

## Knowledge about Epilepsy and Attitudes Toward Pupils with Epilepsy among Primary School Teachers in a Rural Community in South-East Nigeria

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### Abstract

**Background:** Epilepsy is the most common neurological problem of childhood, occurring mainly in the first decade of life - a period during which children begin and complete a critical part of their social and educational development. Epilepsy has been found to negatively affect children's school attendance and academic performance. Hence, children with seizure disorder need to be identified early enough and treated. Though teacher knowledge and attitude regarding childhood epilepsy may likely influence the educational performance of children with the disease, studies on knowledge about epilepsy among primary school teachers in developing countries are very limited. These days that children stay longer with their teachers than with any other group of persons, it is important that teachers have adequate knowledge of epilepsy to enable them identify children with epilepsy and take appropriate steps early enough because success in school is important to success in adult life and school experiences are a key factor to a child's current and future quality of life.

**Objectives:** To determine the general knowledge of epilepsy by teachers and the attitude of the teachers towards children with epilepsy.

**Methods:** Eligible and consenting teachers were randomly selected from primary schools within the area. Data were collected using a sociodemographic questionnaire plus items of the scale for Attitude Towards People with Epilepsy (ATPE). Analysis was done using the Statistical Package for Social Sciences.

**Results:** 210 teachers (42.4% males, 57.6% females) participated. Their mean age was  $34.4 \pm 6.11$  years. 50.5% had received some form of health education on epilepsy and 17.6% had taught children suffering from epilepsy.

The teachers had fairly good knowledge of the causes of epilepsy and also positive attitude towards persons with epilepsy though only 9.0% admitted being prepared to handle seizure if any of the school children were to convulse in the school.

**Conclusion:** Information about epilepsy should be included in the curriculum for future teachers and periodic workshops organized for teachers to increase their level of knowledge of epilepsy and preparedness to give first aid treatment to a child that develops an epileptic attack in the school.

**Keywords:** Epilepsy; Teachers; Knowledge; Attitude; School Children

## **Abbreviations**

ATPE: Attitude Towards People with Epilepsy; ILAE: International League Against Epilepsy; Med: Master of Education; NCE: Nigeria Certificate in Education; PGD: Postgraduate Diploma; PhD: Philosophiae Doctor (Doctor of Philosophy); SPSS: Statistical Package for Social Sciences; TC II: Teachers' Grade II Certificate; UBEB: Universal Basic Education Board

## **Introduction**

The International League Against Epilepsy (ILAE) in her 2014 revised definition of epilepsy considered it as a disease of the brain, no longer a disorder [1]. Epilepsy is the most common chronic neurological disease seen in Paediatric Neurology Units in developing countries [2,3]; known to affect about 60 million people worldwide [4,5] of which 80% belong to the developing world [6]; and has a prevalence of 5 - 10/1000 in developing countries [7]. Children with epilepsy have been reported to have low academic performance compared to children without epilepsy [8].

An earlier study in another rural community in the same state where the present study was carried out reported a higher prevalence of epilepsy, as high as 20.8/1000 persons [9]. The same study reported that most people with epilepsy were in the age range of 7 to 24 years (an age range where most primary school children in the locality fall into), and that most people with epilepsy were being stigmatized against.

In a more recent study in the same region, aimed at finding the determinants of noncompliance to clinic appointment and medication among children with epilepsy, the researchers reported that missed clinic appointment and medication noncompliance were common in the studied group with clinic period clashing with school time as one of the major reasons for the poor compliance [10].

Being labeled with epilepsy has been reported to affect school children, both academically and psychosocially [11], worsened by the stigma commonly leveled against children with epilepsy [12]. Moreover, children with epilepsy are at an increased risk for a number of education-related problems such as educational underachievement, learning disabilities, mental health problems, as well as social isolation. Sometimes, social attitude and discrimination against children with epilepsy are more devastating and harmful than the disease itself [13].

