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Parkinson's Disease Non-motor Symptoms in Pakistani Patients

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Abstract:

Background: Among elderly adults in Pakistan, Parkinson's is one of the most prevalent degenerative disorders. Although the occurrence of each non-motor symptom (NMS) in Pakistani patients is unclear, these NMS may have an effect on the health of the patients. Finding out how common these NMS are among Parkinson's patients in Pakistan is the goal of this study.

Methodology: 540 Parkinson's disease participants from all provinces in Pakistan participated in cross-sectional research. Only the non-motor part of scale (UPDRS) was noted. After NMS assessments, the frequency and impact of gender on each symptom were discovered.

Results: Every patient stated experiencing at least one non-motor symptom. The most common symptom were depression (80%), speech issues (80%), and balance abnormalities (86.3%). Gender differences play in the occurrence of non-motor disorders in Parkinson's.

Conclusion: NMS are prevalent and significantly affect Parkinson disease patients' activities of daily life. In Pakistani Parkinson's patients, a larger proportion of NMS is linked to advanced disease stage. NMS contribute to major severity of disease in Parkinson's patients in Pakistani population suffering from this condition and should be given proper attention and medical care. We postulated that the existence of non-motor symptoms in Parkinson disease patients may manifest differently in various genders and that this should be further studied.

Keywords: Parkinson's Disease, Non-motor symptoms, UPDRS (Unified Parkinson's Disease Rating Scale).

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Introduction

Among the most prevalent degenerative illnesses is Parkinson's in Pakistani older adults. (1) As the existence of non-motor symptoms in this particular condition has come to light, it has been clear that these non-motor characteristics are crucial—even dominating at times—to the treatment and diagnosis of the condition.

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Despite this, there is still a resistance to properly recognize and treat these NMS in this condition, which lowers the functionality for those who have the disease. (2) Parkinson's is a condition in which movement is lost and is distinguished by stiffness, tremors at rest, and bradykinesia, which are cardinal motor symptoms.

Conversely, non-motor symptoms are drawing increased attention. These include cognitive, neurological and psychological;, sleep, autonomic, and sensory abnormalities. These non-motor symptoms might be a natural by-product of the disease's pathophysiology or could arise from dopaminergic medication. It is crucial to be aware of non-motor symptoms as the majority of Parkinson's disease patients, if not all of them, will experience them. This is because some non-motor symptoms may appear before motor impairment. (3)

The phenotypic variability of Parkinson disease in its motor and non-motor systems is being more recognized. A fundamental trait gender—have the potential to affect the phenotype of a disease, either through pathology-related variations or variables unrelated to the illness itself.

Men are more likely than women to acquire this condition, and there is a larger risk of Parkinson disease development in men than in women.
These findings imply that gender plays a major role in the onset and course of Parkinsonism. Gender disparities in non-motor symptoms are not well documented to date.(4) The current study set out to ascertain the frequency of Parkinson's disease NMS in Pakistan and to correlate these symptoms with both the gender.

Methods:

This cross-sectional study includes 540 individuals who were examined in a private clinic in Islamabad which treats patients from all over Pakistan between 2017 and 2023.unified Parkinson's disease rating scale (UPDRS) was used to identify idiopathic Parkinson's disease in all of the patients. All the patients who had a UPDRS score of 40 or less were excluded. This measure was designed to assess non-motor daily living experiences as well as other elements of Parkinson's disease it described the severity and burden of the illness in each Parkinson's patient and included a non-motor examination.
The most often used rating tool for Parkinson's disease is the unified UPDRS. There are 31 elements in the total scale score, which go towards three sub scales: (i) mood, behavior, and mentation; (ii) ADLs and (iii) functional assessment. As our study only focused on non-motor symptoms we only consider questions pertaining to non-motor effects of Parkinson disease.
The statistical software spss version 21 was used for the analyses.
The overall sample's prevalence of each non-motor characteristic was determined by adding up the affirmative replies based on the UPDRS scores.
Among the statistical analysis techniques employed were the t-test. P-values below 0.05 were considered statistically significant. T test was used to assess difference of symptoms severity between both genders.

