

# FREQUENCY OF NON MOTOR SYMPTOMS AMONG PATIENTS OF PARKINSON'S DISEASE IN PAKISTAN

IMRAN AHMAD<sup>1</sup>, USAMA BIN ZUBAIR<sup>2</sup>

<sup>1</sup>Assistant Professor of Neurology, Bahria University Medical and Dental College, PNS Shifa, Karachi, Pakistan

<sup>2</sup> Medical Officer, MH RWP Pakistan

Submitted: May 10, 2016

Accepted: August 15, 2016

**CORRESPONDENCE: USAMA BIN ZUBAIR,** E-mail: drusamabinzubair@yahoo.com Contact: 0321-5209950

## ABSTRACT

### OBJECTIVE

To screen the patients of Parkinson disease for presence of non motor symptoms.

### STUDY DESIGN

Cross sectional study.

### PLACE AND DURATION OF STUDY

Three months duration observational study was carried out at Military Hospital Rawalpindi from October 2015 to December 2015.

### SUBJECTS AND METHODS

All the patients of Parkinson's disease (PD) presenting in neurology department filled a self administered Non Motor System questionnaire (NMS Quest) comprising of 30-items. Patients had to respond as "yes," or "no," to each item. Frequency of each symptom was calculated to look for the common NMS experienced by patients.

### RESULTS

A total of 62 patients were screened through NMS questionnaire. Mean age of patients was 64.5 (range 34–91 years). 93.5% were male. The mean of total symptoms positive on NMS Quest was 11.8. Most commonly experienced NMS included nocturia (80.61%) and unexplained pains (80.61%) followed by urgency (70.9%) and constipation (67.7%). NMS least reported were difficulty during sex (1.61%) and change in sex drive (8.06%) followed by diplopia (12.9%) and incomplete bowel emptying (16.1%).

### CONCLUSION

The study concluded that prevalence of NMS among patients of PD was high so these symptoms should be assessed carefully by physicians at the time of consultation so that overall quality of life of patients is improved.

### KEY WORDS

Parkinson disease, Non motor symptoms, Neurodegenerative disorder.

## INTRODUCTION

In 1817 James Parkinson described Parkinson disease (PD) for the first time in his famous essay<sup>1</sup>. It is a common, idiopathic disorder associated with inadequate dopamine in brainstem due to degeneration of neurons in the substantia nigra.

Traditionally only motor symptomatology was associated with PD, now it is considered as a broad spectrum disorder with multiple features including psychiatric and non-motor manifestations (NMS)<sup>2</sup>. These include cognitive dysfunction, anhedonia, hallucinosis and other disorders related to mood and behavior. Hyposmia, pain, bad sleep quality and other sensory disturbances like numbness, coldness, burning and paresthesias are also common. Majority of PD patients have complaints related to autonomic system as well including constipation, postural hypotension and urogenital problems<sup>2,3</sup>.

NMS may be related to neurodegenerative changes affecting several neural systems and/or caused by drugs employed in treatment of PD. The clinical picture of PD may be considered as iceberg. The visible part presents the motor symptoms and the larger non visible part represents the several NMS. Martinez-Martin et al. performed a multicentric, international, cross-sectional study using the NMS Questionnaire and reported that NMS were present in 98.4% of the patients<sup>3</sup>. The PRIAMO study showed similar results that NMS were present in the vast majority of PD patients<sup>4</sup>.

Previously only late or advanced PD was associated with presence of NMS but a study done in recent past clarified this myth. It revealed that non-motor manifestations may occur earlier than motor disturbances and cause more disability than motor symptoms<sup>5</sup>. Patients of PD experience more NMS as the disease progresses<sup>4</sup>. Various studies done in the past showed that non motor symptoms at the time of diagnosis were not much alarming<sup>6</sup> but after few years of disease progression they increased to an extent that disturbs the patient more than motor symptoms<sup>7</sup>.

Study done in our neighboring country on a similar set of population revealed that disease burden and pattern is not very different in our part of the world. Around 91.8% patients presented with NMS in a study done in India on patients of PD<sup>8</sup>. The impact of NMS is also sometimes greater than motor signs, especially in the late stages of PD and they significantly impair quality of life and may precipitate hospitalization<sup>9,11</sup>.

Normally it is believed that NMS are hard to treat, but reality is different. They should be given importance and assessed in detail because they can be

treated by dopamine analogues and other forms of treatment, thus contributing positively to the daily life of the patient<sup>9,12</sup>.

It is unfortunate that very little data is available regarding NMS in patients of PD in Pakistan. Previously a study was done to look for depression in PD patients<sup>13</sup> but NMS has not been addressed so far so this study was designed to look for the prevalence of NMS in patients of Parkinson disease in Pakistani setting.

## SUBJECTS AND METHODS

### Participants

All the patients of PD of either gender aged  $\geq 18$  who gave written consent were included in the study regardless of the duration of disease. Pediatric patients, patients already on psychiatric treatment and those who did not give consent or were unable to understand or complete the questionnaire were excluded from the study. UK Brain Bank criterion was used to diagnose the patients of PD i.e Patients presenting with tremor, bradykinesia with or without rigidity and postural instability were included in the analysis<sup>14</sup>.

