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### ABSTRACT

**Background:** Epilepsy is one of the world's oldest known brain disorders among several medical conditions. A recent study has indicated that 70 million people are estimated to suffer from this disease. Despite the increase education and health care, some health professionals continue to linger in darkness about cause and treatment options of the disease.

**Purpose.** The main objective of this study was to assess the knowledge and attitude regarding epilepsy among nurses within the Asutifi North District with the aim of understanding their subjective experiences and knowledge on epilepsy in a socio-cultural context and how their attitude shaped their practice towards people with epilepsy.

**Methodology.** The study employed an exploratory descriptive cross-sectional design with 102 participants using a standard statistical formula. Data was collected using a paper based semi-structured self-administered questionnaire and analysis was by STATA version 12.

**Results.** Findings showed that 67.7% (69/102) of the nurses were aware of the causes of epilepsy whereas 59.8% have low level of knowledge on the disease. Results indicated that 82.4% of the nurses suspect PWE have mental illness, 70.6% of the nurses had positive attitude towards epilepsy. The socio-demographic characteristics of religion (Muslim) ( $p=0.017$ ), area of speciality (RMN) ( $p=0.045$ ) as well as close family relationship with epilepsy ( $p=0.001$ ) were significantly associated with knowledge on epilepsy. Factors that were found to influence attitude towards epilepsy were sex (Female) ( $p=0.037$ ) and religion (Muslim) ( $p=0.012$ ). However, specialty area (RMN) ( $p=0.054$ ) did not statistically impact on the study. Nurses at the Asutifi North District therefore tended to have low knowledge and positive attitude on epilepsy. It is important to improve training and health care delivery for epilepsy.

**Recommendation.** The Ghana Health Service in collaboration with the Ministry of Health should run intermediary workshops, at least every six months, to train nurses in epilepsy diagnoses to reduce the treatment gap. The health directorate should raise awareness and educate the communities on epilepsy to reduce stigma. Enhancing nursing education and training on epilepsy by the Ministry of Health and its agencies is imperative to improving health care delivery for people living with the disease.

**Key words:** *Nurses knowledge, Attitude, Epilepsy, Asutifi North District*

## INTRODUCTION

Epilepsy and psychiatry have historical links. The three ancient Indian medical systems of *Siddha*, *Ayurveda* (Science of life), and *Unani* all recognized epilepsy.<sup>[1]</sup> Epilepsy comes from the Greek word “epilambanein”, which means to be attacked or to be seized.<sup>[2,3]</sup> In the Arabic language, the term used for epilepsy is called “Al-Saraa”. The Arab and Muslim scientists like Al-Tabari and Al-Razi also described epilepsy in their books, thousand years ago, as a disease of the brain, making a clear distinction between it and the psychiatric disorders, by stating clearly that epilepsy is not related to evil spirits or supernatural powers.<sup>[2]</sup>

A study in Ghana indicated that 172 (45.3%) of the respondents did not know the cause of epilepsy among literate adults in urban population, saying they are ignorant of the cause of the disease.<sup>[19]</sup> Concerning the aetiology of epilepsy, responses identified among medical students in Uyo, Southern Nigeria showed that 18 (14.88%) of the basic students and six (5.41%) of the clinical students were positive that epilepsy was caused by evil spirits. Eleven (9.09%) of the basic students compared to six (5.41%) of the clinical students believe that epilepsy was caused by witches. Ten of the basic students as against only three (2.70%) of the clinical students identified palm oil as a cause. In relation to trauma as the cause of epilepsy, only 54 (44.63%) of the preclinical students were in the affirmative as against a whopping 92 (82.88%) of the clinical students. The result further added that a large number of clinical students 95 (85.59%) know that birth injuries can cause epilepsy as against 54 (47.11%) of the basic students. Only 44 (36.36%) of the preclinical students were aware that infections can cause epilepsy as against 98 (88.29%) of the clinical students. On brain tumours, 98 (88.29%) of the clinical students were aware that brain tumours can cause epilepsy in comparison with 87 (71.90%) of the basic students.<sup>[22]</sup>