Results :

A total of five hundred and forty Parkinson's patients completed the UPDRS; 287 (34.6%) of them were female and 353 (65.4%) were male. Standard deviation plus mean age is 60.92 + 13.69 years but 20% of the Parkinson patients were below age of 50 which showed its prevalence in early age also.
Out of 540 participants almost 20% patients were recruited in 2017, 2018, a 2019 each, 13% in 2020, 14% in 2021, 3.9% in 2022 and 7.6% in 2023.
Punjab province has the highest percentage of cases (33.5%). 21.3 % patients were recruited from KPK, 4.4% from Baluchistan and 0.6% from Sindh while 1.5% were foreign patients.
There were 222 patients (41.1%) who exhibited no signs of cognitive deficits. Whereas extremely mild symptoms were seen in 27.4%. In a similar vein, 368 patients (68.1%) had no psychotic symptoms, although 46.9% of the patients had signs of a moderately depressed mood. 222 patients do not show any sign of cognitive impairments and almost 368 patients showed no psychotic symptoms.

Table 1: Demographic and characteristics of the study participants (n = 540)

Gender %	Female	34.6
	Male	65.4
Province%	Gilgit/Kashmir	5.7
	Foreign	1.5
	Islamabad	28
	Punjab	30.9
	KPK	21.3
	Sindh	0.6
	Baluchistan	4.4
Year %	2017	20.6
	2018	20.2
	2019	20.2
	2020	13.3
	2021	14.3
	2022	3.9
	2023	7.6

Table 2 summarizes the baseline characteristics for the various non-motor complaints, including pain, constipation, sleep disorders, fatigue, apathy, speech and eating and urinary difficulties.

While depressed mood was similar in both genders (p=0.39), female Parkinson's disease patients reported significantly higher rates of fatigue (p value = 0.001) and pain (p=0.002).

When it came to the scores of non-motor symptoms, there were no differences between patients with walking and balance in either gender. Moreover, daytime drowsiness did not show a significant difference in either gender, p = 0.57. (Table 3)

Table 3: Mean difference in different gender among NMS in Parkinson disease

	Gender	Mean	Sd	P-value	T-test
Depressed mood	Female	2.39	1.165	.039	2.34
	Male	2.12	1.298		
Daytime sleepiness	Female	1.19	.942	.057	-1.92
	Male	1.37	1.017		
Pain	Female	2.24	1.093	.002	5.52
	Male	1.66	1.196		
Fatigue	Female	2.56	1.236	.001	3.06
	Male	2.18	1.423		
Walking & balance	Female	2.29	1.258	.840	2.79
	Male	1.96	1.318		

Table 2: Prevalence of non-motor symptoms and severity

NMS	Not present %	Very mild %	Mild %	Moderate %	Severe %
Cognitive impairment	41.1	27.4	26.7	4.4	0.4
Psychosis	68.1	5.4	15.4	9.6	1.5
Depressed mood	20.0	2.4	22.4	46.9	8.3
Anxious mood	23	5.6	19.6	32.4	19.4
Apathy	93	0.7	4.4	1.7	0.2
Sleep problems	44.4	9.1	15.2	25.4	5.9
Daytime sleepiness	28.9	21.3	40.4	9.3	0.2
Pain	23	6.1	36.7	30.4	3.9
Urinary problems	36.5	5.6	12	18.5	27.4
Constipation	46.1	5	14.1	18	16.9
Light Headedness on standing	43	8.3	25.2	21.1	2.4
Fatigue	19.8	5	17.8	38.7	18.7
Speech	20	37.8	30.4	10.4	1.5
Saliva and drooling	48.1	11.1	31.1	8.9	0.6
Chewing and swallowing	67.2	7.4	16.1	9.1	0.2
Eating	25.2	15.7	29.8	20.2	9.1
Walking and balance (equivalent to falling)	13.7	22.4	24.8	20.9	18.1