### Instruments

Non motor Symptoms Questionnaire (The NMSQuest) is a 30 item screening tool used to look for non motor manifestations of PD. It is a self reporting instrument comprising of 12 NMS domains which include GIT, urinary, CVS, respiratory, neuropsychiatric, cutaneous and sensory symptoms. Disorders of sleep, apathy, fatigue and attention are also part of these domains. Each domain includes 2 to 8 specific questions featuring answers as yes or no.

### Procedure

After ethical approval from ethical committee Military Hospital Rawalpindi, this cross sectional study was carried from October 2015 to December 2015. The patients were provided with a detailed description of the study. Inclusion was strictly based on informed written consent. All consenting PD patients completed the NMS Questionnaire in outpatient department (OPD) while waiting for their turn to meet the treating physician. Help of caregivers was acquired where necessary. Routine history including information about drugs and the demographic profile were entered in a structured form. The NMSQuest used in the study (see annexure A). Frequency of the individual non motor symptoms was obtained by adding all the "yes" responses. Percentage was calculated by transforming the frequencies related to the number of patients in the sample. Prevalence of each domain was obtained by transforming the sum of item positive responses on the maximum possible number of positive responses in the domain. All statistical analysis was performed using Statistics Package for Social Sciences version 20.0.

## RESULTS

After the application of inclusion and exclusion criteria total 62 patients were included in the analysis. Mean age of patients was 64.5 (range 34–91 years). 93.5% were male. Table 1 and 2 showed the frequency and percentage of individual symptoms and domains respectively. The mean of total symptoms positive on NMS Quest was

11.8. Most commonly experienced NMS included nocturia (80.61%) and unexplained pains (80.61%) followed by urgency (70.9%) and constipation (67.7%). NMS least reported were difficulty during sex (1.61%) and change in sex drive (8.06%) followed by diplopia (12.9%) and incomplete bowel emptying (16.1%). Domain most commonly affected is urinary (75.75% of the individuals reported) followed by depression and anxiety (as reported by 66.05% of individuals).

**Table 1**  
Frequency and percentage of positive responses

	Symptoms	N	%
1	Dribbling	34	54.8
2	Taste/smelling	12	19.3
3	Swallowing	12	19.3
4	Vomiting	12	19.3
5	Constipation	42	67.7
6	Bowel incontinence	18	29.03
7	Bowel emptying incomplete	10	16.1
8	Urgency	44	70.9
9	Nocturia	50	80.61
10	Pains	50	80.61
11	Weight loss	26	41.9
12	Remembering	36	58.06
13	Loss of interest	30	48.3
14	Hallucinations	16	25.8
15	Concentrating	34	54.8
16	Sad, blues	44	70.9
17	Anxiety	38	61.2
18	Sex drive	05	8.06
19	Sex difficulty	01	1.61
20	Dizzy	17	27.4
21	Falling	28	45.1
22	Daytime sleepiness	18	29.03
23	Insomnia	28	45.1
24	Intense, vivid dreams	30	48.3
25	Acting out during dreams	28	45.1
26	Restless legs	24	38.7
27	Swelling legs	14	22.5
28	Sweating	28	45.1
29	Diplopia	08	12.9
30	Delusions	10	16.1

**TABLE 2**  
Positive symptoms analyzed according to NMS Quest domains

NMS Questionnaire – domains	Mean Percentage of positive individuals
Gastrointestinal	30.2
Urinary	75.75
Sexual function	4.8s
Cardiovascular	36.05
Apathy/attention/memory	53.7
Hallucinations/delusions	20.95
Depression/anxiety	66.05
Sleep disorder	41.2
Miscellaneous	39.5



