

# Teachers' knowledge and attitudes towards seizure disorder: A comparative study of urban and rural school teachers in Akwa Ibom State, Nigeria

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## Abstract

**Background:** Knowledge and attitude of school teachers with regard to seizure disorder has an important impact on continuation of schooling of children with seizure disorder. Though school teachers in both rural and urban settings are exposed to the same training, their perception of seizure disorder could be influenced by the environment in which they reside.

**Objectives:** To determine the knowledge and attitudes of school teachers towards children with seizure disorder, and the influence of urban residence on perception of seizure disorder by the teachers.

**Materials and Methods:** A self-administered questionnaire on knowledge and attitudes to seizure disorder were filled by school teachers drawn from both urban and rural settings in Akwa-Ibom State, Nigeria.

**Results:** One-hundred and thirty-two urban school teachers and an equal number of their rural counterparts completed the questionnaire. There were significantly more female teachers in the urban schools whereas the rural schools were dominated by male teachers with male to female ratio of 1:5.6 and 1.2:1, respectively. Majority of the urban (60.6%) and rural (57.6%) school teachers were National Certificate of Education holders. Thirty-eight (28.8%) of urban respondents versus eight (6.1%) of rural respondents thought seizure disorder was caused by evil spirits whereas 60 (45.5%) urban respondents compared to 80 (60.6%) of rural respondents felt seizure disorder was infectious. Majority of the respondents from both urban and rural schools (58.2% and 63.6% respectively) believed that the foam from the mouth of a convulsing child with seizure disorder is the infecting agent. However, 62.1% of urban respondents as well as 45.5% of rural respondents would advise that children with seizure disorder be admitted into special schools. There was no significant difference in the mean overall knowledge and attitudes of school teachers to seizure disorder in the two settings ( $P = 0.33$  for knowledge and  $0.28$  for attitudes). Teachers' high level of education however, had a positive influence on their knowledge and attitudes towards children with seizure disorder.

**Conclusion:** School teachers in both urban and rural schools exhibited poor knowledge and negative attitudes towards children with seizure disorder. Residing in the urban setting did not have a positive impact on teachers' perception of seizure disorder. Massive health education on seizure disorder is therefore advocated for teachers in both urban and rural schools.

**Key words:** Attitude, knowledge, perception school teachers

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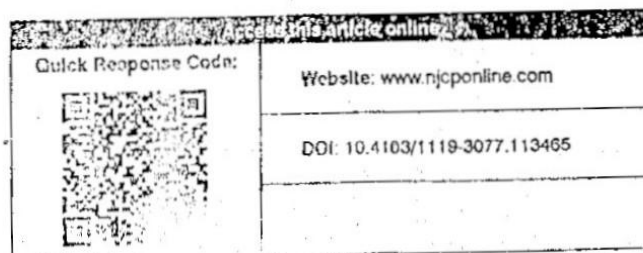
## Introduction

Seizure disorder is a common neurologic disorder that affects children.<sup>[1]</sup> Worldwide, its prevalence rate varies greatly from country to country, and averagely 4-6 per 1000 children are affected by seizure disorder.<sup>[2]</sup> However, a prevalence rate of

5.3-37 per 1000 children has been reported in Nigeria.<sup>[3]</sup> It is a common reason for pediatric neurologic consultation in Nigeria.<sup>[4]</sup> Children with seizure disorder face social discrimination and stigma due to negative perception, lack

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of knowledge, and understanding of the condition.<sup>16,71</sup> There are many superstitious beliefs concerning the cause of seizure disorder which cut across all social strata. It has been linked to witchcraft, spiritual attacks, and punishment for sins by traditional healers and even university students.<sup>18,91</sup> There is also the belief that seizure disorder is contagious, and one can get infected by contact with the saliva from the mouth of the patients during seizure attacks.<sup>1101</sup> These beliefs expose the child with seizure disorder to danger during a seizure episode, as they are likely to be left unattended to by both the teachers and their schoolmates for fear of getting the condition. Parents and siblings of children with this condition are equally affected by the stigmatization. Studies have shown that they are more prone to psychiatric and emotional problems than parents and siblings of children without seizure disorder.<sup>111,121</sup> For these reasons, children with seizure disorder are likely to be withdrawn from school either by their parents or the school authorities. For those who still go to school in spite of the stigmatization, their academic performance is lower than that of children without seizure disorder.<sup>113,141</sup> Though many factors are reported to be responsible for the poor academic performance, stigmatization and discrimination have been documented as the most devastating.<sup>1151</sup>

