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Original Research Article

Primary care physicians' knowledge and approach to pediatric epilepsy care in Nnamdi Azikiwe University Teaching Hospital, Nnewi

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Abstract

Background: Epilepsy is the commonest neurologic disease associated with several misconceptions. Gaps in knowledge exists among healthcare professionals, this consequently leads to poor quality of care in children with epilepsy.
Aims and Objectives: This study assessed the level of knowledge and approach to paediatric epilepsy care.
Methodology: This was a cross-sectional descriptive study among 149 primary care physicians from various specialties recruited by purposive sampling.
Results: Of the 149 participants, 108(72.5%) and 41(27.5%) have been practicing for less than10yrs and more than 10years respectively. For respondent less than 10 yrs, 46.3% has had a lectures/training on epilepsy while 51.2% of those in practice for more than 10years had lecture/training on epilepsy. Recurrent unprovoked seizure was the definition adopted by 129(87.2%) of the participants. Knowledge about epilepsy was higher amongst physicians and medical officers than the surgeons. Paediatricians and medical officers were more comfortable with evaluation and treatment of epilepsy. Association between specialty and comfort with evaluation and treatment of children with epilepsy (p=0.018) was significant. Majority of these primary care providers preferred initiating therapy before referring patients to the neurologists. Paediatricians 37(92.5%), Family physicians 22(75.9%) and Medical officers 33(76.7%) were more familiar with dose and side effects of commonly prescribed anti-epileptic drugs. About 73.2% of paediatrician, Family Physicians (69.0%) and Medical officers (81.4%) sought for information on new guidelines about epilepsy. All the specialties had strong willingness to participate in epilepsy workshop. (P=0.001)
Conclusion: There are gaps in the knowledge and management of epilepsy. Periodic training of healthcare professional will make a world of difference.
Keywords: Primary care physicians, knowledge, Paediatric epilepsy care, Approach, Training.

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1. Introduction

Epilepsy is one of the commonest and most serious neurological conditions affecting people of all ages; race and social class. [1] Approximately fifty million people are affected globally. [2] Paediatric epilepsy accounts for about 10. 5 million cases globally. [2] It has been shown that about 80% of persons with epilepsy live in the developing countries. [2] Annual incidence per year is about 20-70 cases per 100,000. [3] In developing countries, the prevalence of epilepsy is between 5-10% per 100 persons. [4] Variations exist in the general population, with the paediatric population being the highest, plateaus between

the ages of 15-65 years and rises again in the elderly. [4,5] it is a disorder of the brain characterized by unprovoked seizures resulting from abnormal, excessive neuronal discharges in the brain.[6] There is usually an imbalance between excitatory and inhibitory neurotransmitters in favor of the former. [6] The most common risk factors for epilepsy are cerebrovascular disease, brain tumors, alcohol, traumatic head injuries, malformations of cortical development, genetic inheritance and infections of the central nervous system.[4,6,7] In Africa and some parts of the world, epilepsy is perceived by many as a sacred, contagious and shameful diseases inflicted by the gods.[8-11] This limits the search for appropriate care and contributes to a greater treatment gap as patients are often hidden and stigmatized.[8,9,12,13] Consequently, these patients feel rejected, depressed and have low self-esteem. These contribute to an increase in direct economic costs, such as medical expenses for drugs and hospitalizations, and indirect costs, such as the loss of productive capacity, decreased economic production from unemployment or premature death. [14]

The impact of epilepsy in both the individual and the society is of importance to public health. [15] Sometimes the stigmatization may be more devastating than the epilepsy itself. [16] Misconceptions arise due to poor knowledge of epilepsy which are prevalent among the general populace. These misconceptions also exist among some healthcare professionals resulting to huge treatment gap for people living with epilepsy. Higher levels of knowledge about epilepsy correlates positively with early presentation, awareness and attitudes towards epilepsy and reduction of treatment gap. [17,18] Demographic and socioeconomic factors affect peoples' attitude and knowledge towards chronic diseases. [19-22] Therefore differences in approach to management of epilepsy may exist among healthcare professionals at different levels, depending on knowledge, attitudes and culture. In seeking treatment for epilepsy and its co-morbidities, patients and families interact with a range of healthcare professionals who are the major stakeholders in the management of epilepsy.[23,24] Healthcare for these patients requires professionals who are willing and able to co-manage patients across specialties and prepared to meet the diverse needs of individual patients. This present study was designed to assess the level of knowledge, evaluation and management of paediatric epilepsy among primary care providers and to assess the relationship between the knowledge and approach to care based on years of practice and training received in epilepsy after medical school. This will add to the already existing knowledge.

