem increases (no problem - 1 point, extremely big problem - 5 points). After summing up the results obtained in each of six domains and converting them to the 0-100 point range, it is also possible to assess the overall disability level, in which 0 points means no disability and 100 points - total disability.²³ In order to determine the general level of disability and disability in individual domains of WHODAS 2.0, the scale consistent with the ICF guidelines was used: no disability (0-4%), slight disability (5-24%), moderate disability (25-49%), severe disability (50-95%), very severe disability (96-100%).²⁷

The WHOQOL-Bref questionnaire was used to assess the quality of life, which allows to obtain a profile of quality of life on the basis of the analysis of the last 14 days in four domains: physical, psychological, social and environmental. Answers to the questions asked are classified in a five-point scale, and the interpretation of the obtained results has a positive direction. This means that the greater the number of points scored in each of the assessed domains, the better the quality of life of the subject. The questionnaire also contains 2 questions regarding the individual's general perception of quality of life and individual's general perception of one's own health, which concern the last 30 days and are analysed separately. In order to obtain results in a form comparable to WHOQOL-100, the obtained results are converted on a 100 point scale, in which 0 points means a very poor quality of life, and 100 points a very good quality of life.²⁸

Statistical analysis

Statistical analysis was performed using the STATISTICA 13.1. Quantity and indicators of the structure were given for the qualitative variables. Basic measures of descriptive statistics were determined for quantitative variables. In addition, linear correlation coefficients were determined between the results of the WHODAS 2.0 questionnaire and the results of the WHOQOL-Bref questionnaire. Statistically significant correlations were found at $p < 0.05$.

Results

The study included a group of 69 women and 31 men between 60 and 96 years of age, their average age was 78 years (SD = 8.81). The BMI (Body Mass Index) of the subjects was also calculated. Half of them (50%) were characterized by normal BMI, 30% were overweight and 15% obese. The mean BMI in the study group was 24.65 (SD = 4.6). Most of the respondents (65%) used orthopaedic aids for everyday functioning. Most patients used a walker (24%) or a wheelchair (22%). 19% of the respondents moved with a crutch or a stick. The incidence of falls in the study group during the last year was also determined. It occurred in more than three-quarters of the respondents (78%). Vast majority of the el-

derly people (74%) declared that in their everyday life they are visited and helped by their families (Table 1).

Table 1. Characteristics of the study group (n = 100)

Feature	Percent (%)
Sex	
Women	69.00
men	31.00
BMI	
Underweight	5.00
Normal	50.00
Overweight	30.00
Obesity	15.00
Orthopaedic aids used	
A crutch or a stick	19.00
A walker	24.00
A wheelchair	22.00
Does not use any orthopaedic aids	35.00
Falls during last year	
yes	78.00
no	22.00
Visits and help of the family	
yes	74.00
no	26.00

Table 2. Incidence of chronic diseases diagnosed by a doctor

Chronic diseases	Percent (%)
Coronary heart disease	30.00
Hypertension	44.00
Atherosclerosis	14.00
Stroke	2.00
Diabetes	31.00
Osteoporosis	28.00
Osteoarthritis of the peripheral joints	20.00
Osteoarthritis and back pain	25.00
Rheumatic disease	30.00
Allergy	4.00
Cancer	1.00
Asthma	4.00
COPD, emphysema	2.00
Incontinence	40.00
Migraine	11.00
Depression	15.00

The most frequent chronic diseases in the study group were arterial hypertension and incontinence. These diseases were diagnosed in 44% and 40% of the respondents, respectively. Almost one third of the people suffered from conditions such as diabetes (31%), coronary heart disease (30%) and rheumatic disease (30%). The fewest respondents indicated the occurrence of chronic respiratory diseases, cancer and stroke. These diseases were diagnosed in less than 5% of the study group (Table 2).

We found that the highest degree of disability of the residents of social welfare homes occurs in the domain

related to getting around (47.94), participation in society (34.29) and self-care (32.40). The lowest degree of disability was found in the domain of getting along with people (6.67) and understanding and communicating (13.65) (Table 3).