Since epilepsy is one of the world’s oldest known brain disorders among several medical conditions,<sup>[4,5]</sup> it is the second most commonly seen neurological condition in primary care, and the most commonly seen among neurologists.<sup>[17]</sup> A recent study has indicated that 70 million people are estimated to suffer from this disease.<sup>[3]</sup> Persons with epilepsy are at risk of developing a variety of psychological problems including depression, anxiety and psychosis.<sup>[6,7]</sup> Because epileptic seizures typically include convulsions, the term convulsion is sometimes used as a synonym for seizure. However, not all epileptic seizures lead to convulsions, and not all convulsions are caused by epileptic seizures. The word “fit” is sometimes used to mean a convulsion or epileptic seizure.<sup>[8]</sup> Epilepsy as one of the major brain disorders worldwide and should be considered a health care priority in Africa. It is triggered by abnormal electrical activity in the brain resulting in an involuntary change in body movement, function, sensation, awareness and behaviour. The condition is characterized by repeated seizures or “fits” as they are commonly called. These take many forms ranging from the shortest lapse of attention to severe and frequent convulsions. Epilepsy is not only a medical condition; it also includes sociological, economical, and cultural dimensions. Secondary causes of symptomatic epilepsy in Africa are mainly related to the cerebral complications of endemic parasitic and infectious diseases, to head trauma and to the poor perinatal care for both the mother and the child. Poverty and unsafe environment play an important role as determinant factors.<sup>[9]</sup> The prevalence of active epilepsy in developing countries range from 5–10 per 1000 people, and the disorder to a significant degree is associated with a host

of parasitic and bacteria infectious diseases that are largely absent in industrial countries. Parasitic infestations, such as *Onchocerca volvulus*, *Taenia solium* and *Toxoplasma gondii* are believed to increase the risk of epilepsy.<sup>[10,7]</sup> Unlike other neurological conditions, epilepsy can be completely controlled in the majority of cases by medication or surgical procedures<sup>[17]</sup> as most of the causes of symptomatic epilepsy are preventable and treatable.<sup>[9]</sup>

In spite of global advances in diagnosis and treatment in recent years, about eight million people with epilepsy in Africa are not treated with modern anti-epileptic drugs.<sup>[9]</sup> It is also estimated that 80 percent of the burden of epilepsy is in the developing world, where in some areas 80 to 90 percent of people with epilepsy receive no treatment at all.<sup>[11]</sup>

In Ghana, children with convulsive disorder made up 3% of new patients seen in the paediatric department over a ten-year period, and that 51.5% of children consecutively enrolled in a paediatric neuro-developmental clinic of a teaching hospital in Ghana were also suffering from seizures.<sup>[9,18]</sup> Based on extrapolated statistics, the prevalence of epilepsy in Ghana is about 175,519 for a population of 20,757,032. The annual mortality rate per 100,000 people from epilepsy in Ghana has decreased by 4.2 percent since 1990, an average of 0.2 percent a year. For men, the deadlines of epilepsy in the country peaks at age 80+. It kills men at lowest rate age 10-14. Women are killed at the highest rate at age 80+. It was least deadly to women at age 10-14.<sup>[12]</sup> At 27.8 deaths per 100,000 women in 2013, the peak mortality rate for women was higher than that of men, which was 9.9 per 100,000 men.<sup>[13]</sup>

Information gathered cited Dr. James Boakye Fordjour, the Head of Obstetrics and Gynaecology at Brong Ahafo Regional Hospital, as saying that the Brong-Ahafo Regional Hospital has been recording an increasing number of epilepsy cases since 2013 and that the public should pay much attention to and support people with epilepsy to live meaningful lives.<sup>[14]</sup> Speaking at the World Epilepsy Day, Dr. Patrick Adjei urged Ghanaians to support and encourage epileptics to live normal lives. According to him, "Epilepsy once diagnosed can go away, do not despise people with epilepsy because epilepsy is not contagious as many have assumed. Epilepsy had nothing do with witchcraft and spirits but comes about as result of physical condition of the brain. Many individuals with epilepsy are perceived by the community as weak, inhuman, dangerous or inferior because of their symptoms, and as result of the stigma, these people are excluded. But epilepsy is treatable and up to 70 percent of the seizure can be cured and the risk of reoccurrence is about 25 percent."<sup>[15]</sup> Despite the fact that highly effective, low-cost treatments are available, as many as 9 of 10 people with epilepsy in Africa go untreated. The reasons for the unavailability of treatment include: inadequate health delivery systems, lack of trained personnel, lack of essential drugs, and traditional beliefs and practices that often do not consider epilepsy as a treatable condition. This treatment gap greatly increases the burden of epilepsy and disability.<sup>[16]</sup>

Because there is public fear and misunderstanding about the disorder, it makes many people unwilling to talk about it. The unwillingness leads to lives lived in the shadows, discrimination in workplace and communities, and a lack of funding for new therapies research<sup>[5]</sup>. This is evident by the report that literate adults in urban population of Ghana are ignorant of the cause of epilepsy. When quizzed, 172 (45.3%) out of the 380 respondents did not know the cause of epilepsy. Out of the 358 responses to the cause of epilepsy, 114 (31.8%) said it was inherited disease, 100 (27.9%) said it was due to witchcraft/juju or spiritual.<sup>[19]</sup> A similar study conducted on beliefs on epilepsy

in Northern Ghana highlighted that the most interesting perceived cause of seizures in males is harboring anal worms, and spirituality a strong notion as a perceived cause. Besides, there is the belief that spells of epilepsy are cast on women as a form of punishment when they engage in adultery.<sup>[21]</sup>