Since seizure is common among school children it deserves to be detected early enough and treated to avoid its negative impact on the child. Children these days stay longer with their teachers than with any other group of persons. It is important that the teachers have adequate knowledge of epilepsy to be able to identify children with epilepsy and take appropriate steps early enough.

The attitudes towards people with epilepsy are influenced by the degree of the knowledge of the condition [14]. In general teachers do not receive any formal education on epilepsy during their training despite that 40% (or more) of children's developing time is spent at school [15] especially these days that most parents, in pursuit of economic welfare, do not stay at home and virtually every school in southeast Nigeria currently engages children in a 'routine lesson' after the usual class-work period, increasing the time spent in school by the children far higher than what it was in the past. During this time, teachers could play significant roles in the management and surveillance of epilepsy in children [16].

Teacher attitude and knowledge regarding childhood epilepsy is likely to influence the educational performance of children with the disease [17]. Most of the Nigerian studies have shown that majority of the teachers exhibited poor knowledge about epilepsy and negative (or just fair) attitudes towards children with seizure disorder [17-19]. Again, most of the researches in Nigeria in this field were carried out in urban or semi-urban areas and none of these studies was carried out in any part of Ebonyi state.

## **Objectives**

This study was to examine the knowledge, attitudes, and perceptions of epilepsy by teachers in the rural communities of Ezza South Local Government Area of Ebonyi State. Specifically, we aimed at:

1. Determining the teachers' general knowledge of epilepsy; and
2. Determining the attitudes of the teachers towards children with epilepsy.

## **Materials and Methods**

### **Study setting**

This study was conducted from February to April, 2017 in Ezza South Local Government Area of Ebonyi state. Ezza South is one of the 13 local government areas of Ebonyi state with an area of 324 km<sup>2</sup> and a population of 133,625 as at the 2006 census [20]. It is largely of rural communities.

A comprehensive list of public and private primary schools in the local government was obtained from the state Universal Basic Education Board (UBEB). Teachers were randomly selected from 50 of the 62 public and 2 of the 5 eligible primary schools within the area. All eligible, consented, and selected teachers available in selected schools during the data collection period were included in the study. Two hundred and fifty (250) teachers were approached out of which 230 accepted to participate. Hence, the participation acceptance rate was 92.0%.

### **Study design**

The study was cross-sectional.

### **Ethical considerations**

Consent for the study was obtained from the administrators of the selected schools and the respondents before the questionnaires were administered. It was clearly stated that participation in this study was optional and that there was no risk as a result of participation in the study. In order to ensure confidentiality, names of participants or other identifying information were not obtained from the teachers.

### **Data collection instrument**

This comprised a sociodemographic questionnaire that elicited items like the participant's age, gender, marital status, and highest level of education; the scale for Attitude Towards People with Epilepsy (ATPE); and additional questions that elicited teaching experience and experience with epilepsy.

The ATPE [14] is a summated rating scale developed to be a contemporary brief, easily administered, secured, and psychometrically sound instrument for measurement of both attitudes toward persons with epilepsy and knowledge about epilepsy. The item content for this scale was developed through a review of literature including previously published investigations of attitudes toward persons with epilepsy, open-ended interviews with experts in the field of epilepsy, including neurologists, special educators, and rehabilitation counselors. The 28-item scale includes 17 attitude items, 7 knowledge items, and 4 combined knowledge and attitude items. Respondents were asked to rate each statement on a 6-point scale ranging from "I disagree very much" to "I agree very much." Weighted sums of the items responses provide measures of the respondents' knowledge or global attitude "with higher scores representing more enlightened knowledge and a more favourable attitude." In addition, the teachers were asked to report the following:

- (1) Their general knowledge of the possible aetiologies of epilepsy.
- (2) Whether each has ever been a teacher to a pupil with epilepsy.
- (3) Whether they themselves or any member of their families had ever had epilepsy.