As school children with seizure disorder spend most of their daytime socializing and interacting with their teachers as well as with their schoolmates, these teachers therefore play an important role in public health education. They can hand on the knowledge to their pupils and by extension, to the community. Several studies on public knowledge and awareness of seizure disorder in Asia reported a positive attitude to seizure disorder among the educated people compared to the uneducated.<sup>116,171</sup> Knowledge and attitude to seizure disorder is also reported to be influenced by the socio-cultural environment in which the individual is resident.<sup>1131</sup> In Nigeria, several studies have revealed poor knowledge and negative attitudes towards children with seizure disorder by their teachers.<sup>110,191</sup> There is no known study comparing the knowledge and attitudes of urban and rural school teachers towards children with seizure disorder residing in the same cultural setting in Nigeria. This study therefore was aimed at examining the influence of urban residence on knowledge and attitudes of school teachers towards children with seizure disorder.

## Materials and Methods

This cross-sectional study was conducted in Akwa Ibom State, one of the six States in South-South geopolitical zone of Nigeria. The study period was 4 months (i. e., from January 2012 to April 2012).

Akwa Ibom State is made up of 106 clans. The clans were grouped into two, urban and rural clans. Each group consisted of 53 clans. One clan was randomly selected from

each group using the ballot method. Offot clan which is in Uyo local government area with four secondary and 13 primary schools was selected from the urban group whereas Northern Ukanafun clan in Ukanafun local government area, with one secondary and 14 primary schools was selected from the rural group. From each selected clan, one secondary and seven primary schools were selected using the systematic random sampling method. Participation by the teachers in the selected schools was voluntary.

Sample size was calculated using the formula:

$$n = \frac{z^2(p)(1-p)}{d^2}$$

Where  $n$  = minimum sample size,  $z$  = the standard score corresponding to a given confidence level (1.96),  $P$  = overall general knowledge of seizure disorder among teachers in Port Harcourt,<sup>1191</sup> a town in South-South geopolitical zone of Nigeria,  $d$  = tolerable error.

Minimum sample size using the above formula was 138.

Instrument used for the study was a 25 itemed questionnaire in which the age, gender, highest educational attainment as well as the knowledge, beliefs, and attitudes of respondents toward children with seizure disorder were noted.

A pilot study was conducted to pre-test the instrument among 20 teachers from both urban and rural settings, and these teachers were excluded from the final sample for the study.

The self-administered questionnaire was completed by the teachers from both urban and rural schools. Data obtained were analyzed using SPSS 15 package. Frequencies were compared using Chi-square and means using the Student  $t$ -test.  $P < 0.05$  was regarded as significant.

Ethical clearance was obtained from the Health Research Ethical Review Committee of the University of Uyo Teaching Hospital, Uyo. Verbal consent was obtained from the Head teachers, the Principals of selected schools and the respondents before administering the questionnaire.

## Results

A total of 140 teachers completed the questionnaire in each of the clans. However, eight were not properly completed among the rural as well as urban respondents. Analysis was therefore done on 132 respondents from each setting.

### Demographic characteristics

Of the 132 teachers from urban setting, 20 were males whereas 112 were females, with male to female ratio of 1:5.6. Majority (78.8%) of the respondents were 30 years and above, with 72.2% of them married. All the respondents were Christians, 60.6% of them were National Certificate

of Education (NCE) holders whereas 36.4% had university education. On the other hand, 72 of the rural respondents were males whereas 60 were females, with a male to female ratio of 1.2:1. Similarly, all the respondents from the rural areas were Christians. Majority (57.6%) were NCE holders whereas 30.3% had university education [Table 1].

### Knowledge of seizure disorder

Table 2 shows responses to basic knowledge questions on seizure disorder. Interestingly, 23.8% of urban respondents compared to 6.1% of rural respondents thought that seizure disorder is caused by evil spirits. However, 84.8% of urban respondents compared to 66.7% of rural ones knew that seizure attacks originate from the brain. Seizure disorder was thought to be an infectious disease by 45.5% of the urban

and 60.6% of the rural respondents. As regards a medical test for diagnosing seizure disorder, 56.1% and 69.7% of urban and rural respondents, respectively knew that seizure disorder can be diagnosed with the help of a medical test. Surprisingly, equal percentage (45.5%) of urban and rural respondents thought that seizure disorder is best treated with traditional medicine. The mean overall correct responses of urban and rural teachers was 57.6% and 54.5%, respectively, and the difference was not statistically significant ( $t = 0.97$ ,  $P = 0.33$ ).

