STUDIA UBB EDUCATIO ARTIS GYMN., LXX, 4, 2025, pp. 115-123
(RECOMMENDED CITATION)
DOI:10.24193/subbeag.70(4).35

Quality of Life and Motivations for Physical Activity in Individuals With Parkinson's Disease

Petronela Lăcrămioara HĂISAN[1], Codruța Ioana TIUCĂ[1], Vania LOUREIRO[2], Domenico MONACIS[3], Angel–Alex HĂISAN[1*]

Received 2025 November 06.; Revised 2025 December 20; Accepted 2026 January 05; Available online 2026 January 30; Available print 2026 January 30

ABSTRACT. Parkinson's disease (PD) impacts multiple life domains, with motor and non-motor symptoms affecting Health-Related Quality of Life (HRQOL). Understanding quality of life and motivation for physical activity is essential for targeted rehabilitation. **Objective:** To assess quality of life in PD patients using the PDQ-39 and explore motivational factors for physical activity via the PALMS questionnaire, examining relationships with demographic variables, disease stage, and activity patterns. **Methods:** A cross-sectional study included 40 adults with PD in Cluj-Napoca, Romania, completing PDQ-39 and PALMS questionnaires. Data were analyzed using descriptive statistics, independent t-tests, and Pearson's correlations. **Results:** The mean PDQ-39 Summary Index was 38.51±19.82, indicating moderate impairment. Bodily discomfort, mobility, emotional well-being, and activities of daily living were the most affected domains. Significant differences between Hoehn and Yahr stages II and III were found in multiple domains and the PDQ-39 Summary Index. Longer disease duration (≥10 years) was linked to poorer cognition, communication, bodily discomfort, and overall quality of life. PALMS results showed highest motivation in physical condition and mastery, lowest in competition. Strong correlations existed between PDQ-39 Summary Index and all domains ($r = .711–.832$, $p < .01$), and moderate correlation with disease duration ($r = .414$, $p < .01$). **Conclusions:** PD patients exhibited moderate quality of life impairments influenced by motor

[1] Department of Physical Education and Sport, "1 Decembrie 1918" University of Alba Iulia, Romania.
[2] Department of Arts, Humanities and Sport, Polytechnic University of Beja, Portugal.
[3] DISES, Department of Education and Sports Sciences, Pegaso University, Naples, Italy.
[*] Corresponding author: angel.haisan@uab.ro

symptoms, emotional well-being, and discomfort. Physical activity motivation centered on fitness and mastery rather than competition. Disease progression significantly affects quality of life, underscoring the need for personalized physiotherapy and long-term rehabilitation.

Keywords: *Parkinson's disease, quality of life, PDQ-39, PALMS, motivation.*

INTRODUCTION

Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by the degeneration of dopaminergic neurons in the substantia nigra, resulting in motor symptoms such as tremors, rigidity, bradykinesia, and postural instability (Schrag, 2000). Additionally, non-motor symptoms, including pain, sleep disorders, depression, cognitive decline, and autonomic dysfunction, significantly contribute to overall disability and reduced quality of life (QoL) (Marumoto et al., 2019).

According to the World Health Organization, quality of life is defined as an individual's perception of their position in life concerning cultural, societal, and personal expectations (Kuyken et al., 1995). Health-related quality of life (HRQOL) is a critical outcome in clinical practice and rehabilitation research (Ophey et al., 2018; Soh et al., 2012).

The PDQ-39 is the most extensively utilized disease-specific instrument for evaluating the health-related quality of life (HRQOL) in Parkinson's disease (PD) (Ophey et al., 2018; Chen et al., 2017; Klepac et al., 2007). It encompasses domains such as mobility, activities of daily living, emotional well-being, stigma, social support, cognition, communication, and bodily discomfort (Jenkinson et al., 1997).

