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Assessment of the Quality of Life of Geriatric Patients with Parkinson's Disease Being Rehabilitated and Improved in the Psychogeriatrics Department

Ocena jakości życia pacjentów geriatrycznych z chorobą Parkinsona rehabilitowanych i usprawnianych w oddziale psychogeriatrii

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Abstract

Introduction. Parkinson's disease is a progressive neurodegenerative disorder leading to the gradual deterioration of motor skills and the occurrence of emotional and somatic disorders.
Aim. The objective of this paper is to assess the psychophysical state and quality of life of geriatric patients with Parkinson's disease who are being rehabilitated at the psychogeriatric department, as well as to get acquainted with this very disease and its course.
Material and Methods. The assessment has involved 100 geriatric patients with Parkinson's disease. The research tool applied to determine the clinical condition was a questionnaire consisting of the author's questionnaire, personal information, as well as the Hoehn–Yahr stage and the Polish version of the Short Form Health Survey (SF-36).
Results. The analysis of the conducted research concluded that patients with Parkinson's disease display a low assessment of their quality of life and an impaired functioning in everyday life. Regarding physical activity, 65% of respondents believe that rehabilitation and regular physical activity have a positive impact on their health and quality of life.
Conclusions. Parkinson's disease has a negative impact on the psychophysical condition as well as quality of life of patients and limits the performance of everyday activities that require energy. Rehabilitation and physical activity have a positive impact on the health of patients, improving their mental and physical condition and quality of life. **(JNNN 2025;14(1):35–42)**
Key Words: geriatrics, mental health, quality of life, rehabilitation

Streszczenie

Wstęp. Choroba Parkinsona jest postępującym schorzeniem neurodegeneracyjnym, prowadzącym do stopniowego pogorszenia sprawności motorycznej oraz wystąpienia zaburzeń emocjonalnych i somatycznych.
Cel. Celem pracy jest ocena stanu psychofizycznego i jakości życia pacjentów geriatrycznych z chorobą Parkinsona, którzy są rehabilitowani i usprawniani w oddziale psychogeriatrii, a także zapoznanie się z przebiegiem i istotą choroby.
Materiał i metody. Badanie zostało przeprowadzone wśród 100 pacjentów geriatrycznych z chorobą Parkinsona. Do określenia stanu klinicznego użyto narzędzia badawczego, jakim jest kwestionariusz ankiety, złożony z autorskiego kwestionariusza, metryczki, a także Skali Hoehna–Yahra oraz kwestionariusza oceny jakości życia SF-36, wersja polska.
Wyniki. Analiza przeprowadzonych badań wykazała, że pacjenci z chorobą Parkinsona mają niską ocenę jakości życia i zaburzone funkcjonowanie życia codziennego. Odnośnie aktywności fizycznej 65% badanych uważa, że regularne zajęcia ruchowe i rehabilitacja wpływają pozytywnie na ich zdrowie i jakość życia.

Wnioski. Choroba Parkinsona wpływa negatywnie na stan psychofizyczny i jakość życia pacjentów, ogranicza wykonywanie czynności życia codziennego, które wymagają nakładu energii. Rehabilitacja i zajęcia ruchowe wpływa pozytywnie na stan zdrowia chorych, poprawia stan mentalny i fizyczny oraz jakość życia pacjentów. **(PNN 2025;14(1):35–42)**