The analysis of the results obtained showed that in the majority of the studied domains prevailed people with mild and moderate disabilities. The highest percentage of the respondents with moderate disabilities was found in the domain of participation in society (60%). Most people had problems with getting around because in this domain the highest percentage of seniors was characterized by severe (31%) and very severe (14%) disability. A very severe degree of disability has

also been demonstrated in the domain of self-care (3%) (Table 4).

In the study group, the highest percentage were the elderly with good quality of life (42%). A slightly smaller percentage (31%) of the respondents assessed their quality of life as neither good nor bad. A comparable percentage of the respondents assessed their quality of life as very good (15%) and bad or very bad (12%).

Almost half of the respondents were satisfied or very satisfied (49%) with their health condition. On the other hand, 34% were dissatisfied or very dissatisfied. The remaining part of the respondents (17%) indicated the answer “neither satisfied nor dissatisfied”.

Table 3. Results of the WHODAS 2.0 questionnaire

Domains of disability	Mean	SD	Median	Min	Max	Lower quartile	Upper quartile	Asymmetry coefficient
understanding and communicating	13.65	12.37	10.00	0.00	50.00	5.00	20.00	1.00
getting around	47.94	32.42	43.75	0.00	100.00	21.88	75.00	0.30
self-care	32.40	29.72	20.00	0.00	100.00	10.00	45.00	0.89
getting along with people	6.67	12.31	0.00	0.00	41.67	0.00	8.33	1.50
participation in society	34.29	14.82	33.33	0.00	70.83	25.00	41.67	0.46

Table 4. Incidence of individual degrees of disability in the assessed domains

Domains of disability	no disability (%)	slight disability (%)	moderate disability (%)	severe disability (%)	very severe disability (%)
understanding and communicating	21.00	58.00	19.00	2.00	0.00
getting around	5.00	20.00	30.00	31.00	14.00
self-care	16.00	37.00	22.00	22.00	3.00
getting along with people	74.00	5.00	21.00	0.00	0.00
participation in society	1.0	21.00	60.00	18.00	0.00

Table 5. Results of the WHOQOL-Bref questionnaire

Domains of quality of life	Mean	SD	Median	Min	Max	Lower quartile	Upper quartile	Asymmetry coefficient
Physical health	51.32	10.08	50.00	31.00	75.00	44.00	63.00	0.14
Psychological	57.07	12.21	56.00	25.00	94.00	47.00	69.00	0.08
Social relationships	37.10	11.63	44.00	6.00	56.00	28.00	44.00	-0.34
Environment	63.62	11.21	63.00	44.00	100.00	56.00	69.00	0.41

Table 6. Assessment of the relationship between the degree of disability and the quality of life

Results of WHODAS 2.0	Results of WHOQOL-Bref			
	Physical health	Psychological	Social relationships	Environment
understanding and communicating	-0.29	-0.36	-0.30	-0.28
getting around	-0.42	-0.35	-0.06	-0.27
self-care	-0.40	-0.35	0.02	-0.21
getting along with people	-0.19	-0.29	-0.16	-0.13
participation in society	-0.41	-0.42	-0.14	-0.37

The residents of social welfare homes rated the quality of their life in the domain of environment (63.62) the highest. The lowest quality of life was found in the domain of social relationships (37.10). The quality of life in the physical and psychological domains was assessed at an average level (51.32; 57.07 respectively) (Table 5).

The relationship between the level of disability in particular domains measured by WHODAS 2.0 and the level of quality of life in individual WHOQOL-Bref domains were assessed (Table 6).

There was a statistically significant moderate negative relationship between the physical health domain of quality of life and getting around, self-care and participating in society, as well as between the psychological domain of quality of life and participation in society. The remaining correlation coefficients were statistically significant but indicated a low strength of dependence between the analysed domains or turned out to be statistically insignificant.