Physical activity is widely recognized for its therapeutic benefits in Parkinson's disease (PD), including improvements in motor performance, a reduction in fall risk, mood enhancement, and preservation of functional independence (Canning et al., 2014; Earhart & Falvo, 2013; Kwok et al., 2016; Van Der Kolk & King, 2013). Consequently, understanding patients' motivation to engage in physical activity is essential. The Physical Activity and Leisure Motivation Scale (PALMS) offer a comprehensive assessment of motivational factors, including mastery, physical condition, psychological benefits, social influences, appearance, competition, and enjoyment (Molanorouzi et al., 2014; Roychowdhury, 2018).

Parkinson's disease in Romania presents distinct epidemiological and healthcare challenges, as highlighted by Rosca et al. (2021). The prevalence of Parkinson's disease is increasing, reflecting global trends (Liu & Chan, 2016; Willis et al., 2022). However, Romania faces specific issues related to diagnostic

delays, limited access to specialized care, and insufficient public awareness. These factors contribute to the suboptimal management and quality of life of patients. Additionally, the resource constraints of the Romanian healthcare system impact the availability of advanced therapeutic options and multidisciplinary support essential for comprehensive Parkinson's care. Rosca et al. emphasize the need for improved national strategies focusing on early diagnosis, patient education, and integration of multidisciplinary approaches to address the growing burden of Parkinson's disease in Romania.

Although there is a growing body of international research on quality of life (QoL) and motivation for physical activity in individuals with Parkinson's disease (PD) (Ellingson et al., 2019; Gómez-Esteban et al., 2007), studies specifically targeting the Romanian PD population are still scarce. This study addresses this gap by analyzing the outcomes of the PDQ-39 and PALMS assessments in a group from Cluj-Napoca. 2. Materials and methods

MATERIALS AND METHODS

This preliminary cross-sectional study was conducted between December 2019 and January 2020. A cohort of 40 individuals diagnosed with Parkinson's disease (PD) voluntarily completed the PDQ-39 and PALMS questionnaires during a community event, with subsequent data collection at a medical center.

The demographic profile of the study sample indicates that females constitute 72% of the participants, whereas males account for 28%. The age range of the participants was between 55 and 80 years, with a mean age of 66.48 years and a standard deviation of 6.69. The majority (83 %) resided in urban areas, whereas 17% were from rural areas. Regarding marital status, 55% of the participants were married, 30% were widowed, 10% were divorced, and 5% were single. In terms of educational attainment, 70% had completed high school or post-secondary education, 18% had attained a university degree, and 12% had completed middle school. The distribution of participants across Hoehn and Yahr stages is as follows: 17.5% are at Stage II, 48% are at Stage III, and the stage is unknown for 35% of participants.

Instruments

PDQ-39 questionnaire

The PDQ-39 evaluates eight aspects of quality of life (QoL) using 39 questions on a Likert frequency scale. The scores range from 0 to 100, with higher scores indicating lower QoL. The Total PDQ-39 Summary Index (SI) was determined by averaging the scores of the domains.

PALMS questionnaire

The PALMS tool consists of 40 questions categorized into eight subdomains, each with scores ranging from 5 to 25: Mastery, Physical Condition, Interpersonal Relations, Psychological State, Appearance, Social Expectations, Enjoyment, and Competition.

RESULTS

PDQ-39

The mean PDQ-39 Summary Index (SI) score was 38.51±19.82. The highest levels of impairment were observed in the domains of Bodily discomfort (55.21±19.85), mobility (45.00±27.10), Emotional state (41.04±27.49), and Activities of daily living (ADL) (39.06±25.52). Conversely, the lowest levels of impairment were noted in the areas of Social support (27.92±24.93), communication (30.00±24.45), and stigma (33.44±28.01). Cronbach's Alpha for the PDQ-39 SI was 0.913, indicating excellent reliability.