Słowa kluczowe: geriatria, zdrowie psychiczne, jakość życia, rehabilitacja

Introduction

Parkinson's disease (PD) is one of the most common neurodegenerative diseases of the brain [1]. The disease is characterized by the occurrence of disorders affecting the movement system, such as resting tremor, hypokinesia, and muscle stiffness as well as emotional, somatic and cognitive disorders [2]. PD mainly affects people above 55–60 years of age and in 90% of cases its cause is unknown [3]. Symptoms that may appear during the course of PD can be divided into 2 groups: motor and non-motor symptoms. Motor symptoms include hypokinesia, tremor and gait disturbances. Non-motor symptoms however, are present in the form of some neuropsychiatric disorders such as anxiety, depression and circadian rhythm disorders [1,4–8]. Parkinson's disease treatment includes symptomatic treatment consisting of pharmacotherapy, rehabilitation and physical exercises and in some cases, surgical treatment. These actions are aimed at slowing down the progression of the disease, reducing the intensity of motor and non-motor symptoms, and improving the patients' quality of life [9–11]. The cooperation of a neurologist, a psychiatrist, the nursing staff and a physiotherapist is an important element in the treatment of PD [12,13]. An interdisciplinary approach to rehabilitation in PD is primarily aimed at improving the patient's comfort, quality of life (QoL) and daily functioning. Exercises should be performed systematically, at least 3–5 times a week for 20 minutes, and preferably every day. They should be performed during peak hours, i.e. when L-DOPA reaches its highest concentration. Without regular exercise, the patient loses the ability to perform simple daily activities [11,14–21]. Systematic and continuous rehabilitation improves the psychophysical condition, which to a large extent enhances the QoL [2,18,20,22]. According to the literature, movement therapy improved balance and gait function, which led to a better health related quality of life (HRQoL) in PD patients, although the effects of physical activity by using multiple compensatory strategies still remain unanswered [23,24].

The aim of this paper is to assess the psychophysical condition and HRQoL of geriatric patients with Parkinson's disease undergoing rehabilitation in the psychogeriatrics department.

Material and Methods

The study involved 100 hospitalized patients with PD above 60 years of age in the psychogeriatrics department at the Prof. Eugeniusz Wilczkowski Provincial Independent Complex of Public Health Care Institutions in Gostynin, Poland. The study was conducted from December 2023 to March 2024, with the inclusion criteria being a PD diagnosis as well as the ability to understand and complete a questionnaire. The exclusion criteria were dementia, delirium that hindered patients from understanding and completing the aforementioned questionnaire. Respondents were informed about the purpose of the survey and the right to stop participating without incurring any consequences. The study applied an author's questionnaire and standardized questionnaires — the Hoehn–Yahr stage and the Polish version of the Short Form Health Questionnaire -36 (SF-36). Researchers have obtained permission to use SF-36, as well as the author's questionnaire, which consists of 14 questions that provide information on sociodemographic data, level of physical activity and rehabilitation and PD symptoms of the respondents. The Hoehn–Yahr stage was made by a medical doctor, a psychogeriatrician, the author's questionnaire and SF-36 was filled in by the patient himself. The SF-36 was administrated for assessments of HRQoL [25,26], which is psychometrically sound and recommended for measuring HRQoL in patients with PD. It also correlates to similar scales on the disease-specific Parkinson's Disease Questionnaire (PDQ-39) [27,28]. The study was approved by the Bioethics Committee of the Mazovian Academy in Płock (KB/PEL-II 70.2024).

The SPSS Statistics 28.0 program was used to perform the statistical analysis. The chi-squared test was applied to examine the statistical relationship between the analysed features, which allows for estimating the probability of the null hypothesis error. The obtained research results were subjected to statistical analysis using the χ^2 test for independent samples. A 5% risk of inference error was assumed. The probability value of $p<0.05$ was considered statistically significant. The result of the chi-square test was compared with the result in the table. The ANOVA (analysis of variance) was applied to examine the statistical relationship. In order to verify the hypothesis of equality among the mean values of the studied variables in two populations, the Student-Test for independent groups was applied.

Results

The basic characteristics of the patients are summarized in Table 1. The estimated number of research participants involved 100 patients with a PD diagnosis. Overall, 57% were male and 43% were female. In the entire research group, the largest group was patients between 70–79 years of age (48%). According to the Hoehn–Yahr stage, the distribution of disability levels in the study group is presented as follows: stage 1: 10%, stage 2: 13%, stage 3: 39%, stage 4: 30% and stage 58% of the sample. 66% of the research group declared that they had been physically active before the onset of the disease symptoms. However, after PD was diagnosed, 59% of the respondents declared that they did not engage in any physical activity. After the analysis of our own research, it was found that 62% of the respondents regularly attended rehabilitation after PD had been diagnosed. Before the hospitalization in the psychogeriatrics department, only 51% of the respondents knew what rehabilitation methods they could apply in the course of PD. In the entire research sample, 56% of respondents declared that they exercise regularly at home.

