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*Research Article*

# Knowledge and Attitude of Health Science Students Towards Epilepsy in a Nigerian University

**Nwankwo M.J[1], *Okoye E.C[1], Ifezue A.G[1], Ucheolu N.I[1], Egwuonwu V.A[1], Okonkwo U.P[2]**

[1]*Department of Medical Rehabilitation, College of Health Sciences, Nnamdi Azikiwe University, Nnewi Campus, Anambra State, Nigeria*

[2]*Department of Physiotherapy, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, Nigeria*

**ABSTRACT**

Behaviour of people, especially health workers, towards people living with epilepsy (PLE) represents an important public health concern. This study explores knowledge and attitude of health science undergraduates of a Nigerian University towards PLE using a cross-sectional survey involving consecutively 656 (52.7% males; 47.3% females) undergraduates. The Epilepsy Knowledge Questionnaire (EKQ) and the Attitude towards Persons with Epilepsy (ATPE) rating scale were used to collect data on the participants' knowledge and attitude towards PLE respectively. Data was analyzed using descriptive statistics, Spearman rank, Mann-Whitney U and Kruskal-Wallis tests at 0.05 alpha level. The mean knowledge and attitude towards epilepsy was moderate and good respectively. Majority of the participants had fair knowledge (64.3%) and good attitude (70.3%). Knowledge of the participants about epilepsy had positive significant correlations with their age and year of study and was significantly influenced by their age, faculty, department and year of study. Participants' attitude towards PLE neither correlated nor was influenced by any of the aforementioned variables ($p>0.05$). Knowledge and attitude of the participants towards epilepsy did not significantly correlate with each other ($p>0.05$). Knowledge of Nigerian students about epilepsy is poor which is associated with their age, level of study, faculty and department of study. The attitude of the students towards PLE was good and did not correlate or influenced by any of their characteristics. There is need to improve the knowledge of health science students about epilepsy.

**Keywords:** *Knowledge. Attitude. Epilepsy. Health science undergraduates, Nigeria*

*Author for correspondence: *E-mail*: - *bukanuel2004@yahoo.com*

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## INTRODUCTION

Epilepsy is the commonest neurological condition affecting people of all ages, race and social class, and requiring long term health care contact (Rugg-Gunn *et al*, 2015). There are an estimated 50 million people with epilepsy in the world, among whom up to 75% live in resource poor countries with little or no access to medical services or treatment (Meinardi *et al*, 2001; Ngugi *et al*, 2010). The prevalence of epilepsy is particularly high in developing countries especially in Latin America and several African countries, notably Liberia, Nigeria and United Republic of Tanzania (Fiest *et al*, 2017). In Nigeria, its prevalence, based on defined communities, varies from 15 to 37 per 1000 (Dada, 1970). The high incidence and prevalence of epilepsy have a great influence on socioeconomic factors and contribute to an increase in direct economic costs, such as medical expenses for drugs and hospitalisations, and indirect costs, such as from the loss of productive capacity, economic production by unemployment, sick license or premature death (Kariuki *et al*, 2015). The aggregate burden due to epilepsy is around 0.5% of the total disease burden. It is thus evident that epilepsy represents a considerable health problem (Be Boer *et al*, 2008; Beghi, 2016).

Epilepsy is a chronic neurological disorder in which clusters of nerve cells, or neurons, in the brain sometimes signal abnormally and cause seizures (National Institute of Health, 2015). It is clearly linked to genetic factors, developmental brain abnormalities, infection, traumatic brain injury, stroke, brain tumours, or other identifiable problems (National Institute of Health, 2015). Epilepsy can be classified into three major types based on the area of body which seizure occurs: grand mal epilepsy, petit mal epilepsy and focal epilepsy (Fisher *et al*, 2017).