Discussion:

Prevalence and degree of non-motor symptom intensity in Pakistani Parkinson's disease is determined by using UPDRS in this study. The findings imply that NMS are prevalent in Parkinson's disease. The current study examined the motor and non-motor symptoms in Parkinson disease patients using the UPDRS and particular measures. It discovered that while there was no significant gender difference on other non-motor symptoms, females reported tiredness and pain more frequently and with greater severity than males. The study's most common NMS were very comparable to other earlier international research. (5) using the NM quest, a 30-item urinary problems and sleeplessness were the most common symptoms in Parkinson disease patients in Thai patients. (6)

In additional non motor symptoms, that are pain, lightheadedness, and mood discomfort, constipation, and issues with eating was seen in almost 60% of Parkinson disease sufferers. (2)

We found that The occurrence of non-motor symptoms sharply increased with illness stage. This result implies that psychological symptoms have an impact on non-motor symptoms in addition to motor symptoms' influence on NMS. Among the most difficult non -motor symptoms of Parkinsonian individuals are hallucinations and psychotic episodes. (7) Recent drug trials in early Parkinson's disease have discovered that up to 17% of patients have episodes of psychosis and hallucinosis; (8) Forty percent of Parkinson's disease patients report experiencing hallucinations, according to cross-sectional surveys conducted among patients in outpatient clinics, (9) despite the paucity of comprehensive and prospective research on the prevalence of psychosis in Parkinson's disease and its risk factors. Psychosis has been found to be a significant reason behind Parkinson disease patients to be placed in nursing homes. (10) Our research indicated about 32% of the Parkinson disease patients in Pakistan suffer from psychotic symptoms. Detailed neuropsychological testing nearly always identifies subtle cognitive abnormalities, even in the initial phases of Parkinson's disease. (11) Studies conducted in the community have revealed that between 83% of Parkinson disease patients would get clinically recognized dementia. (12)

Our findings showed that nearly 60% of patients had mild to severe symptoms of cognitive deficits. According to a latest systematic review of studies on dementia prevalence in Parkinson's disease, thirty-one percent of Parkinson disease patients meet the diagnostic criteria for dementia and that Parkinson disease dementia accounts for about 4% of degenerative dementias. (13) It may also have a population-based prevalence in people over 65. Apathy, anxiety, and a loss of drive and depression are typical complaints and findings in Parkinson's disease patients. (14)

According to our study, about 80% of Parkinson's patients experience anxiety and depression. Recent studies have shown that 30–50% of people with the disease have depressive symptoms. (15) Our study reported that 54% and 64% of the Parkinson's patients suffer from urinogenital dysfunction and constipation respectively. Constipation is more common in Parkinson's patients, with reports of increased frequency ranging from 28% to 61% in many case-control studies. (15) notably, in around half of the patients in one case series, constipation was noted as a major complaint before to the beginning of overt motor symptoms. Urinary frequency and urgency, incomplete bladder emptying, double micturition, urge incontinence, and erectile dysfunction are all examples of urogenital dysfunction in Parkinson's disease. (16)

Among the most common Parkinson disease nonmotor issues are sleep difficulties. Up to 51% of people with Parkinson's disease were reported to have excessive daytime sleepiness. (17) Studies show that abrupt sleep onset occurs between 4% and 30% of the time. (18) Almost 60% of Parkinson's patients in Pakistan showed sleep issues and almost 77% showed excessive daytime sleeping. Our findings demonstrate that, even after accounting for several non-motor symptoms, gender remains a highly significant predictor of disease severity. (19)

It's possible that the severity assessments were impacted by the general illness load among older people. There is a paucity of information on the variations in the motor and, particularly, non-motor clinical characteristics of Parkinson disease patients between men and women. Regarding gender differences in Parkinson disease, prior epidemiological research has revealed that male patients present with NMS almost half over female patients (20), indicating a biological diversity. Another study that included 174 Parkinson disease patients in India looked at the number of non-motor symptoms and mean NMS scores.

