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Original Research

Level of knowledge and perceived challenges associated with learning movement disorders topics: a critical review of final-year medical students at a Nigerian private university.

Ikechukwu Chukwuocha[1], *Ernest Nwazor,[2] Emmanuel Iwuozo[3], Chukwuma Okeafor[4].

[1]Department of Internal Medicine Federal University Teaching Hospital Owerri, Nigeria
[2]Department of Internal Medicine, Rivers State University Teaching Hospital, Port Harcourt, Nigeria.
[3] Department of Internal Medicine, Benue State University Teaching Hospital, Markurdi, Benue State, Nigeria.
[4]Department of Neuropsychiatry, University of Port Harcourt, Port Harcourt, Nigeria.

Abstract

Background: To determine the level of knowledge and challenges associated with learning movement disorders among final-year medical students. Methodology: A cross-sectional survey of 79 final-year medical students at the Madonna University, Elele, Rivers State. Consenting students filled out the study questionnaire, which consisted of socio-demographic variables and questions on the knowledge and challenges of learning movement disorders. Data were collected and analysed using the Statistical Package for Social Sciences Version 20.

Results: The mean age of the study participants was 27.41±2.78 years, with a male-to-female ratio of 1.3:1. Almost (91.1%) all the study participants had heard about parkinsonism from their lectures, followed by chorea (88.6%). More than half of the participants knew about one type of movement disorder or the other. Forty-three (54.4%) students expressed difficulty understanding movement disorder lectures. Inadequate exposure to patients with movement disorders and lack of audiovisual aids to enhance learning experience were the greatest challenges in learning movement disorders.

Conclusion: Parkinsonism was the most recognized movement disorder among the study participants. More than half of the participants admitted to having challenges with movement disorder lectures. Paucity of movement disorders cases during clinical rotation and lack of teaching aids were cited as major challenges affecting learning and appreciation of movement disorder lectures. Medical educators are encouraged to deploy appropriate methods that optimize learning experience among medical students during movement disorder lectures.

Keywords: Movement Disorder, Knowledge, Attitude, Medical Students, Neurology

***Correspondence:** Dr Ernest Nwazor, Department of Internal Medicine, Rivers State University Teaching Hospital, Port Harcourt, Nigeria.
Email: ernestnwazor@yahoo.com

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Quick Response Code:

Introduction:

Movement disorders (MD) comprise neurological conditions that affect the speed, fluency, quality, and ease of movement, often characterized by characterized by either excess or paucity of movements, unrelated to weakness or spasticity.[1]

Globally, they exist in various forms and are usually chronic, progressive, and often incurable.[2] Depending on their clinical presentations, they can be classified as either excessive movement (hyperkinetic) or paucity of movement (hypokinetic) based on the amplitude and frequency of the abnormal movement.[1] In Sub-Saharan Africa (SSA), movement disorders were generally thought to be uncommon because of the relatively large young population in SSA.[3] since many of them are part of neurodegenerative disorders whose incidence increase as age advances.

Movement disorders can occur at any age depending on the risk factors driving the pathological process. For instance, drug induced movement disorders can happen at any following exposure offending medications. Okubadejo et al, in a hospital-based study in Southwest Nigeria, found that patients with movement disorders accounted for about 28·0% of all the cases attending the Neurology Outpatient Clinic within the study period under review.[4]

Medical curriculum comprises various aspects of medicine, including neurosciences, which students are exposed to during their medical training. Movement disorder lectures are often taught to students in neurology, among other important topics. However, several students generally tend to display poor motivation towards learning neuroscience-based lectures.[5]And this poor attitude could linger beyond graduation and might adversely affect interest to practice clinical neurology later. For example, a survey conducted in the United States on the resident doctors by the American Academy of Neurology (AAN) reported that only 9% of doctors going into the neurology fellowship program chose movement disorders subspecialty.[6] This low uptake of movement disorder fellowship training might just reflect the bias they earlier developed against neurosciences during their undergraduate training.

The challenges in understanding movement disorders lectures by medical students could be traced to several reasons ranging from difficulties with grasping the complex neuroanatomy and neurochemistry involved in these disorders, which can hinder their ability to understand the diseases at a fundamental level to the lack of movement disorder specialists in Nigeria.[7] Integration of basic science and clinical information into a cohesive whole may restore the confidence of medical students and residents to appreciate movement disorder lectures. On the other hand, if these topics are taught in a vacuum, the medical students frequently are unable to reason through clinical problems, and this can lead to anxiety, dislike, and eventual apathy. [5, 8] In the ever-evolving landscape of medical education, the acquisition of knowledge and the mastery of clinical skills, particularly in the realm of movement disorders, are crucial for the holistic development of medical practitioners.

