

# Non-Motor Features in Parkinson's Disease Patients Attending Neurology Clinic at a Tertiary Institution in Nigeria: A Preliminary Report

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## ABSTRACT

### BACKGROUND

*The clinical course of Parkinson's disease (PD) is not limited to motor symptoms (tremor, bradykinesia, rigidity, gait problems and imbalance). A variety of non-motor symptoms (NMS) such as psychiatric, gastrointestinal, cognitive, sudomotor, autonomic, sleep and sensory disorders which occur commonly are usually underappreciated as features of PD. This is a short report which documents NMS in a group of PD patients in Port Harcourt.*

### METHOD

*Thirty –six patients with Parkinson's disease attending the neurology clinic of University of Port Harcourt Teaching Hospital were studied. The characteristics of the PD subjects and some non-motor symptoms were documented from direct interview as part of a larger study investigating Health related quality of life in PD.*

### RESULTS

*Mean age was 64.3 ± 10.9 years (range 43-86) and 27 were subjects were males and 9 were females. Persistent low mood was reported in 30 (83.3%), 27 (75%) had body pains and olfactory problems, 17 (47.2%) reported drooling of saliva and difficulty remembering events. 11 (30.6%) and 12 (33.3%) reported excessive daytime sleepiness and difficulty falling asleep respectively. Difficulty swallowing was reported in 7 (19.4%) and sweating disturbance in 10 (27.8%) patients.*

## CONCLUSION

*Non-motor symptoms occur in PD patients in Port Harcourt, Nigeria and awareness needs to be created among patients and health care providers on the presence and burden of NMS in PD patients in order to offer holistic care and improve quality of life in PD patients.*

**KEYWORDS:** *Non-motor symptoms; Parkinson's disease; Nigeria.*

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## INTRODUCTION

It is increasingly recognized that non-motor symptoms, especially depression, dementia, and psychosis, contribute to excess disability in PD<sup>1,2,3</sup>.

Non-motor symptoms (NMS) dominate the clinical picture as PD progresses and may worsen the quality of life of the patient and shorten life expectancy<sup>2,4</sup>. In addition, most of the NMS do not respond to, and may be exacerbated by, dopamine replacement therapy<sup>2</sup>.

What is also of concern is that, in contrast to motor symptoms, non-motor symptoms of PD are frequently unrecognized and either untreated or poorly treated in clinical practice, ultimately leading to worsened clinical state and increased healthcare costs and utilization<sup>2</sup> from PD.

These NMS include mood disorders, memory impairment, and autonomic dysfunction,

sensory and sleep abnormalities. All these features significantly worsen the patient's clinical state and physical functioning.

Mood disorder is frequent in PD and is the most common neurobehavioral disorder, affecting up to 50% of patients which is several times the prevalence in the general population<sup>2-8</sup>.

Mood disorders can occur at any time in the course of PD and even before the onset of motor symptoms<sup>9</sup>. These patients with mood disorders could graduate from persistently low mood to full blown depression.

Cognitive impairment and other memory problems occur in PD despite the original description as a disorder in which "the senses and intellect remain uninjured"<sup>10</sup>. Cognitive impairment is an important determinant of quality of life, care giver burden, and mortality<sup>11,12</sup>. Cognitive dysfunction encompasses memory, language, and executive dysfunction.

Autonomic dysfunction is well recognized in PD, particularly as the disease progresses. It may be the presenting feature of PD. Features include orthostatic hypotension, sweating dysfunction<sup>13,14</sup> and erectile dysfunction<sup>14-16</sup>.

Sleep disorders (e.g. excessive sleepiness, sleep attacks, insomnia and day time somnolence) were once attributed to the pharmacological therapy for PD<sup>16</sup>. However some clinicians now believe that these features are an integral part of the disease<sup>17</sup>. The collective prevalence of sleep disorders is estimated between 60% and 90% at some time over the course of PD<sup>6,7,18,19</sup>.

Sensory abnormalities such as olfactory dysfunction, pain, paraesthesia, akathisia, oral pain are frequent but are often not recognized as parkinsonian. Olfactory dysfunction seen in 70%-100% of patients occurs early in the disease and may be a preclinical marker of motor symptoms<sup>6,7,18,19</sup>.

Parkinson's disease (PD) also has substantial implication for patients' social life. Problems

with monotonous speech or fixed facial expression can be embarrassing and potentially ostracizing features. Leisure activities which involve going out or those which rely on physical dexterity can become difficult to maintain leading to social isolation. Feelings of shame or stigma can result when a lack of social competence is perceived<sup>20</sup>. All these feature then result in worsened clinical state. It is on this background of the under reported and overlooked non motor symptoms of PD and the impact which they have on quality of life and outcome of PD patients, that this study aims to evaluate the Non motor features among patients with PD in Port Harcourt.

## METHODS

### Subjects

In a cross-sectional hospital-based descriptive study, 36 consenting patients with clinical diagnosis of PD were recruited from the Neurology outpatient clinic of the University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt, Niger-Delta region of Nigeria. This study was carried out over 6 months (June-November 2009). The diagnosis of PD was based on the United Kingdom Parkinson's Disease Society Brain Bank Clinical Diagnostic Criteria<sup>21,22</sup>. Patients with a history of stroke, significant head injury, previous encephalitis, drug and alcohol abuse, those on neuroleptic treatment at onset of symptoms, and Parkinsonism plus syndromes (e.g. early dysautonomia, cognitive impairment before 1 year of onset, supranuclear gaze palsy, cerebellar signs or negative response to levodopa) were excluded. Ethical approval was obtained from the UPTH Ethics Committee.