5. Santamaria J, Tolosa E, Valles A. Parkinsons disease with depression: a possible subgroup of idiopathic Parkinsonism. *Neurology*. 1986; 36: 1130-1133.
6. O'Sullivan SS, Williams DR, Gallagher DA, Massey LA, Moriyama LS, Lees AJ. Non motor symptoms as presenting complaints in Parkinson's disease: a clinicopathological study. *Movement Disorders*, 2008; 23(1): 101-106.
7. Shulman LM, Taback RL, Bean J, Weiner WJ. Comorbidity of the nonmotor symptoms of Parkinson's disease. *Movement Disorders*. 2001; 16(3): 507-510.
8. De Souza A, Varun R, Kakode P et al. Non\_motor symptoms in Indian patients with Parkinson's disease. *Basal ganglia*. 2015; 5(4): 89-93.
9. Lee HM, Koh SB. Many Faces of Parkinson's Disease: Non-Motor Symptoms of Parkinson's Disease. *J Mov Disord*. 2015. May; 8(2): 92-97.
10. Aarsland D, Larsen JP, Tandberg E, Laake K. Predictors of nursing home placement in Parkinson's disease: a population-based, prospective study. *J Am Geriatr Soc*. 2000 Aug; 48(8): 938-42.
11. Muzerengi S, Lewis H, Edwards M, Kipps E, et al. Non-motor symptoms in Parkinson's disease: An under diagnosed problem. *Aging Health*. 2006; 2(6): 967-982.
12. Rana AQ, Ahmed US, Chaudry ZM, Vasan S. Parkinson's disease: a review of non-motor symptoms. *Expert Rev Neurother*. 2015 May; 15(5): 549-62.
13. Abbas N, Jahangeer S, Rashid S. Frequency of anxiety, depression and cognitive impairments in PD. *PAFMJ*, Dec 2003; 53(2): 193-7.
14. Hughes AJ, Daniel SE, Kilford L, Lees AJ. Accuracy of clinical diagnosis of idiopathic Parkinson's disease: a clinicopathological study of 100 cases. *J Neurol Neurosurg Psychiatry*. 1992; 55: 181-184.
15. Chaudhuri KR, Jurcynska CP, Naidu Y et al. The Non declaration of Non motor Symptoms of Parkinson's disease to Health Care Professionals: An International Study Using the Non motor Symptoms Questionnaire. *Movement Disorders*. 2010; 25(6): 704-709.
16. Sakakibara R, Uchiyama T, Yamanishi T, Kishi M. Genitourinary dysfunction in Parkinson's disease. *Movement Disorders*. 2010; 25(1): 2-12.
17. Fil A, Cano-de-la-Cuerda R, Muñoz-Hellín E. Pain in Parkinson disease: A review of the literature. *Parkinsonism & Related Disorders*, March 2013; 19(3): 285-294.
18. Koller WC. Sensory symptoms in Parkinson's disease. *Neurology*. 1984; 34(7): 957-959.
19. Lee MA, Walker RW, Hildreth TJ, Prentice WM. A survey of pain in idiopathic Parkinson's disease. *Journal of Pain and Symptom Management*. 2006; 32(5): 462-469.
20. Azmin S, Manaf A, Anuar K, Tan HJ et al. Non motor Symptoms in a Malaysian Parkinson's Disease Population. *Parkinson's disease*. 2014 April; 2014(2): 472157, DOI: 10.1155/2014/472157.
21. Sakakibara R, Shinotoh H, Uchiyama T et al. Questionnaire-based assessment of pelvic organ dysfunction in Parkinson's disease. *Autonomic Neuroscience*. 2001; 92(1-2): 76-85.
22. Gao X, Chen H, Schwarzschild MA et al. Erectile function and risk of Parkinson's disease. *American Journal of Epidemiology*. 2007; 166(12): 1446-1450.
23. Senard JM, Rai S, Lapeyre-Mestre M et al. Prevalence of orthostatic hypotension in Parkinson's disease. *Journal of Neurology Neurosurgery and Psychiatry*. 1997; 63(5): 584-589.

## Non motor Symptoms Questionnaire for patients of Parkinson disease (NMSQuest)

### Non motor symptoms in Parkinsonism


Name \_\_\_\_\_ Sex \_\_\_\_\_ Age \_\_\_\_\_

Duration of Parkinsonism \_\_\_\_\_

Contact No \_\_\_\_\_ Location \_\_\_\_\_

### Have you experienced any one of the following in last month?

Sr.	Question	Yes	No
1	Day time dribbling of saliva		
2	Smell and taste ability lost or changed		
3	Choking or Swallowing difficulties during eating or drinking		
4	Vomiting or feeling of sickness ( nausea)		
5	Constipation (weekly bowel movements are less than 3 ) or straining for stools		
6	Bowel incontinence		
7	Incomplete bowel emptying even after passing the stool		
8	A sense of urgency to pass urine that makes you rush to toilet		
9	Frequent awakenings at night for passing the urine		
10	Pains which can be explained by any inflammatory disease or trauma ( not due to known condition as arthritis )		
11	Weight loss ( which cant be attributable to dietary change )		
12	Forgetfulness in doing routine things or difficulty in remembering recent affairs		
13	Loss of interest in doing things and events happening around you		
14	Seeing or hearing things that you know but others say or not there		
15	Problems in focusing and concentration issues		
16	Feeling low, blue or sad		
17	Feeling of fear anxiety or irritability		
18	Increase or decrease in sexual desire		
19	Difficulty in having sex		
20	Feeling weak, dizzy and light headed when standing from sitting or lying position		
21	Falling		
22	Difficulty in keeping yourself awake while doing activities like eating, working or driving		
23	Finding it difficult to sleep at night and maintain the sleep		
24	Experience dreams at night which are very frightening or vivid		
25	Moving out or talking in your dreams as you are acting out your dreams		
26	Unpleasant desire to move legs at night or during resting periods		
27	Legs are swollen		
28	Excessive sweating		
29	Double vision		
30	Believing experiences you are having that others think are incorrect		

St. #	Author Name	Affiliation of Author	Contribution	Signature
1	Imran Ahmad	Assistant Professor of Neurology, Bahria University Medical and Dental College, PNS Shifa, Karachi, Pakistan	Planning of study and data collection	
2	Usama Bin Zubair	Medical officer, MH RWP	Data analysis and writing the final manuscript	