**Procedure for data collection**

Participants were asked to complete a self-administered questionnaire. The English version of the questionnaire was translated into Igbo, the predominant vernacular in the area using simple and clear words that would convey the same meaning as the English version. The Igbo version was back-translated into English by an independent bilingual person in order to ensure that the Igbo version provided the same meaning as the English one. A pilot study was conducted to pre-test the instrument among 20 teachers from one of the schools in the area that were not selected for the study in order to emphasize that its items were clear and to estimate the time required to complete the questionnaire, which was found to be approximately 15 minutes. Teachers were given the option to go home with the questionnaires, fill them at home, and return the following day. One teacher was directed by the head of each school to distribute the questionnaires to the teachers and also retrieve them back thereafter.

**Data Analysis**

Data obtained were analyzed using the Statistical Package for Social Sciences (SPSS) version 20. Frequencies were compared using Chi-square test. The P value  $\leq 0.05$  was used as the cut-off level for statistical significance.

**Results**

A total of 210 teachers returned well completed questionnaires out of the 230 questionnaires distributed, giving a response rate of 91.3%.

**Sociodemographic characteristics**

Table 1 presents the sociodemographic characteristics and teaching experience as reported by the respondents. Of the 210 teachers, 89 (42.4%) were males while 121 (57.6%) were females, giving a male to female ratio of 1:1.5.

Characteristic	Number (n)	Percentage (%)
<b>Age range (years)</b>		
< 25	3	1.4
25 - 30	70	33.3
31 - 35	80	38.1
36 - 40	36	17.1
> 40	22	10.5
<b>Gender</b>		
Male	89	42.4
Female	121	57.6
<b>Marital status</b>		
Married	144	68.6
Unmarried	66	31.4
<b>Religion</b>		
Christianity	199	94.8
Islam	2	1.0
Traditional	5	2.4
Others	4	1.9
<b>Education</b>		
TC II	7	3.3
NCE/Diploma	107	51.0
University degree	66	31.4
PGD/MEd/PhD	30	14.3
<b>Has a certificate in Education</b>		
Yes	205	97.6
No	5	2.4
<b>Teaching experience (in years)</b>		
< 5	42	20.0
5 - 10	103	49.0
> 10	65	31.0

*Table 1: Sociodemographic characteristics of participants.*

About two-thirds of the respondents (68.7%) were married while one third (31.3%) were unmarried as at the time of data collection. Almost all the respondents (94.8%) were Christians.

Most participants (96.7%) reported having educational qualifications higher than the Teachers’ Grade II Certificate (TC II). Majority of the respondents (97.6%) reported having received formal training or certificates in education and up to 80.0% had been classroom teachers for at least 5 years.

**Experience of epilepsy**

Table 2 depicts the self-reported experience of teachers with epilepsy. Half of the teachers reported having received some form of health education on epilepsy and over two-thirds (67.2%) admitted to have personally witnessed people with epilepsy convulse. Surprisingly, however, notwithstanding the number admitted to have received health education on epilepsy or witnessed epileptic fits, as well as ever taught children with epilepsy (17.6%), not up to one-tenth admitted being prepared to handle seizure if any of the school children convulses in the school.

<b>Experience</b>	<b>Yes (n/%)</b>	<b>No (n/%)</b>
Personal or family history of epilepsy	18 (8.6)	192 (91.4)
Ever received any form of health education on epilepsy	106 (50.5)	104 (49.5)
Has ever witnessed an epileptic fit	147 (70.0)	63 (30.0)
Ever taught or had in his/her classroom a child who had epilepsy	37 (17.6)	173 (82.4)
Currently has in his/her class a child with epilepsy	7 (3.3)	203 (96.7)
Is prepared to handle seizure if one of the pupils/students develops seizure in the classroom/school	19 (9.0)	191 (91.0)
Would like to be given a lecture on epilepsy and other childhood diseases in the teacher’s school	174 (82.9)	36 (17.1)

**Table 2:** Teachers’ experience with epilepsy.

**Source of teachers’ knowledge about the school children’s epilepsy**

Table 3 shows the sources through which the 37 teachers that admitted to have ever had a child with epilepsy in their classrooms learnt about the children’s epileptic condition. Majority (86.5%) got to know of the pupil/students’ epilepsy when the children had seizure in the classroom.