### PROCEDURE

The demographic and clinical characteristics of the PD subjects and some non-motor symptoms were documented from direct interview as part of a larger study investigating Health related quality of life in PD.

A detailed neurological examination was performed on the patients to verify the clinical diagnosis of PD.

To assess the stage and severity of the disease, the Hoehn and Yahr staging scale<sup>23</sup> and the motor part of the Unified Parkinson's Disease Rating Scale (UPDRS)<sup>24</sup> were used.

## RESULTS

### Demographic characteristics

We studied 36 patients with Parkinson's disease (PD) comprising 27 men and 9 women. Male to female ratio of 3:1. The mean age of all the patients was  $64.3 \pm 10.9$  years.

### Clinical characteristics

The mean Hoehn and Yahr stage was  $3.19 \pm 0.6$  while the mean UPDRS score was  $44.3 \pm 14.2$ . Most (72%) of the patients were in Hoehn and Yahr stage III. Seven were in stage IV (19.4%), two others were in stage II (5.6%) while only one patient (2.8%) was in stage V.

Non-motor features most commonly found included persistently low mood in 30(83.3%), pain in 27(75%), olfactory problems in 27(75%), and difficulty remembering events in 17(47.2%) and drooling of saliva in 17(47.2%) as shown in Table 1.

**Table 1:** Percentage distribution of non-motor features among Parkinson's disease patients.

| Non motor feature             | Frequency | %    |
|-------------------------------|-----------|------|
|                               | N=36      |      |
| Difficulty remembering events | 17        | 47.2 |
| Pain                          | 27        | 75.0 |
| Persistent low mood           | 30        | 83.3 |
| Excess daytime sleepiness     | 11        | 30.6 |
| Difficulty falling asleep     | 12        | 33.3 |
| Drooling saliva               | 17        | 47.2 |
| Difficulty swallowing         | 7         | 19.4 |
| Sweating                      | 10        | 27.8 |
| Olfactory problems            | 27        | 75.0 |

## DISCUSSION

We report the non motor features of 36 Parkinson's disease patients, most of whom had persistently low mood, followed by pain and olfactory problems. Others had sleep and memory problems.

Various studies have reported NMS among Parkinson's disease patients. Akinyemi *et al* reported the occurrence of non-motor symptoms in Nigerians with PD<sup>25</sup>. Akinyemi *et al*<sup>26</sup> studied 51 Nigerians with PD and compared with 50 demographically matched controls using the modified Community Screening Instrument for Dementia (CSID). 21.6% patients with PD exhibited cognitive impairment. Our study did not directly measure cognitive impairment but 47.2% of the PD patients had difficulty remembering things.

Mood disorders, particularly depression is frequent in PD and the most common neurobehavioral disorder, affecting up to 50% of patients which is several times the prevalence in the general population<sup>2,3,6-8</sup>. Depression commonly co-exists with anxiety and can occur at any time in the course of the disease, including before onset of motor symptoms<sup>7,8</sup>. The impact of depression in PD patients ranges from mild manifested as an unwillingness to cooperate, to marked manifested as a complete withdrawal and social isolation<sup>7,8</sup>.

Most (83.3%) of the patients from our study demonstrated persistently low mood. Depression was measured and reported in another study.

Okubadejo *et al*<sup>27</sup> studied the frequency of autonomic dysfunction in 33 patients with PD in Nigeria and age-matched controls. The autonomic function tests utilized were heart rate variability to deep breathing, standing and the valsalvamaneuvre and blood pressure response to standing. They found that autonomic dysfunction was common in Africans with PD, especially those over the age of 65 years.

Sleep disturbances (e.g. excessive sleepiness, sleep attacks, insomnia and day time somnolence) were once attributed to the pharmacological therapy for PD,<sup>16,17</sup> some clinicians now believe that these features are an integral part of the disease. Collective

prevalence of sleep disorders is estimated between 60% and 90% at some time over the course of the disease<sup>16,17,28</sup>. This is in contrast to our study as only about 30.6% of our patients reported excessive daytime sleepiness. This can be attributed to difference in sleep measuring scales. Some of our patients may not have attributed the sleep disorder to mean any state of ill health and so would not report such.

Sensory abnormalities such as olfactory dysfunction, pain, paraesthesia, akathasia and oral pain are frequent but are often not recognized as parkinsonian. Olfactory dysfunction seen in 70%-100% of patients occurs early in the disease and may be a preclinical marker of motor symptoms<sup>2,3,6,18,29</sup>. Our study measured olfactory problems and like most studies, 75% of our patients reported olfactory problems.

Parkinson's disease (PD) also has substantial implication for patients' social life. Problems with monotonous speech or fixed facial expression can be embarrassing and potentially ostracizing features. Leisure activities which involve going out or those which rely on physical dexterity can become difficult to maintain which can lead to social isolation. Feelings of shame or stigma can result when a lack of social competence is perceived<sup>20,30</sup>. All these result in a poor quality of life in PD patients and so are of great importance in patient management so further study would be of great value.

## CONCLUSION

Non-motor symptoms occur in PD patients in Port Harcourt, Nigeria and awareness needs to be created among patients and health care providers on the presence and burden of NMS in PD patients in order to offer holistic care and improve quality of life in PD patients.

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