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Prevalence and Severity of Depression in Patients with Parkinson's Disease Attending a Tertiary Care Hospital in Northeast India

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Abstract

Background: Parkinson's disease (PD), a common neurodegenerative disorder, frequently manifests with depression, substantially affecting patient outcomes. *Objective:* To determine the prevalence and severity of depression among PD patients and explore correlations withsocio-demographic and cognitive variables. *Methods:* A hospital-based cross-sectional study was conducted on 40 PD patients at Gauhati Medical College Hospital. Depression was assessed using Beck Depression Inventory (BDI) and Montgomery-Asberg Depression Rating Scale (MADRS); cognitive function was evaluated using the Mini-Mental State Examination (MMSE). *Results:* Depression was observed in 57.5% (BDI) and 47.5% (MADRS) of participants. Moderate to severe depression was linked with cognitive impairment and higher disease burden. *Conclusion:* Depression is highly prevalent in PD and significantly associated with cognitive decline. Early identification and holistic treatment strategies are essential.

Keywords: Parkinson's disease, Depression, Beck Depression Inventory, MADRS, MMSE, Non- motor symptoms.

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Introduction

Parkinson's Disease (PD) is a progressive, degenerative neurological disorder described classically by motor symptoms such as tremor, rigidity, and bradykinesia. However, non-motor manifestations, particularly psychiatric conditions like depression, contribute substantially to morbidity and diminished quality of life in PD patients [1–3]. James Parkinson's original clinical account in 1817 made only passing mention of non-motor aspects, yet modern evidence suggests psychiatric disturbances, especially depression, are nearly as prevalent as motor dysfunctions [4,5].

Studies estimate that up to 50% of patients with PD experience depressive symptoms, with varying degrees of severity [6–8]. Depression may precede motor symptoms or emerge during the course of the illness, often remaining undiagnosed due to overlapping clinical features [9,10].

This study investigates the prevalence and severity of depression in a cohort of PD patients from Northeast India, correlating it with socio-demographic factors and cognitive status.

Aims and Objectives

1. To assess the prevalence of depression in PD patients attending a general hospital.

ISSN: 0975-3583,0976-2833 VOL 13, ISSUE 3, 2022

2. To evaluate the severity of depression using standardized scales.
3. To correlate depression with socio-demographic variables.
4. To explore the relationship between depression and cognitive status in PD.

Materials and Methods

Study Design and Setting: A cross-sectional study was conducted over one year (September 2008 – August 2009) in the Departments of Psychiatry and Neurology, Gauhati Medical College and Hospital, Assam.

Inclusion Criteria:

- Age ≥ 40 years.
- Clinically diagnosed idiopathic PD.
- Ability to comprehend Assamese, Hindi, Bengali, or English.
- Consent to participate.

Exclusion Criteria:

- Drug-induced Parkinsonism.
- Chronic debilitating illness or terminal condition.
- Pre-existing depression before PD diagnosis.
- Substance abuse, major life event in past 6 months.

Assessment Tools:

- **Beck Depression Inventory (BDI)** [11]
- **Montgomery-Asberg Depression Rating Scale (MADRS)** [12]
- **Mini-Mental State Examination (MMSE)** [13]
- **Sociodemographic Data Form**

Data Analysis:
Descriptive statistics, Chi-square test, and Pearson's correlation were used to determine prevalence and associations. A p-value < 0.05 was considered statistically significant.

Results

Demographics:

- Sample Size: 40 patients.
- Mean Age: 61.5 ± 8.9 years.
- Sex: 80% male, 20% female.

- Marital Status: 82.5% married.
- Education: 45% had only primary education.
- Residence: 55% urban, 45% rural.
- Employment: 62.5% unemployed (retired).

Depression Prevalence:

- **BDI**: 57.5%
  - Mild: 25%
  - Moderate: 22.5%
  - Severe: 10%
- **MADRS**: 47.5%
  - Mild: 27.5%
  - Moderate: 15%
  - Severe: 5%

Correlation with MMSE:

- 37.5% had MMSE <24, indicating cognitive impairment.
- Depression was significantly more prevalent in this group ($p < 0.05$).

Socio-demographic Associations:

Socio-demographic variables entered into analysis, only occupation was associated with depression at the level of statistical significance ($p < 0.05$). Those who were unemployed or retired had greater depression scores than those who were employed. There were no statistically significant correlations with depression for gender, marital status, level of education, or urban vs. rural residence. This result suggests that functional status or disengagement from work may play a more direct role in depressive symptoms in PD than demographic factors alone.

Variable	Category	Frequency (%)
Age (Mean ± SD)	61.5 ± 8.9 years	—
Sex	Male	32 (80%)
	Female	8 (20%)
Marital Status	Married	33 (82.5%)
	Widowed/Single	7 (17.5%)
Education	Primary or less	18 (45%)
	Secondary or above	22 (55%)
Residence	Urban	22 (55%)
	Rural	18 (45%)
Occupation	Unemployed/Retired	25 (62.5%)
	Employed	15 (37.5%)

ISSN: 0975-3583,0976-2833 VOL 13, ISSUE 3, 2022

Discussion

A high rate of depression in PD patients was confirmed in this study, as in previous work. Most important, 57.5% were depressed by BDI, and 47.5% by MADRS criteria. The severity of depression varied from mild to severe, stressing that psychiatric morbidity in PD should not be left unnoticed clinically.