Table 1. Main demographic and clinical characteristics of the sample (N-100)

Variable	%
1	2
Gender	
Male	57
Female	43
Age	
60–69 years	22
70–79 years	48
Over 80 years	30
Education	
Primary	26
Secondary	31
Higher	23
Degree	20
Place of residence	
City	49
Village	51
Physical Activity before PD diagnosis	
Yes	66
No	34
Physical Activity after PD diagnosis	
Yes	41
No	59
Participation in a rehabilitation program after PD diagnosis	
Yes	62
No	38
Knowledge of rehabilitation methods in PD before hospitalization in the psychogeriatrics department	
Yes	51
No	49
Knowledge of rehabilitation methods in PD after hospitalization in the psychogeriatrics department	
Yes	71
No	29
Using orthopedic supplies	
Yes	65
No	35
Practicing regular physical activity at home	
Yes	56
No	44
Satisfaction with therapy in the psychogeriatrics department	
Yes	66
No	34
Impact of rehabilitation on HRQoL	
Positive	65
Negative	13
Doesn't say	22
Hoehn and Yahr stage	
1 Stage (Unilateral involvement with mostly minimal or no functional disability)	10
2 Stage (Bilateral or midline involvement without impairment of balance)	13
3 Stage (Bilateral disease: mild to moderate disability with impaired postural reflexes; physically independent)	39
4 Stage (Severely disabling disease; still able to walk or stand unassisted)	30
5 Stage (Confinement to bed or wheelchair unless aided)	8

% — percent

Table 2 presents the limitations in performing activities of daily life. The analysis of the data suggests that activities which require more physical effort, such as running and weightlifting had the highest mean values. However, some less demanding activities, such as walking less than 100 m, had lower mean values. It is worth noting that the standard deviation for some activities is significant, which suggests the patients' diverse reaction to these

activities. The most difficult for the sample were strenuous activities, i.e. running, weightlifting and participating in sports which require intensive engagement ($\bar{x}$=4.24; SD=0.49), while the easiest was a walk of c. 100 m ($\bar{x}$=0.97; SD=0.22).

Table 2. Limitations in performing everyday activities with reference to PD

Activities	$\bar{x}$	SD
Strenuous activities, i.e. running, weightlifting, participating in sports requiring intensive engagement	4.24	0.49
Activities of moderate difficulty, i.e. moving a table, vacuuming, going bowling or playing golf	3.56	0.34
Lifting or carrying shopping	3.02	0.75
Ascending a few floors of stairs	3,94	0.91
Ascending one floor of stairs	1.99	0.86
Bending over or kneeling	2.87	0.99
Walking further than 1 km	3.61	0.07
Walk of c. 500	2.18	0.27
Walk of c. 100 m	0.97	0.22
Bathing or putting on clothes	3.25	0.14

$\bar{x}$ — mean; SD — standard deviation

The Pearson's chi-squared test analysis showed that the research indicated a statistically significant difference in the responses between the groups under research (Table 3). Therefore, it can be stated that the majority of respondents positively assess the impact of rehabilitation on their health and quality of life (p=0.001). While analyzing the data of PD symptoms in the recent two weeks, it was noted that the most common symptoms are resting tremor ($\bar{x}$=3.45), hypokinesia ($\bar{x}$=3.49) and muscle stiffness ($\bar{x}$=3.42) which all had the highest mean values.

The Student's t-test was performed to analyse the impact of rehabilitation on the quality of health. It showed statistically significant differences in the overall assessment of physical health (t(1.98)=5.740, p=0.018), mental health (t(1.98)=1.064, p=0.035) and QoL (t(1,98)=3.780, p=0.045) depending on the use of rehabilitation or physical activities (Table 4). This means that the respondents who did not participate in rehabilitation or physical activities had a significantly worse assessment of HRQoL.