The aim of this study to determine the knowledge level and learning challenges students encounter while taking movement disorder lectures in a Nigerian private university.

Methodology

This was a descriptive facility based cross-sectional study, conducted among medical student at the Madonna University, River state Nigeria. Established in 2001, this institution is one of the oldest private universities in the country established in the year 2001. Both preclinical and clinical students are resident in the Elele Campus where College of medicine is located. Clinical students are normally meant to train for three years, but because of program accreditation challenges, they stay longer in the training than students from most other public institutions. The institution has a full-time general neurologist and two other adjunct general neurologists that come from nearby states.

Self-administered structured questionnaires, constructed by the researcher after reviewing literature on the topic, were given to the students to complete. The questionnaires had three major domains, in addition to the section on the sociodemographic profile. The first part of the questionnaire investigated the student's knowledge about movement disorders, the second part assessed the common movement disorders known to the students and the third part enquired about students' challenges with learning movement disorders topics during lectures.

Informed consent was obtained prior to commencement of the study and in keeping with the ethical considerations of the institution. Collected data were anonymized to ensure data protection and confidentiality.

Data analysis was done using SPSS-23 (Statistical Package for Social Sciences version 23). Categorical variables were presented as frequencies and percentages where continuous variables were represented as mean (±standard deviation). Student T-test was used to test the differences between means whereas Pearson Chi square was used to test association between categorical variables. P value less than 0.05 was considered significant.

Results

A total of seventy-nine (79) students were surveyed, the mean age of study population ± SD = 27.41±2.78years.

The difference in the mean age of males and females in the survey was statistically significant (28.21±3.33 versus 26.80±2.10; t=2.286; P< 0.025). The male to female ratio was 0.76 with 66 (83.5%) of study participants single, 12 (15.2%) married and 1 (1.3%) divorced. A family history of movement disorder was reported in 10 (12. 7%) of participants. The age category of the participants with the highest frequency was between 25-29 (71.4%). Table 1 summarized the sociodemographic characteristics of the study participants.

Table 1

Socio-demographic characteristics of respondents

Variables	Frequency	Percentage (%)
Age category		
20 – 24 years	7	8.9
25 – 29 years	58	73.4
30 – 34 years	11	13.9
25 – 39 years	3	3.8
Gender		
Male	34	43.0
Female	45	57.0
Religion		
Christianity	72	91.1
Islam	7	8.9

Marital status		
Single	66	83.5
Married	12	15.2
Separated/Divorced	1	1.3
Family history of movement disorders		
Yes	10	12.7%
No	69	87.3%

Knowledge of movement disorder

The commonest movement disorder recognizable to the students was parkinsonism (99%), followed by chorea (88.5%) as shown in Figure 1. Essential tremor was the least type of movement disorder to the students (58.2%). Gender difference in the knowledge of movement disorders was also observed in the knowledge of ballism, with more males (61.8%) knowing about ballism compared to the female students (48.9%). For parkinsonism, both genders (males and females) had almost equal knowledge of parkinsonism (91.2% versus 91.1%).