When medical students in Uyo, Southern Nigeria were asked about their knowledge, attitude, and perception towards epilepsy, the result was as follows: on the etiology of epilepsy, 14.88% of the basic students and 5.41% of the clinical students were positive that epilepsy was caused by evil spirits. 9.09% of the basic students compared to 5.41% of the clinical students believe that epilepsy was caused by witches. 10 of the basic students as against only three (2.70%) of the clinical students identified palm oil as a cause. The result further added that a large number of clinical students 85.59% know that birth injuries can cause epilepsy as against 47.11% of the basic students. Only 36.36% of the preclinical students were aware that infections can cause epilepsy as against (88.29%) of the clinical students.<sup>[22]</sup>

It is worth noting that when someone has seizure does not necessarily mean that person has epilepsy, though. Certain things can sometimes trigger seizures in people with epilepsy. They include: Flashing or bright lights; A lack of sleep; Overstimulation (like staring at a computer screen or playing video games for too long); Certain medications; and Hyperventilation (breathing too fast or too deeply). In addition, seizures can be triggered in anyone under certain conditions, such as life-threatening dehydration or high temperature. But when a person experiences repeated seizures for no obvious reason, that person is said to have epilepsy.<sup>[37]</sup> It is therefore important to make behavioural and psychosocial adjustments with epileptic patients to control seizure and improve and attain higher quality of life by sticking to medication regimen, having adequate sleep, good nutrition and reducing stress.<sup>[38]</sup>

In connection with the manifestations of epilepsy, the disease is also referred to as saturation of the foams in the stomach which overflow and rise to the head, resulting in a seizure<sup>[23]</sup>. However, the most common symptoms proffered by most respondents as manifestations of epilepsy include convulsion, falling down, rolling of eyes, foaming of mouth, urination, and biting of tongue.<sup>[7,24]</sup> Interestingly, surveys in developing countries with different cultures reveal common beliefs, for example, that epilepsy is a contagious illness or a kind of mental retardation.<sup>[25]</sup> Although a lot of misconceptions about epilepsy exist, it is reported that epilepsy can be spread by contact and that epileptics must be isolated or avoided.<sup>[19]</sup> This assertion was supported in a study among people with epilepsy that indicated 2.2% of the respondents admitted that epilepsy is transmitted through contacts with epileptic patients.<sup>[26]</sup> Among the medical students studied, 24.79% basic and 9.91% clinical students respectively believed that epilepsy is transmitted by saliva; 38.02% basic and 5.41% clinical students affirmed blood as a means of spread of the disease; urine was made up of 8.26% basic and 5.41% clinical students; faeces/flatus 4.96% basic and 3.60% clinical students respectively during a convulsive episode or at all times. This they indicated results in isolation and unwillingness of witnesses to touch and protect the patient from injury during a seizure. The study stressed further that epilepsy is also believed to be transferable from one person to another by various routes. As a result it leads to “courtesy stigma” where relatives, friends, and companions of persons with epilepsy are stigmatized as well.<sup>[22]</sup> Another survey indicated that nearly 5% nursing population believed that epilepsy is contagious.<sup>[27]</sup> In Ghana, a survey conducted by the

Ankaful Psychiatric Hospital OPD health team in 2003 proved also that most of the family members who accompanied their relatives to the hospital for treatment on epilepsy believed that epilepsy is infectious and they might have gotten the condition through physical contact of an evil-intended person through whose spell the condition spreads. So individuals with such conditions are shunned, people refusing to even neither shake hands nor eat with them, and would not assist the individuals when they have the attack, not to talk of marriage.<sup>[28]</sup>

The attitude of a person towards a certain object (person, word, or behavior) can be defined as a subjective evaluation of this object. The subjective value of an object can be negative, neutral or positive.<sup>[29,30]</sup> Though attitude is a complex and abstract construct,<sup>[31]</sup> people suffering from epilepsy have been discriminated against in several ways.<sup>[32]</sup> Report from other studies have shown that people with less awareness and knowledge about epilepsy tend to have negative attitudes toward the disease and misperceptions such as epilepsy being a form of insanity, untreatable, contagious, and hereditary or a form of mental retardation. Cultural beliefs, superstition, and lack of information about epilepsy have perpetuated such misconceptions in developing countries.<sup>[33]</sup> However, the Koran clearly chastises that people suffering from different types of disorders should be treated with respect because their fate might be attributed to the will of Allah rather than personal weaknesses or sinful behaviour.<sup>[32]</sup> It is important that health care professionals be well informed about epilepsy and take an appropriate attitude towards the disease.<sup>[34]</sup> Clinical nurses lack of knowledge and negative attitudes regarding epilepsy may affect the quality of health care for patients with epilepsy.<sup>[35]</sup>