The ANOVA analysis indicated statistically significant differences in the impact of rehabilitation on the overall assessment of physical health (F(4.95)=85.478, p<0.001), mental health (F(4.95)=36.977, p<0.001) and the QoL index (F(4.95)=95.611, p<0.001) depending on the

Table 3. The assessment of the influence of rehabilitation and on health and the QoL of patients with PD

Do you believe that be rehabilitation have a positive impact on your life and the QoL?	N	%	p
Yes	65	65	0.001
No	13	13	
I have no opinion	22	22	
Total	100	100	

Intensity of Symptoms of the sample N=100						
	Never %	Seldom %	Sometimes %	Often %	Very Often %	The severity of symptoms in the last 2 weeks before research: $\bar{x}$ (SD)
Rest tremor	5	19	23	32	21	3.45 (1.16)
Muscle stiffness	4	14	32	36	14	3.42 (1.02)
Hypokinesia	6	13	27	34	20	3.49 (1.13)
Postural instability	6	22	35	30	7	3.1 (1.02)
Imbalance	11	28	26	30	5	2.9 (1.10)
Freezing of gait	11	26	30	31	2	2.87 (1.04)
Dysphagia	25	25	25	25	25	2.37 (1.11)
Dysarthia	26	37	22	14	1	2.27 (1.03)
Dysgraphia	7	30	30	27	6	2.95 (1.04)
Sialosis	32	26	23	14	5	2.34 (1.20)
Pain	14	18	26	26	16	3.12 (1.28)
Protogenous constipation	10	21	26	29	14	3.16 (1.20)

N — number of observations; % — percent; p — statistical significance level; $\bar{x}$ — mean; SD — standard deviation

Table 4. The influence of rehabilitation on the health and QoL of patients with PD

The influence of rehabilitation treatment	SF-36		
	General assessment of physical health	General assessment of mental health	QoL index
Yes			
$\bar{x}$	57.709	31.790	92.596
N	62	62	62
SD	18.955	12.563	30.096
No			
$\bar{x}$	66.921	34.526	104.579
N	38	38	38
SD	18.164	13.373	29.612
Total			
$\bar{x}$	61.210	32.830	97.150
N	100	100	100
SD	19.102	12.879	30.331
t	5.740	1.064	3.780
p	0.018	0.035	0.045

$\bar{x}$ — mean; N — number of observations; SD — standard deviation; t — t-student test result; p — statistical significance level

stage of the disease according to the Hoehn–Yahr stage (Table 5). The higher the stage of the disease, the lower the assessment of physical and mental health and the lower the quality life index. Our results showed a significant difference between the Hoehn–Yahr stage and the HRQoL.

Discussion

The aim of the study was to understand and check how important participation in rehabilitation is and how it contributes to the HRQoL in patients with PD. The most frequent symptoms of PD are: resting tremor, slow movement and muscle stiffness, as well as pain, constipation, depression and sleep disorders. Similar conclusions were reached by Dutkiewicz and Friedman, who stated that PD causes not only movement disorders, but also somatic and neuropsychiatric disorders [29].

The analysis of the authors' own research showed that rehabilitation and physical activities have a positive impact on the HRQoL of patients with PD measured by SF-36. Respondents undergoing rehabilitation had a higher assessment of their physical and mental health and QoL compared to people who did not participate in physical activities. The conducted research confirmed the positive impact of exercises on the HRQoL of patients. The results of the authors' own research were

Table 5. The impact of the Hoehn–Yahr stage on PD patients' HRQoL

Hoehn–Yahr stage	SF-36		
	General assessment of physical health	General assessment of mental health	QoL index
Stage 1			
$\bar{x}$	28.2000	12.8000	43.5000
N	10	10	10
SD	6.21468	6.25033	8.30328
Stage 2			
$\bar{x}$	42.6154	22.6154	68.5385
N	13	13	13
SD	6.10380	7.53369	11.34765
Stage 3			
$\bar{x}$	59.3077	31.3846	93.6667
N	39	39	39
SD	9.31652	9.64260	15.16633
Stage 4			
$\bar{x}$	74.7000	41.1000	119.1000
N	30	30	30
SD	11.29586	7.14553	15.18700
Stage 5			
$\bar{x}$	91.3750	50.5000	145.3750
N	8	8	8
SD	2.97309	7.32900	8.68393
Total			
$\bar{x}$	61.2100	32.8300	97.1500
N	100	100	100
SD	19.10275	12.87944	30.33163
F	85.478	36.977	95.611
p	0.000	0.000	0.000