Table 1. Descriptive PDQ39 questionnaire analysis

Subdomains of PDQ39	N	Min.	Max.	Media	SD
Mobility	40	0	100	45,00	27,10
ADL	40	0	100	39,06	25,52
Emotional state	40	0	100	41,04	27,49
Stigma	40	0	100	33,44	28,01
Social support	40	0	75	27,92	24,93
Cognition	40	0	93,75	36,41	22,95
Communication	40	0	100	30,00	24,45
Bodily discomfort	40	16,67	100	55,21	19,85
PDQ39 SI	40	9,22	90,89	38,51	19,82

Differences by demographic factors

Gender: No significant differences were observed across the domains.

Age (<65 vs. ≥65 years): A significant difference was identified in the mobility domain ($p = .036$), with older adults exhibiting reduced mobility.

Disease duration (<10 vs. ≥10 years): Significant differences were observed in the following domains: cognition ($p = .041$), communication ($p = .029$), Bodily Discomfort ($p = .012$), and PDQ-39 SI ($p = .032$).

Hoehn and Yahr Stage (II vs. III): Significant differences were noted in the following domains: mobility ($p = .004$), Activities of daily living (ADL) ($p = .020$), Social functioning ($p = .045$), cognition ($p = .006$), Bodily discomfort ($p = .002$), and PDQ-39 SI ($p = .006$).

2. PDQ-39 correlations: The PDQ-39 Summary Index (SI) demonstrated strong positive correlations ($p < .01$) with all domains, with correlation coefficients ranging from $r = .711$ to $r = .832$. Additionally, a moderate correlation was observed with the number of years since diagnosis ($r = .414$, $p < .01$).

PALMS

The highest motivational drivers identified were physical condition (21.80 ± 3.47) and mastery (21.08 ± 3.21). Moderate motivations included interpersonal relationships, psychological state, and enjoyment. Competition (12.75 ± 5.19) was the lowest motivation. Cronbach's Alpha for the PALMS total score was 0.949, indicating excellent reliability. Correlations: Strong positive correlations were noted among the subdomains, particularly between mastery and physical condition ($r = .876$, $p < .01$), as well as between enjoyment and psychological state ($r = .791$, $p < .01$). The PALMS total score exhibited strong correlations with all subdomains, with correlation coefficients ranging from $r = .701$ to $r = .860$. 5.

DISCUSSION

This study offers a comprehensive examination of the quality of life (QoL) and motivation for engaging in physical activity among individuals with Parkinson's disease (PD) in Cluj-Napoca. The Parkinson's Disease Questionnaire-39 (PDQ-39) and Physical Activity and Leisure Motivation Scale (PALMS) demonstrated excellent internal consistency, affirming the reliability of our findings.

The PDQ-39 SI revealed moderate impairment of quality of life, with the most significant issues being bodily discomfort and mobility. These findings are consistent with existing research, which indicates that pain, stiffness, and functional limitations heavily impact daily living for individuals with PD (Ellis et al., 2019; Fu et al., 2017; Muslimović et al., 2008).

Disease severity is closely linked to deterioration in quality of life (QoL), indicating a steady decline in motor independence, activities of daily living (ADL), and cognitive functions. Additionally, a longer illness duration correlated with poorer PDQ-39 scores, underscoring the cumulative impact of Parkinson's disease

progression. This study highlighted that the stage of the disease negatively influences the quality of life of patients with Parkinson's disease, especially in tasks requiring motor skills. As the disease progresses, physical independence decreases notably. The research identified significant differences in the average scores between the "Stage 2" and "Stage 3" groups for the following dependent variables: "Mobility" [t(24) = -3.187, p = .004]; "ADL" [t(24) = -2.503, p = .020]; "Social" [t(24) = -2.113, p = .045]; "Cognition" [t(24) = -3.031, p = .006]; "Physical discomfort" [t(24) = -3.478, p = .002] and "PDQ39 SI" [t(24) = -2.988, p = .006]. These findings are supported by other studies in the field (Bonde-Jensen et al., 2024; Han et al., 2021; Reuther et al., 2006; Sławek et al., 2005; Souza et al., 2007).