<b>Source</b>	<b>Number</b>	<b>Percentage</b>
From the child (i.e. child told teacher)	3	8.1
From parents/guardians	2	5.4
When the child convulsed in the classroom/school	32	86.5

**Table 3:** Source of teachers’ awareness about children’s epilepsy (n = 37).

**Teachers’ means of knowledge of epilepsy**

The respondents were told to indicate as many options as applicable to each, the means through which they got their knowledge about epilepsy (Table 4).

Means	Yes (n/%)
Formal lectures/workshops	50 (23.8)
Reading of leaflets on epilepsy	42 (20.0)
The media	38 (18.1)
From fellow teachers in the school	77 (36.7)
Through casual discussions in the neighbourhood	136 (64.8)
I have no knowledge at all about epilepsy	27 (12.9)

**Table 4:** Means of teachers' knowledge about epilepsy.

The most popular source is through casual discussions in the neighbourhood.

### Knowledge on the causes of epilepsy

Table 5 shows the teachers' responses to various questions assessing their knowledge of the causes of epilepsy. On the average, just about half were certain and correct about the various causes of epilepsy. Many either have false information or did not have any idea. For instance, as much as 36.2% unfortunately believed that evil people could inflict epilepsy on someone (by charming the person) and as high as 36.7% believed (again wrongly) that one could get epilepsy by inhaling the flatus from an epileptic. Meanwhile, about one-fifth had no idea whether epilepsy was caused by evil spirits or whether epileptic fits originate from the brain.

Cause	Correct answer	True	False	Don't know
Epilepsy is a form of mental illness or insanity	True	156 (74.3)	29 (13.8)	25 (11.9)
Epilepsy is caused by evil spirits	False	54 (25.7)	113 (53.8)	43 (20.5)
Epileptic fits originate from the brain.	True	154 (73.3)	14 (6.7)	42 (20.0)
Infection or injury to the brain can cause seizure	True	137 (65.2)	32 (15.2)	41 (19.5)
Evil people can inflict epilepsy on someone (by charming the person)	False	76 (36.2)	98 (46.7)	36 (17.1)
Epilepsy can run in families	True	95 (45.2)	74 (35.2)	41 (19.5)
One can get epilepsy by inhaling the flatus from an epileptic	False	77 (36.7)	95 (45.2)	38 (18.1)

**Table 5:** Teachers' knowledge of the causes of epilepsy.

### Knowledge on the treatment of epilepsy

Table 6 shows the teachers' responses to various questions assessing their knowledge of the treatment of epilepsy. Majority agreed that epilepsy is better treated with orthodox medicine.

Treatment	Correct answer	True	False	Don't know
Epilepsy is best treated with traditional medicine	False	68 (32.4)	88 (41.9)	54 (25.7)
Epilepsy can be cured with orthodox or modern medicine	True	142 (67.6)	35 (16.7)	33 (15.7)
Epilepsy is better cured in spiritual/prayer houses	False	60 (28.6)	79 (37.6)	71 (33.8)

**Table 6:** Teachers' knowledge of the treatment of epilepsy.

### Attitude of teachers toward epilepsy

Majority agreed that persons with epilepsy should: have same right with others, not be denied insurance, have children, be allowed to attend regular public schools, have equal employment opportunities, and are like any other person after treatment. Majority also disagreed that those with epilepsy: are a danger to the public, are more likely to develop criminal tendencies, should have their families

deprived of supportive social services, placed in regular classes affect other children with the disease; and that onset of epilepsy in a spouse is enough for a divorce.