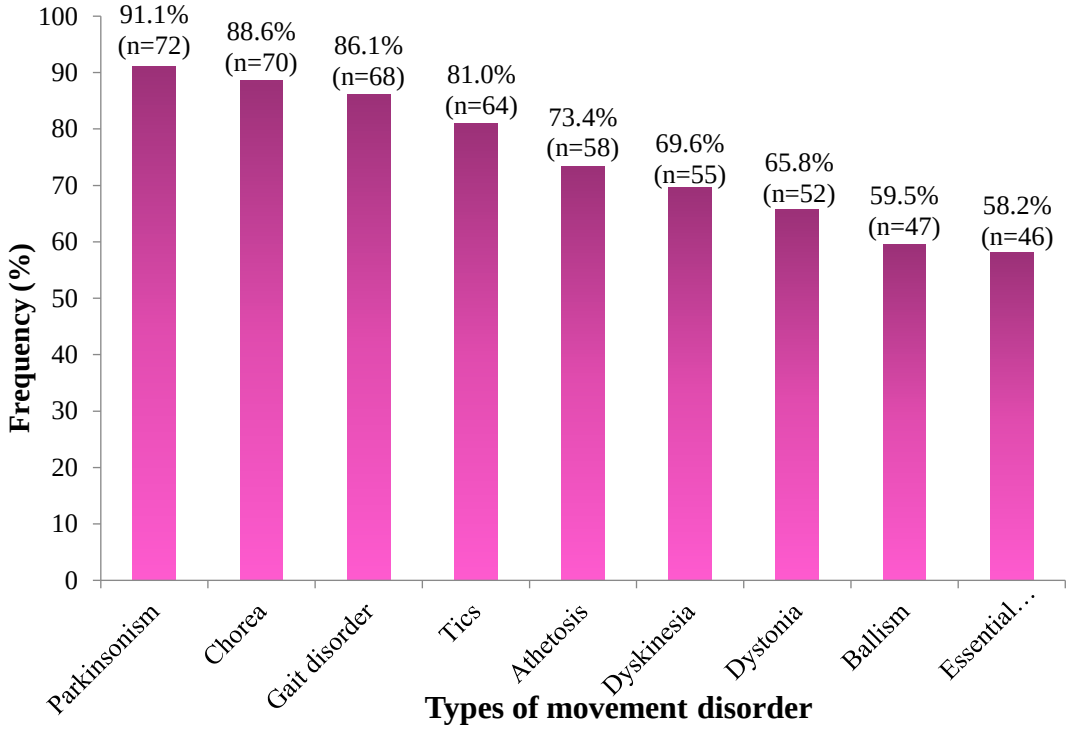

Figure 1. Types of movement disorder recognized by respondents.

Medical educational experience on learning movement disorders topics

In terms of educational experience on movement disorders, only 30.4% of the students had clerked movement disorders cases despite most of them (96.2%) having received lectures on movement disorders. Only 63.3% of the participants admitted to participating in the bedside teaching and physical examination of movement disorder cases as shown in Table 2 below.

Table 2
Medical educational experience on movement disorder among respondents

Variables	Frequency	Percentage (%)
Clerked patient with movement disorder		
Yes	24	30.4
No	55	69.6
Any lectures on movement disorder		
Yes	76	96.2
No	3	3.8
Have you ever had a bedside teaching on physical examination of patients with movement disorder		
Yes	50	63.3
No	29	36.7

Challenges with learning movement disorders by the students

More than half of the students (43/97, (54.4%)) admitted to having challenges with learning movement disorder lectures as illustrated in Figure 2. Most of these challenges bothered on the inability to link lectures to clinical exposure due to paucity of patient (27/79, (34.4%)), lack of teaching aids (23/79, (29.1%)) and facilities to evaluate movement disorder patients (18/79, (22.8%)). Other reasons cited were that lectures were thought to be boring (5/79(6.3%)) and short in duration (2/79, (2.5%)). See Figure 3 below for more details.

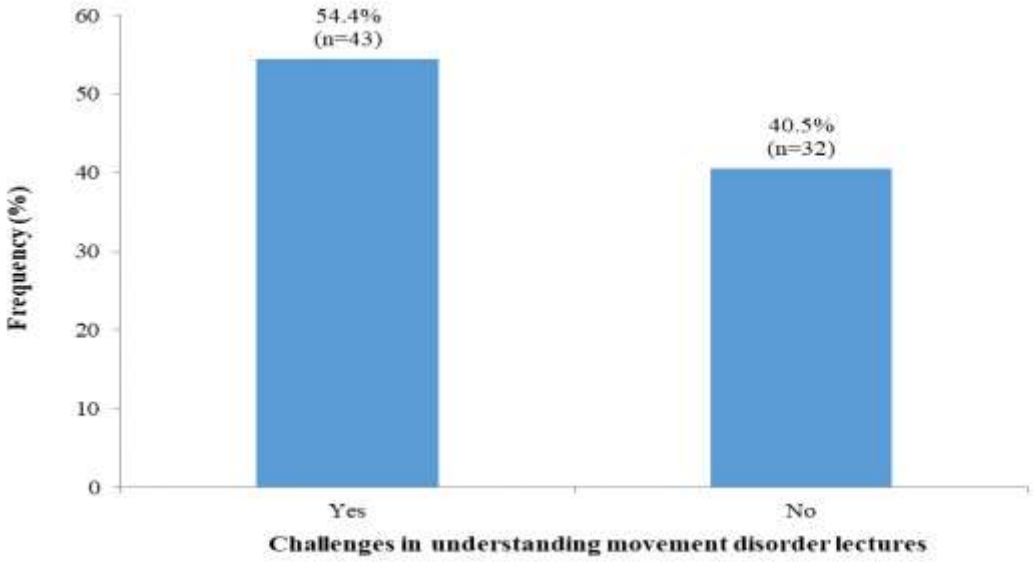

Figure 2 Distribution of respondents regarding challenges understanding movement disorder.

