

Research article

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Clinical Features and Quality of Life of Patients with Parkinson's Disease at Binh Thanh District Hospital

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ABSTRACT

Background/Objectives: Parkinson's disease (PD) significantly affects patients' daily lives. This study aimed to delineate the clinical characteristics of PD and assess health-related quality of life (HRQoL) using the 39-item Parkinson's Disease Questionnaire (PDQ-39) among PD patients treated at Binh Thanh District Hospital. The findings are intended to enhance understanding and inform better management of PD in Vietnam.

Methods: A cross-sectional descriptive study was conducted involving patients diagnosed with PD according to the United Kingdom Parkinson's Disease Society Brain Bank (UKPDSBB) criteria. Participants were recruited from the Outpatient Department of Binh Thanh District Hospital. Data collected included clinical features, Hoehn and Yahr (H&Y) disease stage, and PDQ-39 scores. A total of 108 patients were enrolled in the study.

Results: The study of 108 participants had a mean age of 66.2 ± 12.2 years, with 80.0% aged over 60 years. Males accounted for 40.4% of the study group. The mean duration of illness was 5.5 ± 4.3 years, with 55.6% having PD for more than 5 years. Unilateral onset was reported by 86.1% of patients. The most frequently reported motor symptoms were resting tremor (89.8%), rigidity (87.0%), and freezing of gait (79.6%). The majority of participants (96.3%) were in H&Y stages I, II, or III, with stage II being the most prevalent (45.4%). The mean PDQ-39 Summary Index was 10.41 ± 4.00 , suggesting a relatively preserved overall HRQoL. However, the domains most adversely affected were Mobility (mean score: 23.3 ± 11.4) and Activities of Daily Living (ADL) (mean score: 13.0 ± 6.1). Significantly poorer HRQoL (higher PDQ-39 scores) was observed in patients with disease duration greater than 5 years ($p=0.02$) and in those at H&Y stages III and IV ($p < 0.001$), highlighting the progressive nature of PD.

Conclusions: The study highlights the significant impact of PD on mobility and ADL. Disease duration and severity are key predictors of HRQoL. These findings underscore the necessity of a comprehensive assessment that includes both motor and non-motor well-being in the management of PD.

Keywords: Parkinson's disease, Quality of life, PDQ-39, Clinical characteristics, Hoehn and Yahr stage

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1. INTRODUCTION

The global trend of population aging is anticipated to be accompanied by an increasing incidence of Parkinson's disease (PD), emphasizing the critical need for effective healthcare strategies and interventions aimed at enhancing

patients' quality of life. Health-related quality of life (HRQoL) is a multidimensional construct that reflects an individual's subjective perception of well-being across various domains, including physical function, psychological status, emotional state, and social engagement

[1]. The motor symptoms of PD are the primary contributors to disability and profoundly affect patients' HRQoL. Furthermore, non-motor symptoms (NMS) also exert a considerable influence on daily functioning and psychological well-being. This accentuates the urgent need for research to evaluate the overall impact and burden of this neurodegenerative disorder.

Several international studies have assessed HRQoL in PD populations, predominantly utilizing the 39-item Parkinson's Disease Questionnaire (PDQ-39). However, there is a notable lack of such research within the Vietnamese context. Consequently, this study was undertaken at Binh Thanh District Hospital to investigate the clinical characteristics and HRQoL of patients with PD. The specific objectives were to characterize the study population, classify disease severity using the Hoehn and Yahr (H&Y) scale, assess HRQoL with the PDQ-39, and evaluate the influence of disease stage and duration on HRQoL.

2. METHODS

2.1. Study Population

A convenience sample of 108 patients diagnosed with idiopathic PD, fulfilling the United Kingdom Parkinson's Disease Society Brain Bank (UKPDSBB) clinical diagnostic criteria, were recruited. Participants were patients receiving care at the Outpatient Department of Binh Thanh District Hospital.

2.2. Study Design

This study was conducted using a cross-sectional descriptive method.

Sample size calculation: using the formula:

$$n \geq \left(\frac{Z_{1-\alpha/2} \sigma}{d} \right)^2$$

The sample size was determined using a standard formula for estimating a population mean. Based on a prior Vietnamese study by Nguyen Thi Khanh (2018), which reported a mean PDQ-39 score of 33.8 with a standard deviation (SD) of 15.3, and setting the desired margin of error (d) at 3.1, the calculated minimum sample size was 97 patients. A total of 108 patients were ultimately enrolled.

2.3. Variables and Data Collection

The primary variables of the study included:

Demographic data: Age, gender.

Clinical characteristics: Disease duration (years), side of symptom onset (right, left, bilateral), presence of cardinal motor signs (resting tremor, rigidity, freezing of gait).

Disease severity: Assessed using the Hoehn and Yahr (H&Y) scale.