Discussion

The phenomenon of aging is a progressive and irreversible process, leading to a decrease in fitness and psychophysical efficiency. The increase in the number of elderly people in the society makes it necessary to look for effective strategies aimed at maintaining the independence in everyday functioning for as long as possible.

In course of the analysis, the highest level of disability was demonstrated in the domain of getting around (mean = 47.94, SD = 32.4). In this part, activities such as standing, moving around the house, getting out home and walking a long distance were assessed. Similar results obtained by Silva et al. who examined 504 people over 60 years of age. They found a very high degree of difficulty in activities such as standing for long periods in 30% of the respondents, and walking for longer distances up to 38%.²⁹ The analysis carried out by Veiga et al. showed the highest degree of disability in the domain of getting around.³⁰ Katta et al. who assessed the disability of Indian residents from rural areas also showed the greatest difficulties in the field of getting around and self-care.¹³ Jerez-Roig et al. who examined 280 residents of nursing homes over 60 years of age found functional decline in 54% examined persons in the 2-year follow-up. The maintained level of fitness was observed in 33% of the respondents, and in only 14% of them the level was higher.³¹ Den Ouden et al. found in their research that the residents of nursing homes lead inactive lifestyle. The authors also emphasized the need to organize forms of physical activity by staff in order to maintain an adequate level of fitness and minimize the risk of progressing disability in mentees.³²

Based on our own analysis, it was found that a high level of disability also occurred in the domain of participation in society (mean = 34.29, SD = 14.82). Within

this domain, the activities in the local community were assessed, overcoming barriers and obstacles occurring in the external environment, and other problems, such as the sense of personal dignity. Donmez et al. in their research, which included 36174 people above 60 years of age living in society, also showed the highest percentage of people characterized by problems in participation in society.³³ Veerhak et al. who assessed the level of disability of patients with depression found the highest level of disability of the respondents in the domain of participation in society and life activities.³⁴

Our research shows that the next in terms of disability was the domain related to taking care of oneself, personal hygiene, dressing up, eating and staying alone at home (mean = 32.40, SD = 29.72). A study by Rocha et al., which included 329 residents of long-term care centers with dementia showed that 89.4% of them had very high degree of disability in the field of self-washing and 78.4% in self-dressing. The authors also emphasized the existence of a negative correlation between the level of cognitive impairment and disability in the study group.³⁵ Dotchin et al. who assessed the relationship between the degree of disability and severity of dementia showed that the strongest influence on the occurrence of cognitive deficits have limitations in the area of self-care.³⁶

The analysis showed the lowest level of disability in getting along with people (mean = 6.67, SD = 12.31). In the studies conducted by Almazán-Isla et al. the domain of getting along with people was the area of the lowest disability in both the elderly women and men.³⁷ Sinalkar et al. who conducted research on a group of 227 people over 65 living in rural areas in India showed no disability in terms of getting along with people in 78% of women and 63.3% of men.³⁸ The results obtained in this area were the best in relation to the results obtained in the remaining domains of the WHODAS 2.0 scale.

In the surveyed group of residents of social welfare homes in the Podkarpacie region, the highest level of quality of life was found in the environmental domain, in which housing, financial conditions, a sense of security and the ability to pursue one's own interests were assessed. The lowest level of quality of life was demonstrated in the social domain, in which satisfaction with personal relationships, support received from relatives and intimate life was examined. The quality of life in the psychological and physical health domains was on an average level. Similar results in the assessment of the quality of life was found by Pawlarczyk et al. who conducted research among people living in social welfare homes and patients of the psychogeriatric daily department in Poznan.³⁹ Kuan-Long et al. who examined 465 people living in 62 institutional care centers in Taiwan also found the worst quality of life of the respondents in the social domain.⁴⁰ Similarly, the lowest result in this

domain was found by Serbian researchers who assessed the quality of life of 200 residents of the Senior House in Novi Sad.⁴¹ Şenol et al. examined the quality of life of 136 residents of nursing homes aged over 65 years using the modified WHOQOL-OLD quality of life, assessing the quality of life in six domains. The best results were obtained in the domain of intimacy and cognitive functions, and the worst in the domain of autonomy. The overall mean score obtained in the study group amounting to 43.4 was estimated as a low level of overall quality of life.⁴²