### Influence of education on the knowledge of seizure disorder

Among the urban school teachers, education had a significant influence on their knowledge of seizure attacks originating from the brain and infection or injury in the brain causing seizure disorder ( $\chi^2 = 9.9$ ,  $P = 0.042$  and  $\chi^2 = 9.73$ ,  $P = 0.045$  respectively). For instance, concerning the origin of seizure attacks, the higher the educational attainment of the respondents, the better their knowledge. Of the 48 teachers with university education, 42 (87.5%) knew that seizure attacks originate from the brain whereas 66 (82.5%) of 80 NCE holders also knew the correct answer. Similarly, for the teachers from the rural setting, education had a significant positive influence on their knowledge as regards the origin of seizure attacks and the use of modern medicine to control seizure disorder ( $\chi^2 = 15.36$ ,  $P = 0.004$  and  $\chi^2 = 14.11$ ,  $P = 0.007$  respectively). Out of 40 university graduates, 32 (80%) knew that seizure disorder can be treated with modern medicine whereas 24 (31.6%) of 76 NCE holders agreed with them [Table 3].

### Responses of teachers on attitudes/beliefs to seizure disorder

Table 4 shows the attitudes/beliefs of the respondents to seizure disorder. Eighty-two (62.1%) of the urban compared to 60 (45.5%) of rural teachers believed that children with seizure disorder should be enrolled in special schools, 90 (68.2%) of urban school teachers versus 84 (63.6%) of their rural counterparts believed that the infective agent

**Table 1: Demographic characteristics of the respondents (n=132 for both urban and rural)**

	Urban			Rural		
	Male	Female	n (%)	Male	Female	n (%)
Age (years)						
<20	4	6	10 (7.6)	0	0	0 (0)
20-29	0	18	18 (13.6)	12	8	20 (15.2)
30-39	8	28	36 (27.3)	24	20	44 (33.3)
40-49	0	50	50 (37.9)	20	24	44 (33.3)
50 and above	8	10	18 (13.6)	16	8	24 (18.2)
Marital status						
Single	6	18	24 (18.2)	12	12	24 (18.2)
Married	12	84	96 (72.7)	60	40	100 (75.8)
Widowed	2	10	12 (9.1)	0	8	8 (6.0)
Religion						
Christianity	20	112	132 (100)	72	60	132 (100)
Muslim	0	0	0 (0)	0	0	0
Traditional	0	0	0 (0)	0	0	0
Educational level						
TTC	2	2	4 (3.0)	4	12	16 (12.1)
NCE	6	74	80 (60.6)	36	40	76 (57.6)
HND/degree	12	36	48 (36.4)	32	8	40 (30.3)

TTC=Teachers' training certificate, NCE=National certificate of education, HND=Higher national diploma

**Table 2: Responses of teachers on knowledge of seizure disorder**

	Correct answer	Urban			Rural		
		True	False	Don't know	True	False	Don't know
Seizure attacks originate from the brain	True	112	14	6	89	32	12
Seizure disorder is caused by evil spirits	False	38	80	14	8	108	16
All children who have convulsions have seizure disorder	False	14	104	14	32	38	32
Infection or injury in the brain can cause seizure disorder	True	91	30	8	76	32	24
Seizure disorder is an infectious disease	False	60	62	10	80	40	12
Seizure disorder occurs in families	True	64	58	10	52	68	12
There are different types of seizure disorder	True	52	33	42	76	28	28
There is a medical test for diagnosing seizure disorder	True	74	24	34	92	16	24
Best treatment for seizure disorder is with traditional medicine	False	60	52	20	60	60	12
Seizure disorder can be controlled with modern medicine	True	66	42	24	60	44	28

$t = 0.97$ ,  $P = 0.3$

**Table 3: Influence of education on knowledge of seizure disorder**

Response	Urban				Rural			
	TTC 4	NCE 80	Degree 48	P value	TTC 16	NCE 76	Degree 40	P value
a True	4 (100)	65 (82.5)	42 (87.5)	0.042	8 (50)	64 (84.2)	16 (40)	0.004
b False	4 (100)	44 (55)	32 (66.7)	0.5	12 (75)	60 (78.9)	36 (90)	0.1
c False	2 (50)	48 (60)	44 (91.7)	0.14	4 (25)	40 (52.6)	24 (60)	0.11
d True	4 (100)	56 (70)	34 (70.3)	0.015	8 (50)	48 (63.2)	20 (50)	0.8
e False	2 (50)	34 (42.5)	26 (54.2)	0.12	4 (25)	20 (26.3)	16 (40)	0.3
f True	2 (50)	40 (50)	22 (45.8)	0.07	4 (25)	28 (36.6)	20 (50)	0.26
g True	0 (0)	32 (40)	20 (41.7)	0.53	12 (75)	48 (63.2)	16 (40)	0.054
h True	2 (50)	42 (52.5)	30 (62.5)	0.7	12 (75)	56 (73.7)	24 (60)	0.3
i False	2 (50)	26 (32.5)	24 (50)	0.6	4 (25)	32 (42.1)	24 (60)	0.18
j True	2 (50)	40 (50)	24 (50)	0.7	4 (25)	24 (31.6)	32 (80)	0.007