Knowledge is the state of knowing about something or familiarity with a subject, place, situation et cetera. It is also an awareness of a particular fact or a state of been informed (Oxford Advanced Learner's Dictionary, 2008). Attitude is the way that one feels about something or somebody; the way that one behaves towards something or somebody that shows how one thinks or feels (Oxford Advanced Learner's Dictionary, 2008). It is believed that knowledge and attitude are linked to each other. If people become more knowledgeable about a particular thing, they will, in turn, become more aware of that and its associated issues, thus, be more motivated to act positively and in more responsible ways towards that (Aminrad, 2013). A lack of knowledge about epilepsy has been shown in a large part of the populations throughout the world, as also prejudice and stigma (Bishop and Boag, 2006; Ryu *et al*, 2015). The historical legacy has continued to influence public attitude to epilepsy making it a dreaded disease. These beliefs have resulted in patients with epilepsy (PWE) being ostracized, stigmatized and misunderstood (Olubunmi, 2006). Historically, epilepsy was believed to be a sacred disease resulting from the invasion of the body by a god (Reynolds, 1988). Many people in Africa erroneously believe epilepsy to be contagious and that it can be spread through urine, saliva, flatus, or faeces excreted at all times or during a convulsion (Tekle-Haimanot *et al*, 1991; Rwiza *et al*, 1993; Sanya *et al*, 2005)

The usual erroneous misconceptions about epilepsy have resulted in stigma against PWE. There are usually in isolation and the unwillingness of witnesses to touch and protect the PWE from injury during a seizure (Ekeh and Ekrikpo, 2015). PWE can be banned from school, barred from getting married and denied employment (Ekeh and Ekrikpo, 2015; Vaurio *et al*, 2017). The negative impact of epilepsy rests not only on the individual patient, but also on the family and indirectly on the community (Olubunmi, 2006; Gilmour *et al*, 2016). Epilepsy is usually associated with stigma where relatives, friends, and companions of persons with epilepsy are stigmatized as well (Taha *et al*, 2014). These social implications of epilepsy emanating from poor knowledge and wrong attitude of people towards PWE are usually very strong that it can cause premature death and can negatively impact on the health seeking behaviour of PWE and on epilepsy management and outcomes (World Health Organisation, 2015).

One of the most important aspects of epilepsy is changing the public's attitude. There is evidence that attitudes towards people with epilepsy are influenced by the degree of knowledge and perception a person has of the disease (Fonseca *et al*, 2004). Studies in Brazil (Fonseca *et al*, 2004) and Scotland (Mason *et al*, 1990) have concluded that increasing the knowledge and changing the attitudes of medical students concerning epilepsy could considerably improve the quality of life for patients. Medical students can prove to be a major source to educate the society at large (Ekrikpo, 2015). Regrettably, medical students have been reported to have poor knowledge and negative attitude towards epilepsy (Ekrikpo, 2015). However, within the knowledge of the researcher, studies on the knowledge, attitude, and perception towards epilepsy amongst medical students in Nigeria are hard to come by with only one (Ekrikpo, 2015) available for referencing.

## MATERIALS AND METHODS

**Study Design and population:** This study was a cross–sectional survey. The study population were students of College of Health Sciences Nnamdi Azikiwe University Nigeria. The College comprises three faculties: Faculty of Health Science and Technology (consists of five departments: Medical Rehabilitation (Physiotherapy), Radiography and Radiological Sciences, Nursing Sciences and Medical Laboratory Sciences; Faculty of Basic Medical sciences (consists of two departments: Human Physiology and Anatomy) and Faculty of Medicine.

**Ethical approval:** The study was approved by the Ethical Review Committee of Nnamdi Azikiwe University Teaching Hospital Nnewi, Anambra State, Nigeria. Individual participants gave written or verbal consent after due explanation of the study's procedure. Information on the age, faculty, department and academic year of study was collected.

**Methodology:** The Epilepsy Knowledge Questionnaire (EKQ) and Attitude toward Persons with Epilepsy (ATPE) Rating Scale were used to estimate the knowledge about epilepsy and attitude towards PLE respectively among the participants.

The EKQ is a 34-item questionnaire assessing the knowledge of epilepsy. It assesses the causes, manifestations, diagnosis, treatment and prognosis of epilepsy. Each item has a dichotomous "true or false" response. Any false or true answer is given a score of 0 or 1 respectively. The score for the items are summed up to get the total score. Range of scores is from 0 to 34 points. The scores are normalised to 100. The respondents were categorized into: Poor scorers: 0-45, Fair scorers: 46-70, Good scorers: 71-100.This questionnaire has been standardized on a U.K. population, and was proven to have good internal and test-retest reliability, and be valid to measure differences in knowledge. It has been used in Nigeria to investigate the knowledge and attitude of health professionals in selected secondary and tertiary hospitals in Anambra State towards persons living with epilepsy (PLE).