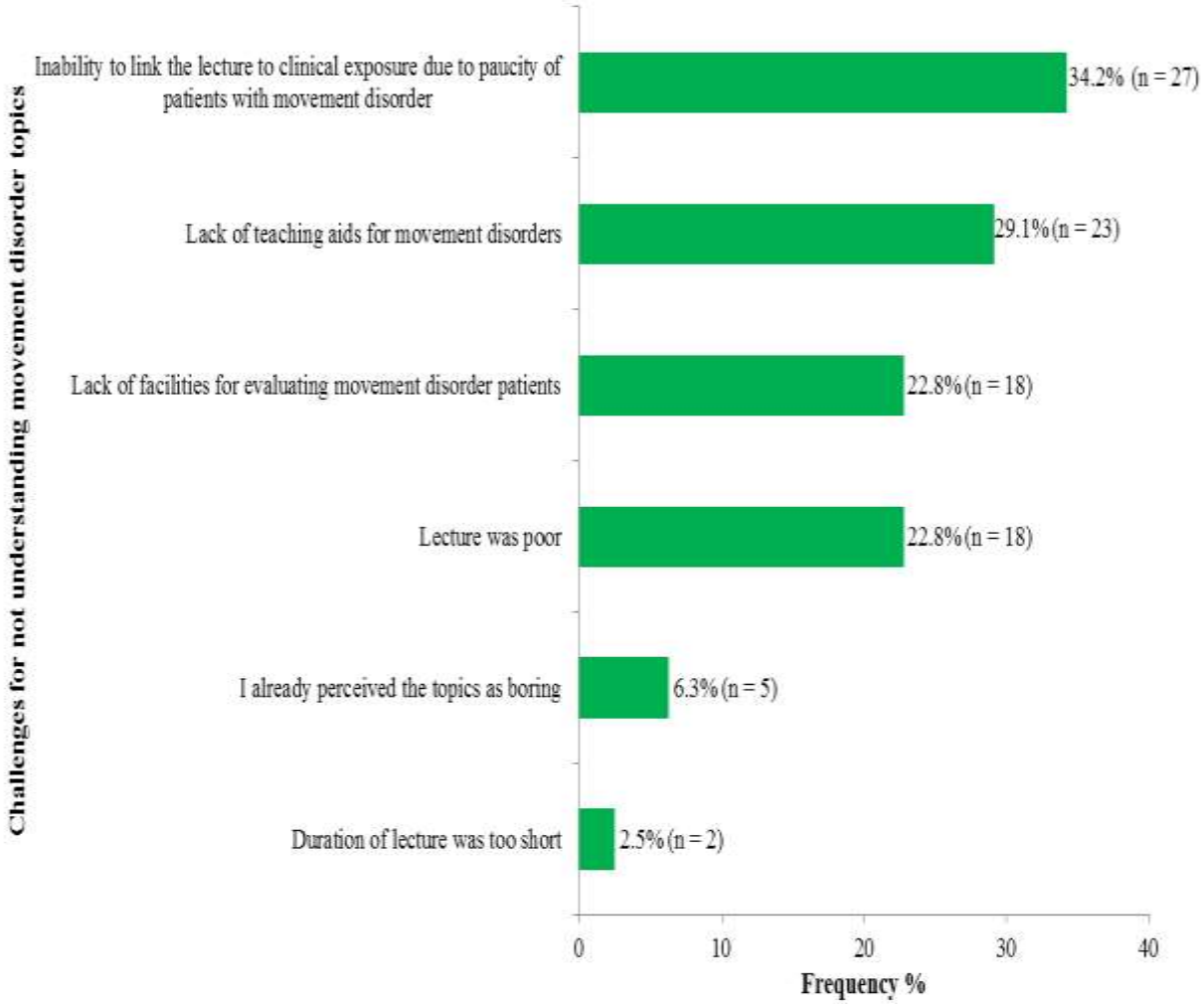

Figure 3 Reasons for poor understanding of lectures on movement disorder.