Notably, social support exhibited the lowest level of impairment, indicating the presence of strong relational networks within this population, which may be attributable to the cultural and familial support structures prevalent in Romania. The motivation for engaging in physical activity was predominantly focused on maintaining physical condition and developing or preserving abilities (i.e., mastery). Additional motivators include enjoyment, interpersonal relationships, and psychological well-being. Competition was identified as the least significant factor, which aligns with findings in older clinical populations.

The strong correlations between the PDQ-39 SI and all PDQ-39 domains underscore the multidimensional nature of life (QoL) decline in Parkinson's disease (PD).

The PALMS correlations emphasize that motivation for physical activity is multifaceted, encompassing physical, emotional, cognitive and social components. Clinical Implications: Physiotherapists should prioritize exercise programs that address mobility, balance, and pain management. Tailored interventions are essential for individuals with advanced disease stages or prolonged disease durations. Motivation profiles suggest that programs emphasizing progress, self-efficacy, and physical improvement are likely to enhance adherence to exercise. Community-based exercise groups may capitalize on interpersonal motivation.

Limitations: This study was constrained by a small sample size (n=40). The cross-sectional nature of this study limits the ability to establish causality. Additionally, recruiting participants from a single geographical area may limit the generalizability of the findings.

CONCLUSION

Individuals with Parkinson's disease in this study exhibited moderate impairment in quality of life (QoL), with the most pronounced difficulties pertaining to mobility and bodily discomfort. The primary motivations for engaging in physical

activity were the desire to maintain physical fitness and enhance personal mastery. The stage and duration of the disease significantly influenced QoL outcomes, underscoring the necessity for individualized, stage-specific physiotherapy. These findings are corroborated by other studies (Reuther et al., 2006; Sławek et al., 2005; Souza et al., 2007).

This study highlights the importance of sustained emphasis on structured physical activity, patient education, and early intervention to preserve functional independence and enhance the well-being of patients with Parkinson's disease. Furthermore, fostering patient motivation through education and support enhances adherence to physical activity regimens, which are essential for maintaining functional independence. Early and continuous intervention strategies, including physiotherapy and counseling, are vital for delaying deterioration and promoting well-being. These insights emphasize the need for multidisciplinary care approaches that adapt to individual patient needs throughout the disease course.

REFERENCES

Bonde-Jensen, F., Dalgas, U., & Langeskov-Christensen, M. (2024). Are physical activity levels, cardiorespiratory fitness and peak power associated with Parkinson's disease severity? *Journal of the Neurological Sciences*, *460*, 122996. https://doi.org/10.1016/j.jns.2024.122996

Canning, C. G., Fung, V. S. C., Sherrington, C., Howard, K., Close, J. C. T., Heller, G. Z., Latt, M. D., Heritier, S., Song, J., Murray, S. M., Allen, N. E., Lord, S. R., O'Rourke, S. D., & Paul, S. S. (2014). Exercise for falls prevention in Parkinson disease. *Neurology*, *84*(3), 304–312. https://doi.org/10.1212/wnl.0000000000001155

Chen, K., Yang, K., Wu, J.-J., Shen, B., Song, J., Guan, R.-Y., Liu, F.-T., Yang, Y.-J., Wang, J., Li, D.-K., Bu, L.-L., & Wang, Y. (2017). Evaluation of PDQ-8 and its relationship with PDQ-39 in China: a three-year longitudinal study. *Health and Quality of Life Outcomes*, *15*(1). https://doi.org/10.1186/s12955-017-0742-5

Earhart, G. M., & Falvo, M. J. (2013). Parkinson Disease and Exercise. *Comprehensive Physiology*, *3*(2), 833–848. https://doi.org/10.1002/j.2040-4603.2013.tb00497.x