ATPE is a sum of 21- item that provides a measure of the respondent's global attitude toward persons with epilepsy (ATPE-A). The items have Likert scale responses. The potential range of the Likert-type scale includes the following anchors: 1 = I disagree very much, 2= I disagree pretty much, 3 = I disagree a little, 4 = I agree a little, 5 =I agree pretty much,6 = I agree very much. The scores are summated and converted to percentage. Weighted sums of the items responses provide measures of the respondents' attitude with higher scores representing low attitude. The respondents were categorized into: poor scorers: 0-45, fair scorers: 46-70, high scorers: 71-100. This instrument has been used in Nigeria to investigate the knowledge and attitude of health professionals in selected secondary and tertiary hospitals in Anambra State towards PLE (unpublished data).. The psychometric soundness of the ATPE has been supported by (Antonak, 1990; Mustapha *et al*, 2013). In particular, the attitude items

were found to have satisfactory item characteristics. For the attitude scores, the Spearman-Brown corrected split-half reliability estimate shall be 0.70.

**Statistical analysis:** Statistical analysis was done with SPSS (version 20). The descriptive statistics of frequency count, percentages, range, mean and standard deviation were used to summarize the demographic variables and the questionnaire scores. Spearman rank-order correlation was used to assess the relationship between selected participants' demographics and their scores on EKQ and ATPE. Mann-Whitney and Kruskal-Wallis tests were used to establish how the participants' gender, age, faculty, year and course of study influenced their knowledge on epilepsy and their attitude towards PLE. Level of significance was set at 0.05

## RESULTS

A total of six hundred and fifty-six (656) students participated in this study. Most of the participants (94.2%) were within the age of 17-25 years. The participants were almost equally distributed across both genders with male participants (52.7%) slightly more than females. Faculties of Health Sciences, Basic Medical Sciences and Medicine constituted 55.3%, 27.6% and 17.1% of the participants respectively.

**Table 1:**
Socio-demographic profiles of the participants

| Variable | Class | Frequency | % |
|---|---|---|---|
| Age (years) | 17-25 | 618 | 94.2 |
| | 26-30 | 38 | 5.8 |
| Gender | Male | 346 | 52.7 |
| | Female | 309 | 47.1 |
| Faculty | Health Sciences | 363 | 55.3 |
| | Basic Medical Sciences | 181 | 27.6 |
| | Medicine | 112 | 17.1 |
| Year of Study | 200Level | 192 | 29.3 |
| | 300Level | 165 | 25.2 |
| | 400Level | 171 | 26.1 |
| | 500Level | 100 | 15.2 |
| | 600Level | 28 | 4.3 |
| Course of studies | Medical Rehabilitation | 90 | 13.7 |
| | Medical Lab Science | 89 | 13.6 |
| | Radiography | 94 | 14.3 |
| | Physiology | 89 | 13.6 |
| | Nursing | 91 | 13.9 |
| | Anatomy | 92 | 14.0 |
| | Medicine | 111 | 16.9 |

Participants were almost evenly distributed across the six sampled course of studies (Medical Rehabilitation, Medical Laboratory Science, Radiography, Nursing Sciences, Anatomy, Physiology and Medicine). The most and least represented levels of study were the 200 (29.3%) and 600 (4.3%) respectively (Table 1). The mean knowledge score (55.52±15.00%) of the participants about epilepsy was moderate, while their mean attitude score (73.73±11.65%) was good. Majority of the participants had fair knowledge (64.3%) and good attitude (70.3%) (Table 2).

**Table 2:**
Mean scores of the participants on the EKQ and the ATPE

| Variable | Class | Frequency/ percentage | Range | Mean ±SD |
|---|---|---|---|---|
| Knowledge (%) | - | - | 0-85 | 55.52±15.00 |
| Attitude (%) | | | 17-98 | 73.73±11.65 |
| Knowledge level | poor | 133/20.3 | - | - |
| | moderate (fair) | 422/64.3 | - | - |
| | good | 101/15.4 | - | - |
| Attitude level | poor | 23/3.5 | - | - |
| | moderate (fair) | 169/25.8 | - | - |
| | good | 463/70.3 | - | - |