Unlike many previous studies, we observed no significant relationship between depression and residence, gender, or education. In contrast, occupation status alone correlated significantly—retired and unemployed individuals tended to be depressed. Although previous research (e.g., Hubert et al., Klepac et al.) had implied that women and lower-education individuals were more susceptible to depression, our data deviates. This variation can be due to cultural, environmental, or sample-size differences in the Northeastern Indian setting.

The correlation here between cognitive impairment (MMSE <24) and depression is congruent with observations by Aarsland et al. and Cummings et al., implying that neurodegenerative mechanisms impacting cognition may also be responsible for affective disturbances in PD.

Critical Reflections

Although this research enhances the knowledge of depression prevalence in PD, the small sample size limits generalizability. Moreover, cross-sectional design avoids causal inference. The inconsistency in socio-demographic correlations between populations highlights the necessity of applying region-based mental health screening approaches. It also implies that in some contexts, functional status (such as loss of employment or retirement) might exert a stronger psychological effect than enduring demographic characteristics

Conclusion

Depression affects nearly half of PD patients and is closely associated with cognitive decline and socio-demographic factors. Routine depression screening using standardized tools like BDI and MADRS is essential in neurology settings to ensure timely diagnosis and treatment.

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Conflicts of Interest : None

References

1. Parkinson J. *An Essay on the Shaking Palsy.* 1817.
2. Jankovic J. Parkinson’s disease: clinical features and diagnosis. *J Neurol Neurosurg Psychiatry.* 2008;79(4):368-376.
3. Poewe W. Non-motor symptoms in Parkinson’s disease. *Eur J Neurol.* 2008;15(Suppl 1):14–20.
4. Marsh L, et al. Neuropsychiatric aspects of Parkinson's disease. *Psychosomatics.* 2001;42(5):382–392.

ISSN: 0975-3583,0976-2833 VOL 13, ISSUE 3, 2022

5. Laeuterbach EC, et al. Quality of life in Parkinson's disease: role of depression. *Mov Disord.* 2004;19(3):313–318.

6. Gotham AM, et al. Depression in Parkinson's disease: a quantitative and qualitative analysis. *J Neurol Neurosurg Psychiatry.* 1986;49(4):381–389.

7. Schrag A, et al. Prevalence of depression in Parkinson's disease. *Mov Disord.* 2001;16(5):798–802.

8. Cummings JL. Depression and Parkinson's disease: a review. *Am J Psychiatry.* 1992;149(4):443–454.

9. Starkstein SE, et al. Depression in Parkinson's disease. *Am J Psychiatry.* 1992;149(3):308–312.

10. Veazey C, et al. Prevalence and treatment of depression in Parkinson's disease. *J Neuropsychiatry Clin Neurosci.* 2005;17(3):310–323.

11. Beck AT, Steer RA. *Beck Depression Inventory Manual.* 2nd ed. Psychological Corp; 1993.

12. Montgomery SA, Asberg M. A new depression scale designed to be sensitive to change. *Br J Psychiatry.* 1979;134:382–389.

13. Folstein MF, et al. Mini-Mental State: a practical method for grading cognitive state. *J Psychiatr Res.* 1975;12(3):189–198.

14. Mayeux R, et al. Depression and Parkinson's disease. *Neurology.* 1981;31(3):345–350.

15. Shulman LM, et al. Prevalence and correlates of depressive symptoms in Parkinson's disease. *Mov Disord.* 2002;17(2):293–297.

16. Aarsland D, et al. Psychiatric symptoms in Parkinson's disease. *J Am Geriatr Soc.* 1999;47(5):576–579.

17. Cummings JL, et al. Depression in dementia: prevalence and clinical correlates. *Am J Psychiatry.* 1995;152(1):22–30.

18. Hubert MW, et al. Prevalence and correlates of depression in Parkinson's disease: a Polish study. *Psychiatr Pol.* 2006;40(5):865–874.

19. Klepac N, et al. Educational level and depression in PD. *Clin Neurol Neurosurg.* 2009;111(5):392–395.

20. Starkstein SE, et al. Prevalence and clinical correlates of depression in Parkinson's disease. *Neurology.* 1998;50(1):296–301.

21. Schrag A, et al. Depression in Parkinson's disease. *Mov Disord.* 2001;16(5):798–802.

22. Shulman LM, et al. The impact of depression in Parkinson's disease. *J Geriatr Psychiatry Neurol.* 2002;15(3):121–127.

23. Brown RG, et al. The psychiatric consequences of Parkinson's disease. *J Neurol Neurosurg Psychiatry.* 1988;51(6):764–773.

24. Hoogendijk WJG, et al. Inclusive vs exclusive criteria for depression in PD. *J Neurol Neurosurg Psychiatry.* 1998;64(5):638–640.