Original Research

CLINICO-EPIDEMIOLOGICAL STUDY OF SUBJECTS WITH PARKINSON DISEASE IN A TERTIARY CARE HOSPITAL

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ABSTRACT
Background
Parkinson's disease is a neurological condition that progresses over time and causes terrible socioeconomic consequences for affected people, their families, and society as a whole. It is linked to both motor and non-motor symptoms, which has a substantial negative impact on older people's quality of life.
Methods
This one-year hospital-based observational cross-sectional study was carried out in the K.R. Hospital's neurology and medicine departments from November 2022 to October 2023. The study covered all Parkinson's disease patients who visited the K.R. Hospital's medicine and neurology outpatient and inpatient departments. Both the clinical signs and symptoms and the demographic information were noted.
Results
Males outnumbered girls by a significant margin. The average age of the research participants was 63.87±6.52 years. A total of 100%, 70%, and 26.67% of the participants reported having cardinal, motor, and non-motor symptoms, respectively. Subjects with both motor and non-motor symptoms had higher mean ages than their counterparts, indicating a statistically significant difference.
Conclusion
The features of the PD patients included in this study closely resemble those of other populations in India and other developing countries. However, the paucity of research and data on Parkinson's disease highlights the need for additional study of this neurodegenerative illness to gain a deeper understanding of its clinical and epidemiological features in our area.

KEYWORDS: Parkinsons, Hoehn and Yahr, Epidemiology, Prevalence.

INTRODUCTION
About 7 million people worldwide suffer from PD (Parkinson's Disease), a chronic, progressive neurological illness that has a terrible socioeconomic impact on sufferers, their families, and society as a whole. Only Alzheimer's disease is more common than PD as an age-related neurodegenerative illness. PD has a significant influence on people's physical, psychological, and socioeconomic well-being, and measuring the condition is crucial for assessing research findings and doing cost-benefit analyses.[1-3]

In less developed countries, the population is aging faster than in wealthy countries; in these areas, the number of elderly people is predicted to rise by a factor of three over the course of the next forty years.[4]

The loss of striatal dopaminergic neurons is the cause of PD motor symptoms, while nonmotor symptoms also suggest neuronal loss in nondopaminergic areas. The motor characteristics of PD, such as bradykinesia, muscle rigidity, and resting tremor, are often referred to as a symptom complex called Parkinsonism. Parkinsonism is most commonly caused by PD, but there are a variety of secondary reasons as well, such as drug-induced causes and disorders that mimic PD.[5,6]

With the exception of the tiny Parsi population, where a high frequency of 328.3 per 100,000 has been reported from Western India, the average prevalence of PD in India is 19 per 100,000, which is extremely low. Few studies on Parkinson's disease or Parkinsonism have been conducted in the Indian community to date; nonetheless, the majority of these studies indicate that the condition is much less common overall in India than it is in European countries.[7]

AIMS AND OBJECTIVES
To investigate the clinical presentation, prevalence, and epidemiology of patients with Parkinson's disease arriving at a tertiary care facility.

MATERIAL AND METHODS
During the course of a year, from November 2022 to October 2023, 30 patients who visited the outpatient department of Krishna Rajendra Hospital, Mysore Medical College and Research Institute were the subjects of an observational cross-sectional study that was hospital-based. The IEC (Institutional Ethics Committee) granted preliminary approval for the study before granting final permission. The study was carried out after getting IEC approval.

The study covered all Parkinson's disease patients who visited the K.R. Hospital's medicine and neurology outpatient and inpatient departments. The study documented both the clinical signs and symptoms as well as the demographic data. The severity upon presentation was evaluated using the Hoehn and Yahr scales.

Stages were classified based on the Hoehn and Yahr grading scales.

Stage I: The mildest kind, characterized by tremors limited to one side of the body.

Stage II: Moderate form characterized by rigidity, shaking, and trembling. There may be a shift in facial expression and trouble speaking.

Stage III: A rather advanced variety characterized by balance loss, a reduction in reflexes, and general slowness of movement.

Stage IV: This stage is characterized as a severe form and is marked by a decline in movement and response time, as well as a dependence on others for daily tasks.

Stage V: The most advanced stage, where walking is impossible and standing becomes freezing due to increasing stiffness. Hallucinations, disorientation, and delusions are common in patients.[3]

Data was collected and subjected to statistical analysis.

Statistical Analysis
A statistician assisted in tabulating the data that was gathered in an Excel sheet. For statistical analysis, the means and standard deviations of each group's measurements were employed (SPSS 22.00 for Windows; SPSS Inc., Chicago, USA). The t-test was used to analyze the statistical difference, with a significance level of $p < 0.05$.

RESULTS
Of the thirty participants, 56.7% were men and 43.3% were women. The study subjects' mean age was 63.87±6.52 years, with the largest group of subjects (53.33%) being between the ages of 61 and

70. 56.7% of the patients had a lower socioeconomic position, whereas 43.3% had a moderate socioeconomic status. (Table 1).