**Table 3:**
Spearman rank correlation showing the relationships among participants' age, level of study, knowledge and attitude towards people living with epilepsy

| Variable | R | P |
|---|---|---|
| Age Vs Year of Study | 0.19 | 0.00* |
| Age Vs Knowledge | 0.084 | 0.031* |
| Age Vs Attitude | 0.032 | 0.420 |
| Year of Study Vs Knowledge | 0.320 | 0.000* |
| Year of Study Vs Attitude | -0.002 | 0.953 |
| Knowledge Vs Attitude | 0.074 | 0.058 |

KEY
*= significant at $p<0.05$

Knowledge of the participants about epilepsy had positive significant correlations with their age ($r=0.084$; $p=0.031$) and year of study ($r=0.320$; $p<0.001$). There was no significant correlation between the participants' knowledge about epilepsy and their attitude towards people living with epilepsy ($p>0.05$). Participants' attitudes towards people living epilepsy also did not have significant correlation with their age and year of study (Table 3).

Participants knowledge about epilepsy was significantly influenced by their age ($U=9303$; $p=0.031$), faculty ($k=37.22$; $p<0.001$), department ($k=38.80$; $p<0.001$) and year of study ($k=72.39$; $p<0.001$) with older participants, medical students and final year students having the best knowledge scores when compared to their other counterparts (Table 4). The participants' attitude towards people with epilepsy was not significantly influenced by any of their gender, age, faculty, department, and year of study (Table 5).

**Table 4:**
Mann-Whitney U and Kruskal-Wallis H test showing the influence of some variables on the knowledge of the participants about epilepsy

| | Class | Mean rank | U/K | P |
|---|---|---|---|---|
| Age (years) | 17-25 | 324.55 | 9303 | 0.031* |
| | 26-30 | 381 | | |
| Gender | Male | 338.46 | 49839 | 0.133 |
| | Female | 316.20 | | |
| Faculty | Health Sciences | 309.61 | 37.216 | <0.001* |
| | Basic Medical Sciences | 305.05 | | |
| | Medicine | 427.63 | | |
| Year of Study | 200Level | 260.87 | 72.390 | <0.001* |
| | 300Level | 295.28 | | |
| | 400Level | 369.13 | | |
| | 500Level | 397.20 | | |
| | 600Level | 494.54 | | |
| Course of study | Medical Rehabilitation | 316.39 | 38.798 | 0.000* |
| | Medical Lab Science | 297.39 | | |
| | Radiography | 312.40 | | |
| | Physiology | 290.80 | | |
| | Nursing | 312.37 | | |
| | Anatomy | 318.84 | | |
| | Medicine | 428.21 | | |

*= significant at p<0.05

**Table 5:**
Mann Whitney U and Kruskawalis H Test showing the influence of some variables on the attitude of the participants towards people living with epilepsy

| Variable | Class | Mean rank | U/K | P |
|---|---|---|---|---|
| Age (yrs) | 17-25 | 327.08 | 10866 | 0.440 |
| | 26-30 | 352.55 | | |
| Gender | Male | 317.18 | 49713.5 | 0.121 |
| | Female | 340.11 | | |
| Faculty | Health Sciences | 336.39 | 5.588 | 0.061 |
| | Basic Medical Sciences | 300.93 | | |
| | Medicine | 347.48 | | |
| Year of Study | 200Level | 340.76 | 7.367 | 0.118 |
| | 300Level | 318.64 | | |
| | 400Level | 304.19 | | |
| | 500Level | 362.91 | | |
| | 600Level | 328.09 | | |
| Course of study | Medical Rehabilitation | 346.52 | 10.891 | 0.092 |
| | Medical Lab Science | 329.26 | | |
| | Radiography | 319.83 | | |
| | Physiology | 328.10 | | |
| | Nursing | 353.67 | | |
| | Anatomy | 274.65 | | |
| | Medicine | 344.94 | | |

## DISCUSSION

This cross-sectional survey was conducted to investigate the knowledge about epilepsy and attitude of students of Nnamdi Azikiwe University College of Health Sciences, Nnewi Campus, Anambra State, Nigeria towards people living with epilepsy (PLE). Epilepsy remains a stigmatized disease and also a very unique medical problem when compared with other chronic illnesses. There is evidence that increasing the knowledge and changing the attitudes of medical students (and in extension, students of other health professions) concerning epilepsy could considerably improve the quality of life for patients (Fonseca *et al*, 2004; Mason *et al*, 1990). Medical students also can prove to be a major source to educate the society at large (Ekrikpo, 2015).