Ellingson, L. D., Zaman, A., & Stegemöller, E. L. (2019). Sedentary Behavior and Quality of Life in Individuals With Parkinson's Disease. *Neurorehabilitation and Neural Repair*, *33*(8), 595–601. https://doi.org/10.1177/1545968319856893

Ellis, T. D., Latham, N. K., Cavanaugh, J. T., Saint-Hilaire, M., Deangelis, T., Pencina, K., Thomas, C. A., & Hendron, K. (2019). Comparative Effectiveness of mHealth-Supported Exercise Compared With Exercise Alone for People With Parkinson Disease: Randomized Controlled Pilot Study. *Physical Therapy*, *99*(2), 203–216. https://doi.org/10.1093/ptj/pzy131

Fu, Y., Li, J., Liu, C., Zhang, H., Mao, C., Wang, Y., Ma, L., Liu, J., & Huang, J. (2017). Pain Correlates with Sleep Disturbances in Parkinson's Disease Patients. *Pain Practice*, *18*(1), 29–37. https://doi.org/10.1111/papr.12578

Gómez-Esteban, J. C., Garamendi, I., Tijero, B., Velasco, F., Lezcano, E., Luna, A., Rouco, I., & Zarranz, J. J. (2007). Influence of Motor Symptoms upon the Quality of Life of Patients with Parkinson's Disease. *European Neurology*, *57*(3), 161–165. https://doi.org/10.1159/000098468

Han, L., Fan, Y., Sun, Y., Zhang, M., Liu, F., Yu, W., Xu, Z., Liang, X., Tang, Y., & Wang, L. (2021). Disease progression in Parkinson's disease patients with subjective cognitive complaint. *Annals of Clinical and Translational Neurology*, *8*(10), 2096–2104. https://doi.org/10.1002/acn3.51461

Jenkinson, C., Hyman, N., Fitzpatrick, R., Peto, V., & Greenhall, R. (1997). The Parkinson's Disease Questionnaire (PDQ-39): development and validation of a Parkinson's disease summary index score. *Age and Ageing*, *26*(5), 353–357. https://doi.org/10.1093/ageing/26.5.353

Klepac, N., Juren, S., Pavliček, I., Trkulja, V., Kraljić, T., Relja, M., Babić, T., & Pikija, S. (2007). Association of rural life setting and poorer quality of life in Parkinson's disease patients: a cross-sectional study in Croatia. *European Journal of Neurology*, *14*(2), 194–198. https://doi.org/10.1111/j.1468-1331.2006.01604.x

Kuyken, W., Herrman, H., Metelko, Ž., Pibernik-Okanović, M., Quemada, N., Kumar, S., Schofield, H.-L., Caria, A., Orley, J., Kabanov, M., A, N., Szabo, S., Baron, D., Murphy, B., Saxena, S., Power, M., Amir, M., Rajkumar, S., Tazaki, M., … Burkovsky, G. (1995). The World Health Organization quality of life assessment (WHOQOL): Position paper from the World Health Organization. *Social Science & Medicine*, *41*(10), 1403–1409. https://doi.org/10.1016/0277-9536(95)00112-k

Kwok, J. Y. Y., Choi, K. C., & Chan, H. Y. L. (2016). Effects of mind–body exercises on the physiological and psychosocial well-being of individuals with Parkinson's disease: A systematic review and meta-analysis. *Complementary Therapies in Medicine*, *29*, 121–131. https://doi.org/10.1016/j.ctim.2016.09.016

Liu, S., & Chan, P. (2016). Epidemiology of Parkinson's disease. *Chinese Journal of Contemporary Neurology and Neurosurgery*, *16*(2), 98–101. https://doi.org/10.3969/cjcnn.v16i2.1351