2. Methodology

This was a cross-sectional descriptive study conducted in Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, Anambra State, Nigeria.

One hundred and forty-nine primary care physicians drawn from different specialties in the hospital who gave consent were recruited by purposive sampling method. The participants were distributed according to years of practice (<10years and >10years).

2.1 Ethical approval and consent

Ethical approval for the study was obtained from the Ethics Committee of NAUTH. Informed written consent was obtained from participants before they were enrolled into the study. The participants were educated on the intent and purpose of the study and the role the result of the study might play in improving their skills in the management of the patients with epilepsy. Participation was voluntary and no penalty was borne by those who declined inclusion. The subjects who met the inclusion criteria were recruited.

2.2 Data collection

Data were collected on years of practice as health workers, training on epilepsy, comfort with evaluation and treatment of epilepsy, preferred approach to pediatric epilepsy care, knowledge of the dose and side effects of antiepileptic medications, knowledge on guidelines and willingness to participate in epilepsy workshop using a pretested self-designed questionnaire.

2.3 Data analysis

Data were analyzed using SPSS (Statistical Package for Social Science) version 21 (Chicago Illinois). Categorical data were presented as frequencies and percentages and chi-squared tests (χ^2) were used to compare proportions for the two groups of participants (healthcare professional < 10years and those>10years). A p-value of less than 0.05 was considered to be statistically significant.

3. Results

One hundred and forty-nine health professionals participated in the study. Out of the 149 primary care physicians, 108 (72.5%) have been in practice for less than 10 years while 41(27.5%) have been in practice for more than 10 years. Among those less than 10 years in practice, 46.3% have had training on epilepsy while 51.2% of those greater than10yrs have had training on epilepsy. There was no significant difference between the number of health care professionals who were trained and those who were not. (p=0.714) Table 1

Table I: years of practice of the healthcare professionals

		Years of practice		Total N (%)	Chi-square	p-value
		<10 years	>10 years			
Any training on epilepsy since after medical school	Yes	50(46.3)	21(51.2)	71(47.7)	0.289	0.714
	No	58(53.7)	20(48.8)	78(52.3)		
Total		108(100.0)	41(100.0)	149(100.0)		

For the Medical Specialty, those less than 10years were higher amongst the Medical Officers 42(97.7%) and Family Physicians 24(82.8%) while those greater than 10years were highest amongst the Surgeon as in Table II.

Table II: distribution of the participants according to specialties and years of practice.

		Year of practice		Total N (%)	Chi-square	p-value
		<10 years	>10 years			
Medical Specialty	Paediatrician	24(60.0)	16(40.0)	40(100.0)	38.774	0.000
	Gynaecologist	2(28.6)	5(71.4)	7(100.0)		
	Surgeon	6(50.0)	6(50.0)	12(100.0)		
	Family physician	24(82.8)	5(17.2)	29(100.0)		
	Internist/physician	6(60.0)	4(40.0)	10(100.0)		
	Medical officer	42(97.7)	1(2.3)	43(100.0)		
	Histopathology	0(0.0)	3(100.0)	3(100.0)		
	Nursing	0(0.0)	1(100.0)	1(100.0)		
Total		104(71.7)	41(29.3)	145(100.0)		

Recurrent unprovoked seizures were the dominant definition of epilepsy adopted by the specialties 129 (87.2%). However, there was no association between definition of epilepsy and specialty's pattern of recognition of epilepsy p=0.375 (Table III).