In the current investigation, we examined if and how gender impacts clinical aspects of Parkinson disease by assessing non-motor symptoms. (21) Nevertheless, gender differences in any one item were not examined, and the data analysis was restricted to domain differences. Additionally, some concurrent motor symptoms were not examined.

The current study emphasizes the role that gender differences play in the occurrence of non-motor disorders in Parkinson's. Our findings suggest that there may be a sex-related effect because the spectrum and severity of non-motor symptoms may present differently in male and female Parkinson's disease patients.
Martinez-martin et al. recently published a study on the assessment of non-motor symptoms in a global sample of male and female Parkinson's disease patients. They found that there were notable variations between the sexes in terms of the frequency and intensity of mood disorders, issues related to sexual and digestive functions, pain and fatigue during the day, and mood disorders. Constipation and discomfort are more common among female Parkinson disease patients. (19)
Our research showed that low mood was similarly common in both genders, which was corroborated by findings published recently by Picillo and colleagues, who discovered that female patients had a similar incidence of mood symptoms to their male counterparts. (22) Similarly our study indicated that female had more symptoms of pain and fatigue as compared to male but daytime sleepiness and depressed mood were found to be almost equal in both genders suffering from Parkinson's.
We hypothesized that more research should be done on the possibility that non-motor symptoms in Parkinson disease patients might present differently in different genders. To enhance pharmacological treatment and, eventually, patients' daily life, further study is needed to pinpoint the extra biochemical risk factors of possible gender impacts in Parkinson's disease patients.

Conclusion:

In non-motor symptoms, the neuropsychiatric, sensory, and autonomic areas have been dysfunctional, which are common characteristics of idiopathic Parkinson's disease. All things considered, they greatly increase the total impairment brought on by Parkinson's disease and are important factors in determining health-related daily life activities.
Since there are now efficient symptomatic treatments for the motor symptoms of Parkinson's disease non-motor dysfunction has emerged as a key predictor of both the overall disease burden and day-to-day functioning in Parkinson disease patients. In summary, a number of data indicated that women with Parkinson's disease (Parkinson disease) had a greater burden of disability than males, and that this difference may be related to non-motor symptoms.
Given the aforementioned findings, we postulated that the existence of non-motor symptoms in Parkinson disease patients may manifest differently in various genders and that this should be further studied. More research should be done to identify the additional biochemical risk factors of the potential gender effects in people with Parkinson's disease (PD) in order to optimize drug therapy and, ultimately, the quality of life for these patients. Sex influences on brain chemistry, anatomy, and activities are not well understood.
NMS contribute to major severity of disease in Parkinson's patients in Pakistani population suffering from this condition and should be given proper attention and medical care. we postulated that the existence of non-motor symptoms in Parkinson disease patients may manifest differently in various genders and that this should be further studied
Furthermore, there is mounting evidence that non-motor dysfunction may be a crucial target for early diagnostic paradigms and the identification of at-risk groups since it predates the clinical indications of Parkinson's disease by years or even decades. In addition to establishing prediction values for specific categories of non-motor impairment.

References

1. Mukhtar S, Imran R, Zaheer M, Tariq HJBo. Frequency of non-motor symptoms in Parkinson's disease presenting to tertiary care centre in Pakistan: an observational, cross-sectional study. 2018;8(5):e019172.
2. Saad S, Nomani AZ, Badshah M, Afzal AJPJoNS. Frequency of non-motor symptoms in Parkinson disease: experience from Pakistan. 2017;12(1):8-15.
3. LeWitt PA, Chaudhuri KRJP, Disorders R. Unmet needs in Parkinson disease: Motor and non-motor. 2020;80:S7-S12.
4. Abraham A, Bay AA, Ni L, Schindler N, Singh E, Leeth E, et al. Gender differences in motor and non-motor symptoms in individuals with mild-moderate Parkinson's disease. 2023;18 (1):e0272952.
5. Rodriguez-Blazquez C, Schrag A, Rizos A, Chaudhuri KR, Martinez-Martin P, Weintraub DJMdcp. Prevalence of non-motor symptoms and non-motor fluctuations in Parkinson's disease using the MDS-NMS. 2021;8(2):231-9.
6. Lolekha P, Kulkantrakorn KJNA. Non-motor symptoms in Thai Parkinson's disease patients: prevalence, manifestation and health related quality of life. 2014;19(2):163-70.