a=Seizure attacks originate from the brain, b=Seizure disorder is caused by evil spirits, c=All children who have convulsions have seizure disorder, d=Infection or injury in the brain can cause seizure disorder, e=Seizure disorder is an infectious disease, f=Seizure disorder occurs in families, g=There are different types of seizure disorder; h=There is a medical test for diagnosing seizure disorder; i=Best treatment for seizure disorder is with traditional medicine, j=Seizure disorder can be controlled with modern medicine, Percentages in parenthesis

**Table 4: Responses of teachers on attitudes/beliefs on seizure disorder**

	Urban			Rural		
	Yes	No	Don't know	Yes	No	Don't know
I will teach a child with seizure disorder admitted in a normal school	102 (77.3)	28 (21.2)	2 (1.5)	60 (45.5)	64 (48.5)	8 (6.1)
I believe all children with seizure disorder have abnormal behavior	104 (79.6)	22 (16.7)	6 (4.5)	88 (66.7)	32 (24.2)	12 (9.1)
I believe all children with seizure disorder have learning problems	123 (97.0)	0 (0)	4 (3.0%)	88 (66.7)	32 (24.2)	12 (9.1)
I will advise a child with seizure disorder to register in a special school	62 (62.1)	32 (34.3)	18 (13.6)	60 (45.5)	64 (48.5)	8 (6.1)
I will not touch a convulsing child with seizure disorder because the saliva contains the infecting agent	90 (65.2)	24 (18.2)	18 (13.6)	84 (63.6)	28 (21.2)	20 (15.2)

$\chi^2 = 1.089$ ,  $P = 0.25$ , percentages in parenthesis

**Table 5: Influence of education on attitudes/beliefs to seizure disorder**

	Urban				Rural			
	TTC 4	NCE 80	Degree 48	P value	TTC 16	NCE 76	Degree 40	P value
a Yes	2 (50)	62 (77.5)	36 (75)	0.5	0 (0)	24 (31.6)	36 (90)	0.000
b Yes	4 (100)	66 (82.5)	34 (70.3)	0.6	12 (75)	60 (78.9)	28 (70)	0.4
c Yes	4 (100)	76 (95)	48 (100)	0.5	8 (50)	52 (68.1)	28 (70)	0.08
d No	0 (0)	24 (30)	8 (16.7)	0.27	12 (75)	24 (31.6)	28 (70)	0.014
e Yes	0 (0)	12 (15)	10 (20.8)	0.25	8 (50)	60 (78.9)	16 (40)	0.03

a=I will teach a child with seizure disorder in a normal school, b=I believe all children with seizure disorder have abnormal behavior, c=I believe all children with seizure disorder have learning problems, d=I will advise a child with seizure disorder to register in a special school for children with seizure disorder, e=I will not touch a convulsing child with seizure disorder because the saliva is the infecting agent; TTC=Teachers' training certificate; Percentages in parenthesis, NCE=National certificate of education

in seizure disorder was the foam from the mouth of a convulsing child with seizure disorder whereas 128 (97.0%) of urban and 88 (66.7%) of rural school teachers agreed that children with seizure disorder are likely to have learning problems than children without seizure disorder. The difference between the beliefs/attitudes of urban and rural school teachers was not statistically significant ( $\chi^2 = 1.089$ ,  $P = 0.25$ ).