Table III: Knowledge of definition of epilepsy

		Definition of epilepsy			Total N (%)	Chi-square	p-value
		Single seizure	Multiple provoked seizures	Recurrent unprovoked seizures			
Medical Specialty	Paediatrician	0(0.0)	2(4.9)	39(95.1)	41(100.0)	15.040	0.375
	Gynaecologist	0(0.0)	0(0.0)	7(100.0)	7(100.0)		
	Surgeon	0(0.0)	1(8.3)	11(91.7)	12(100.0)		
	Family physician	2(6.9)	2(6.9)	25(86.2)	29(100.0)		
	Internist/physician	0(0.0)	1(9.1)	10(90.9)	11(100.0)		
	Medical officer	1(2.3)	10(22.7)	33(75.0)	44(100.0)		
	Histopathology	0(0.0)	0(0.0)	3(100.0)	3(100.0)		
	Nursing	0(0.0)	0(0.0)	1(100.0)	1(100.0)		
Total		3(2.0)	16(10.8)	129(87.2)	148(100.0)		

On the average, a total of 129 children are seen per annum by the various specialties. Most of these patients are seen by the Medical Officers, Family Physicians and Paediatricians. For medical professional greater than 10years, only the Paediatricians see reasonably high number of children with epilepsy (Table IV).

Table IV: Average number of paediatric epilepsy cases seen per year by each specialty

		Average no of paediatric patients with epilepsy seen per year		Total N (%)	Chi-square	p-value
		<10	>10			
Medical Specialty	Paediatrician	15(48.4)	16(51.6)	31(100.0)	44.141	0.000
	Gynaecologist	5(100)	0(0.0)	5(100.0)		
	Surgeon	11(100.0)	0(0.0)	11(100.0)		
	Family physician	27(96.4)	1(3.6)	28(100.0)		
	Internist/physician	4(80.0)	1(20.0)	5(100.0)		
	Medical officer	41(97.6)	1(2.4)	42(100.0)		
	Histopathology	3(100.0)	0(0.0)	3(100.0)		
	Nursing	1(100.0)	0(0.0)	1(100.0)		
Total		107(84.9)	19(15.1)	126(100.0)		

Training on epilepsy was higher amongst physicians and medical officers than the surgeons. The only participant from nursing had training on epilepsy. However, the association between specialty and post-graduation training on epilepsy was not significant (p=0.458) as shown in table V.

Table V: training on epilepsy since after medical school

		Any training on epilepsy since after medical school		Total	Chi-square	p-value
		Yes	No			
Medical Specialty	Paediatrician	22(55.0)	18(45.0)	40(100.0)	6.726	0.458
	Gynaecologist	2(28.6)	5(71.4)	7(100.0)		
	Surgeon	3(25.0)	9(75.0)	12(100.0)		
	Family physician	16(55.2)	13(44.8)	29(100.0)		
	Internist/physician	6(54.5)	5(45.5)	11(100.0)		
	Medical officer	20(45.5)	24(54.5)	44(100.0)		
	Histopathology	2(66.7)	1(33.3)	3(100.0)		
	Nursing	1(100.0)	0(0.0)	1(100.0)		
Total		72 (49.0)	75(51.0)	147(100.0)		

Paediatricians and Medical officers were predominantly more comfortable with evaluation and treatment of epilepsy (65.0% and 47.6% respectively). The association between specialty and being comfortable with evaluation and treatment of children with epilepsy was statistically significant (p=0.018) Table VI.

Table VI: comfort with evaluation and treatment of children with epilepsy by the medical specialty.

		Being comfortable with evaluation and treatment of children with epilepsy			Total N (%)	Chi-square	p-value
		Yes	No	Neutral			
Medical Specialty	Paediatrician	26(65.0)	4(10.00)	10(25.0)	40(100.0)	27.303	0.018
	Gynaecologist	1(14.3)	2(28.6)	4(57.1)	7(100.0)		
	Surgeon	3(25.0)	5(41.7)	4(33.3)	12(100.0)		
	Family physician	12(42.9)	4(14.3)	12(42.9)	28(100.0)		
	Internist/physician	2(18.2)	3(27.30	6(54.5)	11(100.0)		

Majority of the Pediatricians 32(78.0%) initiated therapy and then referred to a specialist. Other specialties followed the same pattern. Almost all the specialties did not commence treatment after evaluation of epilepsy. Very few people referred epilepsy cases to pediatric neurologist immediately. The difference in approach to pediatric epilepsy care among the respondents was statistically significant (p=0.003). Table VII