7. Lenka A, Gomathinayagam V, Bahroo LJAoMD. Approach to the management of psychosis in Parkinson's disease. 2019;2(3):83-90.
8. Rukavina K, Batzu L, Boogers A, Abundes-Corona A, Bruno V, Chaudhuri KRJERoN. Non-motor complications in late stage Parkinson's disease: reconition, management and unmet needs. 2021;21 (3):335-52.
9. Lenka A, Pagonabarraga J, Pal PK, Bejr-Kasem H, Kulisvesky JJN. Minor hallucinations in Parkinson disease: a subtle symptom with major clinical implications. 2019;93(6):259-66.
10. Hosking A, Hommel AA, Lorenzl S, Coelho M, Ferreira JJ, Meissner WG, et al. Characteristics of patients with late-stage Parkinsonism who are nursing home residents compared with those living at home. 2021;22(2):440-5. e2.
11. Aarsland D, Batzu L, Halliday GM, Geurtsen GJ, Ballard C, Ray Chaudhuri K, et al. Parkinson disease -associated cognitive impairment. 2021;7(1):47.
12. Szeto JY, Walton CC, Rizos A, Martinez-Martin P, Halliday GM, Naismith SL, et al. Dementia in long-term Parkinson's disease patients: a multicentre retrospective study. 2020;6(1):2.
13. Smith C, Malek N, Grosset K, Cullen B, Gentleman S, Grosset DGJJoN, Neurosurgery, et al. Neuropathology of dementia in patients with Parkinson's disease: a systematic review of autopsy studies. 2019;90(11):1234-43.
14. Lazcano-Ocampo C, Wan YM, van Wamelen DJ, Batzu L, Boura I, Titova N, et al. Identifying and responding to fatigue and apathy in Parkinson's disease: a review of current practice. 2020;20 (5):477-95.
15. de Lima TA, Ferreira-Moraes R, Alves WMGdC, Alves TGG, Pimentel CP, Sousa EC, et al. Resistance training reduces depressive symptoms in elderly people with Parkinson disease: A controlled randomized study. 2019;29(12):1957-67.
16. Li F-F, Cui Y-S, Yan R, Cao S-S, Feng TJFiAN. Prevalence of lower urinary tract symptoms, urinary incontinence and retention in Parkinson's disease: A systematic review and meta-analysis. 2022;14:977572.
17. Feng F, Cai Y, Hou Y, Ou R, Jiang Z, Shang HJP, et al. Excessive daytime sleepiness in Parkinson's disease: a systematic review and meta-analysis. 2021;85:133-40.
18. Bohnen NI, Hu MJJoPsd. Sleep disturbance as potential risk and progression factor for Parkinson's disease. 2019;9(3):603-14.
19. Abraham DS, Gruber-Baldini AL, Magder LS, McArdle PF, Tom SE, Barr E, et al. Sex differences in Parkinson's disease presentation and progression. 2019;69:48-54.
20. Russillo MC, Andreozzi V, Erro R, Picillo M, Amboni M, Cuoco S, et al. Sex Differences in Parkinson's Disease: From Bench to Bedside. Brain sciences. 2022;12(7).
21. Pappala K, Garuda BR, Seepana G, Thalabaktula SK, Uppaturi AK. Non-motor symptoms of Parkinson's disease: its prevalence across various stages and its correlation with the severity of the disease and quality of life. 2019;2(3):102-8.
22. Picillo M, Palladino R, Erro R, Alfano R, Colosimo C, Marconi R, et al. The PRIAMO study: age-and sex-related relationship between prodromal constipation and disease phenotype in early Parkinson's disease. 2021;268:448-54.