Marumoto, K., Yokoyama, K., Inoue, T., Yamamoto, H., Domen, K., Kawami, Y., Nakatani, A., Yamasaki, A., Hosoe, Y., & Fukazawa, Y. (2019). Inpatient Enhanced Multidisciplinary Care Effects on the Quality of Life for Parkinson Disease: A Quasi-Randomized Controlled Trial. *Journal of Geriatric Psychiatry and Neurology*, *32*(4), 186–194. https://doi.org/10.1177/0891988719841721

Molanorouzi, K., Khoo, S., & Morris, T. (2014). Validating the Physical Activity and Leisure Motivation Scale (PALMS). *BMC Public Health*, *14*(8). https://doi.org/10.1186/1471-2458-14-909

Muslimović, D., Post, B., De Haan, R. J., Schmand, B., & Speelman, J. D. (2008). Determinants of disability and quality of life in mild to moderate Parkinson disease. *Neurology*, *70*(23), 2241–2247. https://doi.org/10.1212/01.wnl.0000313835.33830.80

Ophey, A., Eggers, C., Dano, R., Timmermann, L., & Kalbe, E. (2018). Health-Related Quality of Life Subdomains in Patients with Parkinson's Disease: The Role of Gender. *Parkinson's Disease*, *2018*(S1), 1–9. https://doi.org/10.1155/2018/6532320

Reuther, M., Spottke, E. A., Klotsche, J., Riedel, O., Peter, H., Berger, K., Athen, O., Köhne-Volland, R., & Dodel, R. C. (2006). Assessing health-related quality of life in patients with Parkinson's disease in a prospective longitudinal study. *Parkinsonism & Related Disorders*, *13*(2), 108–114. https://doi.org/10.1016/j.parkreldis.2006.07.009

Roychowdhury, D. (2018). A comprehensive measure of participation motivation: Examining and validating the Physical Activity and Leisure Motivation Scale (PALMS). *Journal of Human Sport and Exercise*, *13*(1). https://doi.org/10.14198/jhse.2018.131.20

Schrag, A. (2000). What contributes to quality of life in patients with Parkinson's disease? *Journal of Neurology, Neurosurgery & Psychiatry*, *69*(3), 308–312. https://doi.org/10.1136/jnnp.69.3.308

Sławek, J., Derejko, M., & Lass, P. (2005). Factors affecting the quality of life of patients with idiopathic Parkinson's disease-a cross-sectional study in an outpatient clinic attendees. *Parkinsonism & Related Disorders*, *11*(7), 465–468. https://doi.org/10.1016/j.parkreldis.2005.04.006

Soh, S.-E., Huxham, F., Menz, H. B., Watts, J. J., Iansek, R., Morris, M. E., Mcginley, J. L., & Murphy, A. T. (2012). Determinants of health-related quality of life in people with Parkinson's disease: a path analysis. *Quality of Life Research*, *22*(7), 1543–1553. https://doi.org/10.1007/s11136-012-0289-1

Souza, R. G., Silva, S. M. C. D. A., Ferraz, H. B., & Borges, V. (2007). Quality of life scale in parkinson's disease PDQ-39 - (Brazilian Portuguese version) to assess patients with and without levodopa motor fluctuation. *Arquivos de Neuro-Psiquiatria*, *65*(3b), 787–791. https://doi.org/10.1590/s0004-282x2007000500010

Van Der Kolk, N. M., & King, L. A. (2013). Effects of exercise on mobility in people with Parkinson's disease. *Movement Disorders*, *28*(11), 1587–1596. https://doi.org/10.1002/mds.25658

Willis, A. W., Roberts, E., Beck, J. C., Fiske, B., Ross, W., Savica, R., Van Den Eeden, S. K., Tanner, C. M., Marras, C., Alcalay, R., Schwarzschild, M., Racette, B., Chen, H., Church, T., Wilson, B., & Doria, J. M. (2022). Incidence of Parkinson disease in North America. *NPJ Parkinson's Disease*, *8*(1). https://doi.org/10.1038/s41531-022-00410-y