Variables	N = 30	%
Gender		
Male	17	56.7
Female	13	43.3
Age Group (in years)		
50-60	10	33.33
61-70	16	53.33
>70	4	13.3
Age in Years (Mean ± SD)	63.87±6.52	
SES		
Lower	17	56.7
Middle	13	43.3
Table 1: Demographic Profile among the Study Subjects		

A total of 100%, 70%, and 26.67% of the participants reported having cardinal, motor, and non-motor symptoms, respectively. (Graph 1).

Graph 1: Symptoms among the Study Subjects
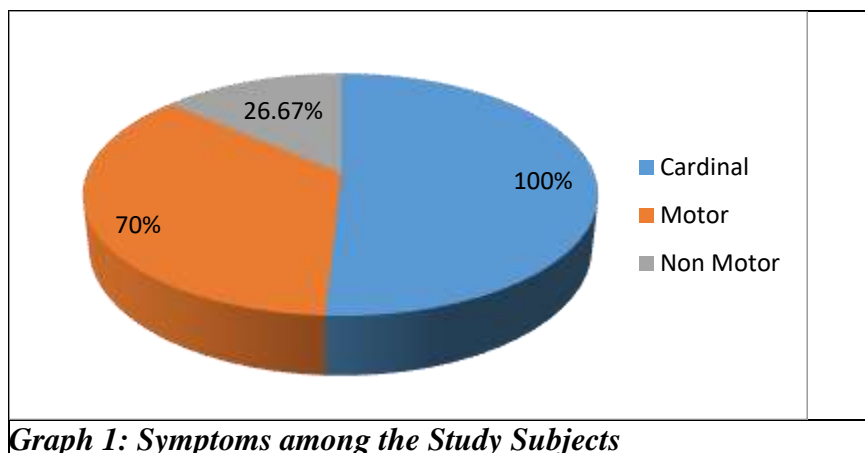
A statistically significant difference was observed in mean age between participants with motor and non-motor symptoms and their peers. (Table 2).

Age (in years)	Cardinal		Motor		Non-Motor	
	Present	Absent	Present	Absent	Present	Absent
Mean	63.87	-	66.29	58.22	71.13	61.22
SD	6.52	-	5.98	3.73	4.76	4.89
T-Test	0		13.89		24.36	
P-Value	1		0.001*		<0.01*	
Table 2: Comparison of Age According to Symptoms						
*statistically significant						

DISCUSSION

Of the thirty participants, 56.7% were men and 43.3% were women. The study subjects' mean age was 63.87±6.52 years, with the largest group of subjects (53.33%) being between the ages of 61 and

70. We discovered that 43.3% of the patients belonged to the middle socioeconomic class, while 56.7% of the patients were from lower socioeconomic positions.

Participants in the Bamon A et al.[8] study ranged in age from 61.17 to 12.30 years on average. The ratio of men to women was 2:1. Women's prevalence of PD has been reported to be lower in most studies [8–10]. A Femi et al. investigation found that there was a prevalence of men with idiopathic Parkinson's disease (m:f = 3.2:1).[9] One of the risk factors in an Indian population study by Behari et al.[10] was male gender, which had a higher incidence (1:3.96) comparable to data from other nations. These results are in line with the current investigation. The fact that women in India are less likely than men to seek or have access to medical care, however, may cloud these findings. Environmental risk factors that have been linked to Parkinson's disease development include farming, living in a rural area, drinking well water, and being exposed to pesticides.

A total of 100%, 70%, and 26.67% of the participants reported having cardinal, motor, and non-motor symptoms, respectively. The study revealed that the mean age of individuals experiencing both motor and non-motor symptoms was higher than that of their counterparts, who did not exhibit a statistically significant difference.

According to Maanasa R et al. study,[11] the majority of individuals in the study reported having tremors as their first clinical symptom (87%). Later on, they experienced akinesia, or stiffness in the arms, legs, and other body parts. They were in the early phases of their illnesses, classified as stages 1 and 2, with 47% (28) of the patients falling into the unilateral category and 43% (26) into the bilateral category. This means that, in contrast to other research, particularly a study by Kruger et al.[6] which found that the majority of patients were in the final stages of illness, 90% of the study's participants were in the early stages of the condition.[7] Increased disease complications were attributed to this late stage of sickness that was noted at the time of diagnosis. As a result, in the current study, PD patients are being diagnosed in the early stages of the disease according to Hoehn and Yahr staging, since they seek medical attention as soon as their first clinical symptom manifests. Patients appear to be less aware of the illness, which needs to be changed with appropriate counseling and education. Along with focusing on the various barriers to recovery, we also need to improve patient outcomes by enhancing their quality of life through improved treatment approaches.

LIMITATIONS

The study had certain limitations, including a small sample size and a hospital-based rather than a population-based design. It also contrasted with Western populations in that there was less common family history and a lower frequency of young onset PD. A large-scale population-based study is needed to validate our results.

CONCLUSION

The present study's PD patients' clinical features were similar to those of other populations in India and other developing countries. This abundance of data may prove useful in improving Parkinson's disease diagnosis and developing more patient-centered, outcome-oriented treatment plans.

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