$\bar{x}$ — mean; N — number of observations; SD — standard deviation; F — ANOVA test result; p — statistical significance level

compared with the results of research conducted by Kataoka and Sugie who examined 30 PD patients with Hoehn–Yahr Stage III for 10 years. The study showed a significant correlation between the HRQoL measured by SF-36 and an increased stage of Hoehn–Yahr [30]. Another study evaluated 227 patients with Hoehn–Yahr stage (3.3) which showed significant correlation between HRQoL measured at 4 and 8 after the baseline. The Nottingham health profile was used (NHP) to assess the HRQoL [31]. Qin Z. et al. identified the motor and non-motor factors which are associated with HR-QoL measured by SF-36 in a subgroup of 391 PD patients with Levodopa therapy in early clinical stages. The authors proved that the clinical factors showed the

highest predictive value for the worsening HR-QoL were non-motor symptoms, such as depression, sleep disorders, and fatigue. However, the presence of physical disabilities related closely to the HRQoL seen in patients with PD. At the same time they discovered that non-motor symptoms are also important factors for the assessment of the HRQoL [32]. Pazzaglia et al. compared a 6-week virtual reality (VR) rehabilitation programme to a conventional rehabilitation programme in PD patients. They used the SF-36 to evaluate the QoL which showed a significant correlation between these rehabilitation programmes (SF-36 mental composite score [37.7 (SD 11.4) vs. 43.5 (SD 9.2), P=0.037]) [33]. Tu, Hwang, Hsu and Ma conducted a research on the responsiveness of the SF-36 and the PDQ-39 in patients with PD. They proved that both instruments were partially sensitive to changes during the 1-year follow-up and able to discriminate between patients with improved versus deteriorated motor signs. In addition, both were similarly responsive to changes in the motor difficulties of daily life; the SF-36 appeared to be more sensitive than the PDQ-39 to changes in depressive symptoms. At the same time The SF-36 and the PDQ-39 were acceptably [34]. Augustyniuk et al. maintain that regular physiotherapy improves the overall motor skills, functioning of the patient, and also increases the QoL. The authors also presented that rehabilitation delays the deterioration of the patients' health. They confirmed that PD negatively affects all QoL domains, especially physical functioning [19]. Similar conclusions were obtained by Cholewa et al. whose research clearly corresponds to the hypothesis [20]. The results of our own research indicated that 49% of the respondents did not know what rehabilitation methods they could use in PD, which means that education in this area is required. The analysis of the conducted research showed that the most limitations and difficulties appear in performing activities requiring physical effort, such as: running, vacuuming, ascending several floors of stairs and walking further than 1 km. The results of our own research are consistent with the research conducted by Augustyniuk who presented that there are limitations in performing activities of moderate difficulty and requiring energy input. Moreover, they stated that the emerging movement disorders affect the performance of everyday activities, limiting the possibilities of performing them [19]. The results of our own research underlined that 66% of the respondents were physically active before the disease, whereas after the diagnosis, 44% of respondents declared that they were physically active, which indicates to what extent the disease limits motor skills. Additionally, it was noticed that people with lower education participate in physical activities less often. Similar results were obtained by Lorencowicz et al. who noticed that people with a lack of education do not participate in rehabilitation activities, which affects the deterioration of their functional skills. The research has shown that the disease causes deterioration of memory, functional and life skills, which contributes to a lower QoL and a worsening of well-being [11].

Conclusions

1. Parkinson's disease has a negative impact on all aspects of the patients' life by worsening their quality of life, as well as their physical and mental condition.
2. Rehabilitation improves the patients' physical and mental condition and also increases the quality of life.
3. Patients participating in rehabilitation and physical activities display a better assessment of their physical health, mental health and quality of life than those who do not take part in such activities.

Implications for Nursing Practice

Assessing the QoL of PD patients is essential for planning holistic patient care. This will facilitate the selection of rehabilitation interventions leading to an improvement in the patients' functionality. At the same time holistic education about the specifics of the disease, and regular, systematic physical activity increasing the range of movement and motor coordination contribute to the efficiency in everyday life and improve PD patients' quality of life.

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