Based on the results of our own research, it was found that in the overall assessment of quality of life contained in the first question of the WHOQOL-Bref questionnaire, majority of the respondents (42%) rated their quality of life as good and neither good nor bad (31%). Extreme responses defining the level of quality of life as very good and very bad were indicated by 15% and 12% of the respondents respectively. Almost half of the respondents (49%) declared that they were satisfied with their state of health, 17% chose the answer "neither satisfied nor dissatisfied". The percentage of people dissatisfied and very dissatisfied with their health stood at 34%. Dias et al. who assessed the quality of life of the residents of long-term care centers in Rio de Janeiro obtained similar results. Very good quality of life was declared by 10% of the respondents, 40% of the respondents described the general quality of their life as good, the same percentage (40%) of the respondents assessed their quality of life as neither good nor bad, and 10% as bad. Half of the respondents (50%) declared that they were satisfied with their state of health. Neither satisfied nor dissatisfied was chosen by 20% of the respondents. Very high satisfaction and dissatisfaction with one's health condition were declared by 5% and 15% of the respondents.⁴³ Bodur et al. compared the quality of life of people living in home and institutional environment. Their research did not show differences in the perception of the quality of life of both groups in the physical and psychological domains. The residents of institutional care centres, however, were characterized by a lower level of quality of life in social and environmental domains compared to people living in family homes.⁴⁴ According to Zych and Karakaya, the quality of life of the elderly people staying in institutions is lower compared to the elderly people living with families.^{45,46} These results provide a starting point for the further development of research into factors affecting the quality of life of long-term care patients.

In the study group of the residents of social welfare homes in the Podkarpacie region, it was found that along with the increase in disability, the quality of life is reduced. A particularly strong relationship was found between the physical domain of quality of life and limitations in the areas of getting around, self-care and participation in society, as well as between the psycho-

logical domain of quality of life and disability in the field of participation. Similar dependencies were found Tazaki et al. who examined 321 elderly people and their carers living in different environments. They showed a negative correlation between disability in terms of standing for more than 30 minutes, washing, dressing and getting along with people, and a decline in the quality of life in the physical domain of the elderly people living in family homes.⁴⁷ Ramaprasad et al. in their research included a group of 205 elderly people suffering from mental illnesses showed that the lower level of disability obtained on the basis of the WHODAS 2.0 scale analysis, the higher the quality of life assessed on the WHOQOL-Bref scale.⁴⁸ Mwanyangala et al. studied 5131 people over 50 with discussed scales. The authors showed that with age, the level of disability increases and the level of quality of life decreases. They also observed that in each age group the level of quality of life was higher in men, while a lower level of disability was in the group of women.

The results of research showing the greatest limitations in terms of getting around and self-care in the elderly people staying in institutional care centres may suggest the need to expand the programs of rehabilitation and organized seniors' physical activity. This is confirmed by the results of research conducted by Acree and Manini, according to which an increase in the level of physical activity of elderly people has an impact on increasing the level of their functional capacity and quality of life. Therefore, it is necessary to ensure an adequate level of physical activity to elderly people living in an institutional environment.^{50,51}

Conclusion

The aging of the society and social changes that increase the number of people placed in institutional care centres make this social group more and more often object of the research. Moderate level of disability and a good level of quality of life were found in the residents of social welfare homes, with the greatest limitations in everyday functioning associated with getting around. It was also shown that the increase in the level of disability correlated with a decrease in the quality of life. The results obtained indicate the domains of functioning that require the greatest support. The development and implementation of programs improving the performance of basic and complex activities of everyday life, as well as the organization of various forms of activity for seniors in social life may improve their functional status and quality of life.

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