#### Influence of education on attitudes/beliefs to seizure disorder

Table 5 shows the influence of education on attitudes/beliefs toward children with seizure disorder. Among the urban respondents, education did not have a significant influence

on their attitudes to seizure disorder. On the contrary, the educational attainment of respondents in the rural setting had a significant influence on their attitudes to children with seizure disorder. For instance, when the issue of teaching children with seizure disorder in a normal school was considered, 36 (90%) of university graduates resented teaching them and 16 (100%) teachers with Teachers Training Certificate had the same feeling ( $\chi^2 = 30.77$ ,  $P < 0.001$ ). On the issue of providing a special school for children with seizure disorder, 28 (70%) of 40 teachers with university education did not believe that there should be a special school for children with seizure disorder and 24 (31.6%) of 76 respondents with NCE agreed with them ( $\chi^2 = 12.53$ ,  $P = 0.014$ ). As regards the infective agent in seizure disorder, 16 (40%) of university

graduates and 60 (78.9%) of NCE holders believed that the infective agent is the foam from the mouth of a convulsing child with seizure disorder ( $\chi^2 = 10.18$ ,  $P = 0.038$ ).

## Discussion

### Demographic characteristics

The preponderance of female teachers in the urban schools as against male preponderance in the rural schools is worthy of note. Though this has not been observed by other authors in Nigeria<sup>[10,19]</sup> the only explanation for this could be that, there is concentration of industries and government administrative offices in the cities. The legislators, government administrative officers, big time businessmen are resident in these cities. Majority of these personnel are men and those who are married to school teachers, their wives are stationed in the urban schools whereas the male teachers are posted to the rural schools. All the respondents in both settings were Christians. Though it compares well with 93.6% Christians reported by Ojinnaka in her study, 1.6% and 3.2% of her respondents were traditionalists and muslims, respectively.<sup>[10]</sup>

### Knowledge of seizure disorder

Poor knowledge of seizure disorder with respect to cause, diagnosis, and treatment is noted among both the urban and rural school teachers in our study, and the difference on the mean overall knowledge between the two groups was not statistically significant ( $P = 0.3$ ). Though seizure disorder results from excessive discharge of cerebral neurons in the brain, the beliefs regarding its cause vary from place to place and between ethnic groups in the same place. Among the rural school teachers in our study, 6.1% believed that seizure disorder is caused by evil spirits. A similar view was held by 22.4% of rural school teachers in South-Eastern Nigeria,<sup>[10]</sup> and 0.6% of teachers in Zimbabwe.<sup>[20]</sup> The low percentage of teachers associating seizure disorder to evil spirit may be attributed to their religious beliefs. A higher percentage of urban respondents (28.8%) in our study held the same view which compares well to the percentage reported by Sanya *et al.* in Middle belt of Nigeria (27.7%), but higher than 0.9% reported among Thailand school teachers.<sup>[21,22]</sup> This concept that seizure disorder is caused by evil spirits is central to negative attitudes towards seizure disorder in our environment.

Though several modern medications are available for treatment of seizure disorder, the observation that equal percentage of teachers from both settings believed that seizure disorder is best treated with traditional medicine is not surprising. Studies have shown that various forms of traditional mixtures are used in our environment to treat seizure disorder and other forms of seizures.<sup>[23]</sup> The belief that seizure disorder is best treated with traditional

medicine is also upheld in other developing countries.<sup>[24,25]</sup> Other alternative modes of treatment such as homeopathy, acupuncture, and spiritual healing have been utilized in treating seizure disorder.<sup>[24,25]</sup>

The overall score of the general knowledge of seizure disorder of 57.6% displayed by the urban school teachers is slightly higher than 55.6% obtained in Pakistan<sup>[26]</sup> whereas an overall score of 54.8% among rural school teachers compares well with 59.2% from South Eastern Nigeria.<sup>[10]</sup>

### Attitudes to seizure disorder and influence of education on knowledge and attitudes to seizure disorder

Teachers from the urban setting exhibited negative attitudes to seizure disorder compared to those from the rural setting though this was not statistically significant ( $P = 0.28$ ). The positive attitude to seizure disorder displayed by the rural school teachers is a welcome development. This probably reflects the strong intra-family relationships and family support among extended family members which is prevalent in the rural settings in our environment.<sup>[27]</sup>

The positive influence of education on the knowledge and attitudes of teachers in both settings to children with seizure disorder is encouraging. A similar observation was reported by Ojinnaka in South-Eastern Nigeria and several authors in Asian countries.<sup>[10,16,17]</sup>

## Conclusion

There is no significant difference in knowledge and attitudes exhibited by urban and rural school teachers towards children with seizure disorder. Also, poor knowledge and negative attitudes towards seizure disorder was displayed by the teachers. The poor knowledge and negative perception can only be corrected by community education. The health workers especially the Pediatricians and Public Health Physicians should organize workshops and seminars from time to time for school teachers (both urban and rural school teachers) to equip them with the required knowledge and improve their attitudes towards seizure disorder. This knowledge will therefore be handed on to the pupils and by extension to the general public.

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