Attitude items	Total disagree (%)	Total agree (%)
Shouldn't be in regular classrooms	41.6	58.4
Same right as all people	4.9	95.1
Can safely operate machines	43.4	56.6
Shouldn't be denied insurance	14.8	85.2
Shouldn't be prevented from having children	18.6	81.4
Should be prohibited from driving	43.0	57.0
Should be allowed to attend regular public schools	20.0	80.0
Onset in a spouse enough for divorce	79.0	21.0
Are a danger to the public	62.5	37.5
Responsibility of education rests with the public	70.3	29.7
Epileptics are accident-prone	51.1	48.9
Children need protection from epileptics	35.3	64.7
Parental expectations from epileptics should be same with other children	51.8	48.2
Epileptics are more likely to develop criminal tendencies	90.1	9.9
Epileptics should not marry	78.3	21.7
Laws barring epileptic children from being adopted should be dropped	50.7	49.3
Epileptics prefer to live with others of similar characteristics	50.1	49.9
Epileptics should have equal employment opportunities	14.6	85.4
When treated, epileptics are like anyone else	16.4	83.6
Families with epileptics should not be provided supportive social services	81.5	18.5
Epileptic children in regular classes affect other children	75.5	24.5

**Table 7:** ATPE attitude items and scores of participants.

**Teachers' knowledge about epilepsy**

Over two-thirds of the participants objected to the facts that: someone with epilepsy can participate in strenuous exercise; the condition of a person with epilepsy is expected to deteriorate; and that the offspring of parents with epilepsy will also have epilepsy. Majority also agreed that epilepsy is not contagious and that people with epilepsy are not mentally retarded.

Knowledge items	Total disagree (%)	Total agree (%)
Epileptics do not possess normal life expectancy	43.0	57.0
Epileptics are also mentally retarded	64.7	35.3
Epileptics can participate in strenuous exercise	75.8	24.2
The condition of a person with epilepsy is expected to deteriorate	75.9	24.1
Offspring of parents with epilepsy will also have epilepsy	76.0	24.0
Epilepsy is not a contagious disease	39.7	60.3
Epileptics can cope with an 8-hr per day work, Monday to Friday	21.6	78.4

**Table 8:** ATPE knowledge items and scores of participants.

**Teachers’ proposed action when a child develops seizure in the school or classroom**

Majority (60.4% and 89.5%, respectively) disagreed with the old traditional practice (in the area) of rubbing palm oil on the body of convulsing child or placing him or her near fire.

Action	Disagree (%)	Agree (%)
Run away	88.9	11.1
Hold the child and restrict movement	12.7	87.3
Send the child home immediately	15.7	84.1
Rub palm kernel oil on the child’s body	60.4	39.6
Send the child to the hospital immediately	15.8	84.2
Place the child near fire to warm or heat him or her up	89.5	10.5
Send for a priest/clergy or take the child to a prayer house	73.0	27.0

*Table 9: Teachers’ action when a child convulses in the school/classroom.*

**Factors associated with teachers’ knowledge of (and attitudes towards persons with) epilepsy**

(As extracted from the analyzed data; not shown in a table here)

Findings from the study showed the following significant correlations with knowledge of the teachers about epilepsy and their attitudes towards persons with epilepsy.

- Gender (being a male or a female) did not affect knowledge about epilepsy ( $x^2 = 0.149$ ,  $df = 1.0$ ,  $p = .699$ ).
- The religion (being a Christian) was associated with having a good knowledge of the aetiology of epilepsy ( $x^2 = 14.871$ ,  $df = 6$ ,  $p = .002$ ). Note, however, that the sample was predominantly made of Christians.
- Having previously received any form of education on epilepsy was associated with good knowledge of the aetiology of epilepsy ( $x^2 = 9.482$ ,  $df = 3$ ,  $p = .024$ ).
- Possession of educational degree (certificate) higher than TC II correlated positively with having better knowledge of the treatment options for epilepsy ( $x^2 = 6.308$ ,  $df = 6$ ,  $p = .001$ ).
- Possession of higher education (above TC II) was significantly associated with the ability to handle a child that develops seizure in the school ( $x^2 = 17.653$ ,  $df = 6$ ,  $p = .007$ ).
- Having a personal or family history of epilepsy was significantly associated with good attitude towards children with epilepsy ( $x^2 = 12.738$ ,  $df = 4$ ,  $p = 0.013$ ).