Health-Related Quality of Life: Measured using the validated Vietnamese version of the PDQ-39. This instrument comprises 39 items grouped into 8 domains: Mobility (10 items), Activities of Daily Living (ADL) (6 items), Emotional Well-being (6 items), Stigma (4 items), Social Support (3 items), Cognitions (4 items), Communication (3 items), and Bodily Discomfort (3 items) (Table 1). Each item is rated on a 5-point Likert scale (0 = never, 1 = occasionally, 2 = sometimes, 3 = often, 4 = always/cannot do at all). Domain scores are calculated as the sum of item scores within that domain, divided by the maximum possible score for that domain, and then multiplied by 100. A PDQ-39 Summary Index (PDSI) is calculated as the average of the eight domain scores, providing an overall

measure of HRQoL. Higher scores on the PDQ-39 indicate poorer HRQoL.

Table 1. Domains of the PDQ-39 Questionnaire

Domain	Number of items
Mobility	10
Activities of Daily Living	6
Emotional Wellbeing	6
Stigma	4
Social Support	3
Cognitions	4
Communication	3
Bodily Discomfort	3

2.4. Data Analysis

Statistical analysis was performed using SPSS version 20.0.. For comparisons of PDQ-39 scores between groups (e.g., based on disease duration categories, H&Y stages), the Mann-Whitney U test or Kruskal-Wallis test was employed as appropriate for non-normally distributed

data. A p-value < 0.05 was considered statistically significant

2.5. Ethical Considerations

The study protocol received approval from the Institutional Review Board/Ethics Committee (Science and Technology Council) of Binh Thanh District Hospital. The study was also approved by the hospital's Board of Directors.

3. RESULT

Data were collected from 108 patients with PD attending the Outpatient Department of Binh Thanh District Hospital between March 2023 and August 2024.

3.1. Clinical characteristics of the study group

The mean age of the participants was 66.2 ± 12.2 years (range: <40 to ≥80 years). A significant proportion (80.0%) were aged 60 years or older. Males comprised 40.4% (n=44) of the study group.

Table 2. Clinical Characteristics of the Study Population (N=108)

Characteristic	N	Proportion (%)
Side of Onset	Right	48.1
	Left	38
	Bilateral	13.9
Resting tremor	Present	89.8
	Absent	10.2
Rigidity	Present	87
	Absent	13
Freezing of Gait	Present	79.6
	Absent	20.4
H&Y Stage		
I	43	39.8
II	49	45.4
III	12	11.1
IV	4	3.7
V	0	0

Patients were mainly in stages I, II, III. The average duration of illness was 5.53 ± 4.283 years. Parkinson's patients were

mainly in stage I and II, with 85.2% of research group. There are no patients in stage V.

3.2 Health-Related Quality of Life (PDQ-39 Scores)

The mean PDQ-39 Summary Index (PDSI) for the entire cohort was 10.41 ± 4.00 (range: 4.9 to 22.3), indicating a relatively mild overall impact on HRQoL in this outpatient sample. The domains demonstrating the greatest adverse impact on HRQoL were Mobility (mean score: 23.3 ± 11.4) and Activities of Daily Living (ADL) (mean score: 13.1 ± 6.1).

Table 3. PDQ-39 Domain Scores (Mean \pm SD)

Domain	Mean Score \pm SD	Min	Max
Mobility	23.3 ± 11.4	10	50
Activities of Daily Living	13.1 ± 6.1	6	30
Emotional Wellbeing	12.3 ± 5.5	6	30
Stigma	7.3 ± 4.2	4	20
Social Support	5.5 ± 3.6	3	15
Cognitions	8.6 ± 3.7	4	20
Communication	5.6 ± 3.2	3	15

Bodily Discomfort	7.3 ± 3.1	3	15
PDQ-39 Summary Index	10.4 ± 4.0	4.9	22.3

3.3 Factors related to quality of life in Parkinson’s disease.

The PDQ-39 Summary Index did not show a statistically significant association with age group (Kruskal-Wallis test, $p=0.52$). However, patients with a disease duration of ≥ 5 years had significantly higher mean PDSI scores (indicating poorer HRQoL) compared to those with a duration < 5 years (11.1 ± 4.1 vs. 9.3 ± 3.7 , respectively; Mann-Whitney U test, $p=0.02$).

A statistically significant association was observed between H&Y stage and PDSI scores (Kruskal-Wallis test, $p < 0.001$). HRQoL deteriorated with increasing disease severity: mean PDSI scores were 8.7 ± 3.2 for H&Y Stage I, 10.3 ± 3.7 for Stage II, 14.6 ± 3.2 for Stage III, and 14.9 ± 6.2 for Stage IV (Table 4).

Table 4. Factors associated with PDQ-39 score.