In this study, participants' knowledge about epilepsy was generally fair with 64.3% having fair knowledge. This is despite the fact that the participants of the present study were prospective health care professionals. This result is similar to a previous finding (Vancini *et al*, 2012), and was attributed to the fact that some health professionals do not receive sufficient information or any formal instruction on epilepsy during their undergraduate study and training. The knowledge of the students about epilepsy had significant positive correlation with their academic level of study. This is consistent with a previous finding (Ekrikpo, 2015). This result is understandable as the knowledge of undergraduates of health professions about any condition is expected to improve with their academic levels as they transit from preclinical to clinical phases of their study. Medical students significantly had the highest level of knowledge when compared with students in other departments. Ekeh and Ekrikpo (2015) previously reported that more of their study participants who were medical students knew at least one person with epilepsy. This could be attributed to the undergraduate course contents of the different departments and faculties. Unlike others, medical students have epilepsy as an integral part of their course curriculum in their fourth and final year of study. In the present study, gender had no significant influence on the knowledge and attitude of the participants towards epilepsy. This is consistent with a previous report (Lim *et al*, 2000) that gender does not have a significant association with the awareness or familiarity with epilepsy. Al-Rashed *et al* (2000) reported that results on influence of gender on knowledge and attitude towards epilepsy are generally mixed and showed no obvious trend globally.

The mean general attitude score of the participants in this study towards PWE was good with 70.3% having good attitude. This is similar to the reported values by Mustapha *et al* (2013) among secondary school teachers in Ogun State using the same instrument as used in the present study. Attitude researchers had reported that in the course of last 50 years, attitude towards people with epilepsy have consistently improved. For instance, between 1949 and 1987, the percentage of respondents in the United States who agreed that epilepsy is a form of insanity decreased from 12% to 3% while the percentage that would allow their child to play with a child with epilepsy increased from 57% to 89% (Mustapha *et al*, 2013). Majority of the students in this study agreed that students with epilepsy should be in normal classrooms and that PLE should be allowed to have children. This is similar to some previous reports (Ekeh and Ekrikpo, 2015; Sanya *et al*, 2005). Ekeh and Ekrikpo (2015) reported that literate respondents were more likely to exhibit positive feelings towards PLE when compared to illiterate ones. In as much as the mean attitude score of the participants in the present study

was good, the fact that secondary school teachers (Mustapha *et al*, 2013) had better mean attitude score towards epilepsy than prospective health professionals may be a cause for concern. This study revealed that there was no significant influence of age, gender, year of studies, faculties and departments on participants' attitude towards epilepsy. Al-Rashed *et al* (2009) reported that females were less likely to believe that people with epilepsy should be restricted from sports, driving, socialising with other people, being employed or getting married. On the contrary, Nyame and Biriwum (1997) observed that male respondents perceive epileptics more favourably than their female counterparts.

In the present study, there was no significant relationship between participants' knowledge and attitude towards epilepsy. This is in contrast to previous reports that higher knowledge portends better attitude (Fonseca *et al*, 2004; Ojinnaka, 2002). This may be implying that attitude is not always driven by knowledge. The purported sympathy which the participants might have towards PWE might have driven them to respond humanely to the attitude questions even when they were lacking in knowledge about epilepsy. The fact that the participants were health students and were purportedly knowledgeable about the pathology of so many disease conditions would have made them to go against some African belief that epilepsy is a spiritual disease caused by evil spirits, witchcraft, and excessive palm oil (Ekrikpo, 2015).

The present study was not without limitations. As against a multicentre study, the present study was a single-centre study, and as such may not give a complete picture of the study area. There is need for future studies to recruit students from different schools in order to have a clearer understanding of the knowledge and attitude of health science students towards epilepsy.

In conclusion, the knowledge of health students of Nnamdi Azikiwe University, Anambra State, Nigeria about epilepsy was poor and significantly correlated with or influenced by their age, level of study, faculty and department of study. Their attitude towards people living with epilepsy is good and did not correlate with or influenced by their knowledge and any of their characteristics. Hence there may be a need for addition of epilepsy as a topic in the student's course outline; this will improve their knowledge about epilepsy.

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