**Discussion**

The male to female ratio in our sample is 1:1.4. This is about the same with the 1:1.9 found in Oshogbo, southwest Nigeria [21] but different from the 2:1 reported in Kano, northwest Nigeria [19]. It is possible that the higher number of male participants in the northern part of the country might be related to the gender differences in educational pursuit in the areas where relatively less females were in the past allowed to go to school (to become teachers of today) compared to their counterparts in the southern part of the country.

Attitude of the teachers towards school children with epilepsy was found to be generally positive. This finding is similar to that reported in other earlier Nigerian studies [19,21].

Majority of our participants were of the view that people with epilepsy should marry and should also bear children – a finding similar to that reported by Bekiroglu and colleagues [22].

Overall, the teachers' knowledge about epilepsy is fairly good compared to the findings in some local and foreign studies such as those of Millogo and Siranyan in Burkina Faso [23] and Owolabi and colleagues in northwest Nigeria [19].

On the options for the treatment of epilepsy, over two-third of our participants clearly chose orthodox or modern medicine. This is much higher than that reported in the Kano study [19], which could be attributed to a possible difference in the belief in cultural and spiritual treatment options of epilepsy and related conditions among people of these Nigerian varied ethnic and cultural backgrounds.

On preparedness of the teachers to give first aid treatment to a convulsing child, notwithstanding that as much as half of the teachers reported having received some form of health education on epilepsy and over two-thirds admitted to have personally witnessed people with epilepsy convulse, with a reasonable number having taught children with epilepsy, not up to one-tenth admitted being prepared to handle seizure if any of the school children convulsed in the school. This finding is similar to that reported from one of the largest collection of data on teachers' attitudes toward and knowledge about epilepsy in the United States where a significant number of teachers were reported to feel unprepared to effectively deal with a number of aspects of epilepsy [24].

Being a male or a female did not affect the knowledge of our participants about epilepsy. This is similar to the findings of other earlier researchers [19,25] though one Iranian study noted that female gender had a positive influence on teachers' knowledge about childhood epilepsy [26].

Being a Christian was statistically significantly associated with having a good knowledge of the aetiology of epilepsy. It should be noted, however, that this study was carried out in a predominantly Christian community.

Higher educational qualification (possession of educational degrees higher than TC II) correlated positively with having better knowledge of the treatment options for epilepsy. This corresponds with the finding in Kano, northwestern Nigeria, where the researchers reported a statistically significant association between the level of education attained by the respondents and good knowledge about epilepsy [19], although, Mustapha and Akande reported from southwest Nigeria that despite the high level of education of the teachers ranging from Masters' Degree to National Certificate in Education, there were significant deficits in terms of overall general knowledge about epilepsy [21].

Possession of higher education (above TC II) was also significantly associated with the ability to handle a child that develops seizure in the school. Akpan and his colleagues in Akwa Ibom, south-south Nigeria, had a similar finding [18].

Having a personal or family history of epilepsy was significantly associated with good attitude towards children with epilepsy - a finding similar to that report from Kuwait by Al-Hasheem., *et al.* [12] that having a family member with epilepsy was associated with good knowledge of epilepsy and good attitude towards persons with epilepsy.

## **Conclusion**

Findings from this study suggest a somewhat positive picture of primary school teachers' attitudes toward persons with epilepsy. However, the high educational status of these teachers notwithstanding, many still hold strong cultural view with respect to the aetiology and treatment of epilepsy. Besides, the level of preparedness of teachers to handle a child that develops fits in the school or classroom is very low.

In view of these, in light of the potentially critical role that teachers play in the early educational experience and future success and quality of life of the pupils and the resultant nation-building effect, it is critical that further attention be paid to teacher education on epilepsy.

Information about epilepsy should be included in the curriculum for future teachers and periodic workshops organized for teachers so as to increase their level of knowledge and basic first aid treatment of epilepsy. General public education campaign in this field is also recommended.

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### **Conflict of Interest**

The authors declare that no financial or conflict of interest exists.

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