Discussion

This study represents an investigation of knowledge level and challenges in understanding movement disorder lectures among final year medical students in private university in southern Nigeria. We found that parkinsonism remained the most common type of movement disorder known to the students, and this was followed by chorea, while essential tremor was the least recognized. More than half of the students admitted to having challenges appreciating movement disorder lectures, and one of the major reasons revealed was the inability of the students to link lectures to clinical experience due to paucity of patients with movement disorders during their clinical rotation.

Parkinsonism is characterized by rest tremors, rigidity, and bradykinesia, and appears to be most common type of movement disorders in Nigeria.[4,7,] and this may have influenced the response pattern of most of the study participants. However, from literature, essential tremor is generally known to be the most common, followed by parkinsonism/ Parkinson disease.[9] Although many of other movement disorders are often mentioned to students during lectures, real-life experience involving patients having these conditions during clinical rotation may not be obtainable due to their rare nature. And this might have as well largely shaped participants' opinions regarding the challenges with understanding movement disorders.

Neurology as a specialty is thought to be difficult, [10, 11] so is the subspecialty of movement disorders. This general perception by students adversely affects learning of neurosciences.

Few participants (12.7%) reported having family members suffering from movement disorders. This also lends credence to the relative rare nature of movement disorders compared to cardiovascular disorders. More information usually tends to be available on disorders that are prevalent in the society, and for such conditions, members of the society, including medical students are expected to have some basic facts about them.

Participants' expression of lack of confidence in learning movement disorder topics may reflect the general concept of "neurophobia" towards neuroscience-based programs by students. "Neurophobia" may not be unique to our participants alone, but also applies to various other learning environments across Europe, Asia, and Australia. [12, 13]

These findings are important because of their potential to cause fear and lack of confidence which may later be carried into clinical practice after graduation. Although there is paucity of data on the challenges of movement disorders learning experience among students, data suggesting that patients with other common neurological illnesses, such as seizures, may be subject to suboptimal management by clinicians are available, which may still not be unconnected with apathy expressed by students towards neurosciences while in medical schools.[13]

As demonstrated in various studies, [14,15] we found that inability to link lectures to clinical exposure due to paucity of patients with movement disorder was the foremost reason for optimizing learning experience by the participants. The positive impact of clinical exposure to patients with movement disorders ensures heightened degree of knowledge, less difficulty, and more confidence in approaching such cases when they present. Lack of teaching aids and facilities for evaluating movement disorder patients were also cited as factors contributing to the challenges faced by the student in appreciating this subspecialty. Based on our findings, a more clinically oriented approach to movement disorder cases and lectures, provision of teaching aids which may include visual aids and diagnostic facilities would indeed be a positive step towards stimulating neuroscience learning. Furthermore, utilization of e-learning infrastructures in Nigerian educational system is important as it highlights the relevance of deployment of technology in the implementation of various educational programs, which could also impact the mode of teaching and learning movement disorders.[16]

The other reasons cited by the participants for not optimizing learning of movement disorder topics were that the lecturers were boring and of short duration. The imperatives of paradigm shift in pedagogical strategies in Nigerian universities, could offer insights into enhancing the teaching methods for movement disorders education. [17]

This study also showed that, apart from the lack of exposure to movement disorder cases and challenges with lecture delivery, the absence of teaching aids to enhance learning experience posed an obstacle to the participants as well. Several teaching methods have been suggested to improve competency in neurology.[18,19] Reports on case-based teaching and caring for a "virtual neurological patient" showed that integration of clinical neurology and the neuroscience during the first two years of undergraduate medical education and early on in clerkship years can improve teaching and reduce fear of neurosciences.[20] And this can be extrapolated to tackling the challenges of understanding movement disorder lectures by the trainees.

Employing active learning strategies have been suggested to address apathy to learning neuroscience among students. [21,22]

To tackle these obstacles, medical education must adopt a thorough and effective strategy that includes clinical experience, interdisciplinary teamwork, and ongoing curriculum changes that consider the most recent developments in the field of movement disorders.

Conclusion

The relevance of this study consists in its ability to unravel the learning experience of the participants regarding movement disorder lectures. While the overall knowledge of students of the topics was reasonable, they still admitted to experiencing challenges with optimizing learning of the topics. Some of the highlighted challenges could be addressed through well -coordinated relevant educational interventions. While this approach may improve learning experience among the participants, the effectiveness of each intervention still needs to be studied in future research.

Limitation

This study participants were drawn from a single institution, so our findings would not be generalizable. To increase the external validity of the research findings, study participants should have been drawn from multiple medical colleges, both private and public, to ensure diversity of opinions.

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