Table VII: preferred approach to paediatric epilepsy care by specialty

		Preferred approach to paediatric epilepsy care			Total N (%)	Chi-square	p-value
		Refer to paediatric neurologist immediately	Commence treatment after evaluation	Initiate therapy and then refer to a specialist			
Medical Specialty	Paediatrician	4(9.8)	5(12.2)	32(78.0)	41(100.0)	33.221	0.003
	Gynaecologist	3(42.9)	0(0.0)	4(57.1))	7(100.0)		
	Surgeon	2(18.2)	0(0.0)	9(81.8)	11(100.0)		
	Family physician	4(13.8)	1(3.4)	24(82.8)	29(100.0)		
	Internist/physician	8(72.7)	0(0.0)	3(27.3)	11(100.0)		
	Medical officer	12 (27.3)	0(0.0)	32(72.7)	44(100.0)		
	Histopathology	0(0.0)	0(0.0)	3(100.0)	3(100.0)		
	Nursing	0(0.0)	0(0.0)	1(100.0)	1(100.0)		
Total							

Pediatricians 37(92.5%), family physicians 22(75.9%) and Medical officers 33(76.7%) were more familiar with dose and side effects of antiepileptic drugs often prescribed. There was an association between specialty and familiarity with dose and side effects of antiepileptic drugs (AEDS) often prescribed (p=0.031) Table VIII.

Table VIII: familiarity with dosages and side effects of commonly prescribed antiepileptic drugs

		Familiar with dose and side effects of AEDs often prescribed		Total N (%)	Chi-square	p-value
		Yes	No			
Medical Specialty	Paediatrician	37(92.5)	3(7.5)	40(100.0)	15.441	0.031
	Gynaecologist	4(57.1)	3(42.9)	7(100.0)		
	Surgeon	5(45.5)	6(54.5)	11(100.0)		
	Family physician	22(75.9)	7(24.1)	29(100.0)		
	Internist/physician	10(90.9)	1(9.1)	11(100.0)		
	Medical officer	33(76.7)	10(23.3)	43(100.0)		
	Histopathology	2(66.7)	1(33.3)	3(100.0)		
	Nursing	1(100.0)	0(0.0)	1(100.0)		
Total		114(78.6)	31(21.4)	145(100.0)		

Majority of the Pediatricians 73.2%, Family Physicians 69.0% and Medical officers 81.4% usually sought information on new guidelines about epilepsy. Only 14% of the Gynaecologists sought information on new guidelines for management of epilepsy. The association between the specialties and seeking of information on new guidelines about epilepsy was significant (p=0.011) Table IX.

Table IX: Willingness to seek information on new guidelines on epilepsy

		Usually seek information on new guidelines about epilepsy		Total N (%)	Chi-square	p-value
		Yes	No			
Medical Specialty	Paediatrician	30(73.2)	11(26.8)	41(100.0)	18.299	0.011
	Gynaecologist	1(14.3)	6(85.7)	7(100.0)		
	Surgeon	5(45.5)	6(54.5)	11(100.0)		
	Family physician	20(69.0)	9(31.0)	29(100.0)		
	Internist/physician	8(72.70	3(27.3)	11(100.0)		
	Medical officer	35(81.4)	8(18.6)	43(100.0)		
	Histopathology	3(100.0)	0(0.0)	3(100.0)		
	Nursing	1(100.0)	0(0.0)	1(100.0)		
Total		103(70.5)	43(29.5)	146(100.0)		

There was a strong association between the Medical specialties and Willingness to participate in workshops on epilepsy (p=0.001) Table. All the Medical specialties had strong willingness to participate in workshops on epilepsy (Table X).