Factor/ Category	N	Median PDQ-39 score	Standard deviation	Min	Max	p
Age group (years)						
<40	2	8.9	1.1	8.1	9.6	0.52
40 - <50	9	10.3	4.6	5.6	17.6	
50 - <60	11	9.9	3.1	6.5	16.6	
60 - <70	40	10.1	4	4.9	18.6	
70 - <80	30	9.9	4.3	4.9	22.3	
≥ 80	16	12.2	4	6.4	21.6	
Total	108	10.3	4	4.9	22.3	
Duration						
< 5 years	48	9.3	3.7	4.9	18.9	0.02
≥ 5 years	60	11.1	4.1	4.9	22.3	
Total	108	10.3	4	4.9	22.3	
H&Y Stage						
1	43	8.7	3.2	4.9	18.6	< 0.001
2	49	10.3	3.7	5.4	18.9	
3	12	14.6	3.2	9.6	22.3	
4	4	14.9	6.2	7	21.6	
Total	108	10.3	4	4.9	22.3	

4. DISCUSSION

This study provides valuable data on the clinical characteristics and HRQoL of patients with Parkinson's disease managed in an outpatient setting at a district hospital in Ho Chi Minh City, Vietnam. The mean age of our cohort (66.2 years) and the high proportion of patients aged over 60 are consistent with the established epidemiology of PD as a disease predominantly affecting older adults [2-5]. The observed proportion of male patients (40.4%) in our study is similar to that reported by Tran Viet Luc et al. (40.6%) in another Vietnamese cohort [7], although some international epidemiological studies suggest a slightly higher male preponderance for PD [7]. This variation might be attributable to local referral patterns or other demographic factors.

The cardinal motor symptoms of PD were prevalent in our cohort, with resting tremor (89.8%), rigidity (87.0%), and freezing of gait (79.6%) being commonly reported. Unilateral onset, a characteristic feature of early PD, was observed in 86.1% of patients. These findings align with the typical clinical presentation of PD described in the literature [8].

The mean PDQ-39 Summary Index of 10.41 ± 4.00 in our study group is comparable to the findings of Tran Viet Luc et al. (9.8 ± 4.6) [7] but lower than that reported by Dao Thuy Duong et al. (26 ± 16.6) [2] in other Vietnamese samples. This relatively lower PDSI score, indicating better overall HRQoL, may be attributable to our study population primarily consisting of outpatients in earlier stages of the disease, who are likely still responsive to pharmacological therapies and have not yet developed

significant motor complications or fluctuations.

The domains of Mobility and ADL were the most affected aspects of HRQoL, with the highest mean PDQ-39 scores. This is a consistent finding across numerous studies, highlighting that motor impairment in PD, including bradykinesia, rigidity, and postural instability, directly impacts patients' ability to move and perform daily tasks such as walking, dressing, and household chores, thereby significantly diminishing their HRQoL [6, 8-10]. This underscores the importance of interventions targeting motor function, including pharmacological management, physiotherapy, and occupational therapy, to improve these critical aspects of patients' lives.

Our analysis revealed that longer disease duration (≥ 5 years) was significantly associated with poorer HRQoL ($p=0.02$). This finding is consistent with the progressive nature of PD and aligns with studies like Dao Thuy Duong et al. [2], indicating that as the disease advances, the cumulative burden of motor symptoms, non-motor symptoms (such as cognitive decline, mood disorders, autonomic dysfunction), and potential complications of long-term levodopa therapy (e.g., dyskinesias, motor fluctuations) increasingly impair HRQoL.

Furthermore, HRQoL, as measured by the PDQ-39 Summary Index, significantly deteriorated with advancing H&Y stage ($p < 0.001$). This robust correlation between disease severity and HRQoL has been widely documented [2, 7]. As patients progress to more advanced stages, their functional independence diminishes, reliance on caregivers increases, and the impact of both motor and non-motor

complications becomes more pronounced, leading to a substantial decline in their overall well-being.

The distribution of patients across H&Y stages, with a majority in early to moderate stages (I-III) and no patients in stage V, likely reflects the nature of the study setting – a district hospital outpatient clinic. Patients with very advanced disease or severe complications might be preferentially managed at tertiary referral centers or specialized neurology units.

5. CONCLUSION

In this cohort of Parkinson's disease patients receiving outpatient care at Binh Thanh District Hospital, the mean PDQ-39 Summary Index was 10.41 ± 4.00 . Mobility and Activities of Daily Living were the dimensions of HRQoL most adversely impacted. HRQoL was observed to decline with longer disease duration (≥ 5 years) and with increasing disease severity as per the H&Y stage.

These findings highlight the necessity for a comprehensive and multidimensional management approach for PD, which should not only focus on ameliorating motor symptoms but also address non-motor symptoms and their impact on HRQoL. Integrated care strategies, including pharmacological treatments, rehabilitation therapies, and psychosocial support, are crucial to optimizing functional ability and overall well-being for individuals living with Parkinson's disease.

Limitations of the Study: This study was conducted at a single district-level hospital with an outpatient population; as a result, most patients exhibited mild symptoms that did not significantly impair quality of life. A larger study is needed on inpatients with complications due to the disease.

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