Table X: willingness to participate in workshops on epilepsy

		Willingness to participate in workshops on epilepsy		Total N (%)	Chi-square	p-value
		Yes	No			
Medical Specialty	Paediatrician	37(90.2)	4(9.8)	41(100.0)	24.726	0.001
	Gynaecologist	6(85.7)	1(14.3)	7(100.0)		
	Surgeon	7(58.3)	5(41.7)	12(100.0)		
	Family physician	29(100.0)	0(0.0)	29(100.0)		
	Internist/physician	7(63.6)	4(36.4)	11(100.0)		
	Medical officer	40(95.2)	2(4.8)	42(100.0)		
	Histopathology	3(100.0)	0(0.0)	3(100.0)		
	Nursing	1(100.0)	0(0.0)	1(100.0)		
Total		130(89.0)	16(11.0)	146(100.0)		

4. Discussion

Epilepsy is a very unique medical condition when compared to other chronic illnesses due to erroneous beliefs surrounding it. There are evidences that increasing the knowledge and changing the attitudes of healthcare professionals concerning epilepsy will improve the health and quality of life of these patients. [23,25] The healthcare professionals will then step down their knowledge to the general public who often times relinquish the autonomy of care to their healthcare professionals.

The percentage of healthcare professionals who had undergone trainings for epilepsy was 50% and 51.2% for those <10years and >10years in practice, respectively. About half of the participants did not receive training after medical school. This is relatively low and unacceptable. Consequently, this situation would jeopardize the

management of children with epilepsy. Reasons for this low level of training among healthcare professionals are not far-fetched and probably because of the unwillingness of these healthcare practitioners especially those on the field outside epilepsy to be part of these training programs and also the non-availability of such programs. This finding is supported by reports from previous studies. [16,24,25-28] In addition, lack of emphasis on epilepsy in medical school, long years after leaving school and lack of interest may also contribute to poor knowledge of epilepsy among healthcare professionals.

Among the medical specialties, the physicians had more post medical school training than the surgeons. This probably may be due to the inherent characteristics of their professional activities as physicians and nurses are more likely to have contact with children with epilepsy than the surgeons. This is supported by the work done by Vancini *et al*. [28]

Paediatricians (65%) and medical officers (47.6%) were more comfortable with evaluation of children with epilepsy. This is because they have more contacts with these patients and it makes them more knowledgeable about the disease, more familiar with the newer drugs and their side effects, and they are more likely going to avail themselves of any available training.

Most of the participants in their specialties prefer initiating therapy, then referring to the neurologists for further evaluation and management. This may be due to insufficient knowledge about management of epilepsy as has been by reported also by other studies.[24,26] Most of the patients in the rural settings have no access to the specialist care and thus end up in the hands of primary care physicians who have poor knowledge of management of paediatric epilepsy. However, our study showed that the Paediatrician, internist/physician, medical officers and family physicians had better knowledge of the dose and side effects of antiepileptic drugs than the Surgeons and Gynaecologists. This may be explained by their more frequent contact with these patient and use of these medications. This is further buttressed by the findings in this present study that the average number of children with epilepsy seen per year was highest amongst medical officers, Paediatricians and family physicians. And this was also shown in their willingness to seek newer guidelines in the management of epilepsy. Nevertheless, there was increased willingness across the different specialties to be part of training on paediatric epilepsy.

Overall, gaps exist in the knowledge about epilepsy and its management. Therefore, all doctors, particularly those working as emergency healthcare professionals, paediatricians, general practitioners, and other healthcare professionals require good knowledge of epilepsy and a working knowledge of AEDs. Identifying side effects and drug interactions is of major importance. The introduction of AEDs, as well as dosage alterations should always be made or supervised by a clinician trained in the management of epilepsy. Therefore, continuous medical education and training on epilepsy, AEDS, drugs side effects, drug-drug interactions should be emphasized. Newer guidelines should be made available and easily accessible to all healthcare professionals and finally training programmes designed and done periodically to improve the knowledge of these healthcare professionals.

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Authors' contribution

Dr. Igwe WC: Conceptual design and implementation of the project, writing, proofreading and overall revision of the manuscript.

Dr. Umeadi EN and Odita AO: Data collection and proofreading.

Dr. Echendu ST: Manuscript writing and proofreading.

Dr. Onah Christian: Data analysis

Dr. Anyabolu E: Data analysis and overall revision of the statistics in the manuscript.

All the authors read and approved the final manuscript.

Competing interests

The authors declare no competing interests.

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