An observation made between October and November 2016 at the Asutifi North District Health Directorate in Brong Ahafo Region of Ghana indicated that among the top 10 diseases in the district, epilepsy was not captured, and that the district has minimal information on epilepsy. This was evident by data gathered from the Ghana Health Service (GHS) District Health Information Management System (DHIMS) which indicated that the Brong Ahafo Region had recorded 17,666 for cases of epilepsy in 2012, with 104 cases of epilepsy for Asutifi South District, but none for the Asutifi North. In 2013, there was a rise in reported cases of the condition up to 1,888, but a slight decline in Asutifi South with reported cases being 100. In 2014 and 2015, the number of reported cases increased to 3,166 and 3,495 respectively, whilst the Asutifi South recorded 128 and 125 within the same period, but none for the Asutifi North Health Directorate. However, there was a sharp fall in the reported cases of epilepsy in the Region with a figure of 1,377 with the Asutifi North Health Directorate recording 10 cases from January to June, 2016, and in the same duration Asutifi South recorded 33 cases.<sup>[20]</sup>

Despite the increase education and health care, some health professionals continue to linger in darkness about cause and treatment options of the disease. As efforts to improve care of people living with epilepsy are a major concern, little has been done to identify the extent of subjective knowledge and attitude among nurses.

## **METHODOLOGY**

This was an exploratory cross sectional study on knowledge and attitude of nurses in epilepsy working in the Asutifi North District in the Brong Ahafo Region of Ghana. The study population consisted of nurses (both males and females) who have been licensed by the Nursing and

Midwifery Council of Ghana and working in government facilities. The exclusion criteria were private health facilities, non-trained health professionals and other health professionals without nursing background, and student nurses on clinical attachment during the period of study in the district.

### **Sample procedure**

Multistage sampling technique was used to select the study participants from the communities. A standard statistical formula from Rumsey, 2016, was used to arrive at a sample size of 102. The starting point was randomly selected and a systematic random sampling method was used to select the study participants.

### **Research tool and data collection**

The research tool used for data collection for this study was a semi-structured questionnaire.

### **Data Analysis and presentation of results**

Descriptive statistics, which involves interpretation using frequencies and percentages, were used in representing data for the socio-demographic characteristics of all respondents. Besides, responses on other items and other relevant questions were cross-tabulated. The statistical tool that was used for analyzing the data was statistics and data, syllabic abbreviated as STATA, version 12.

A bivariate logistic regression analysis was conducted to test the association between independent variables and outcome variables. In responding to the questionnaire, participants who demonstrated positive responses on multiple options were operationally categorized into high knowledge and those with poor responses as having low knowledge of the disease under study. This was done to see how significant the variables influence the outcomes of the study. This was also done for attitude on epilepsy as having positive and negative attitude on the categorisations.

### **Ethical consideration**

To obtain data for this study, an introductory letter was collected from the Graduate School, School of Allied Health Sciences, and Department of Public Health of the University for Development Studies, Tamale, which was presented to the Health Directorate of Ghana Health Service in the Asutifi North District. It was to explain the purpose of the study and to seek permission to involve the nurses. Besides, the purpose of the study was explained to the participants by the researcher to gain their maximum cooperation and also to conform to research ethics.

## **RESULTS**

### **Socio-demographic characteristics**

Majority of the respondents 78.4% (80/102) were between the ages 21 to 30 years. More than half (73.5%) of the respondents were females. Concerning religion, 87.3% of the respondents were Christians, 7.8% were Muslims and 3.9% practiced African Traditional Religion, with only 1.0% belonging to the Buddhism. About 39.2% of the respondents were Community Health Nurses, while a few (6.9%) were Registered Midwives, and 28.4% were Health Assistant Clinical (HAC).

Most respondents (91.2%) had no close family member with epilepsy with 8.8% having a close family history of epilepsy.

**Table 1: Socio-demographic Data of Respondents**

Variable	Frequency (102)	Percentage (100%)
<b>Age</b>		
- 21-30	80	78.4
- 31-40	14	13.7
- 41-50	5	4.9
- 51-60	3	2.9
<b>Sex</b>		
- Male	27	26.5
- Female	75	73.5
<b>Religion</b>		
- Christianity	89	87.2
- Muslim	8	7.8
- Traditional	4	3.9
- Others	1	1.0
<b>Specialized Area</b>		
- RGN	15	14.7
- RMN	11	10.8
- RM	7	6.9
- CHN	40	39.2
- Others	29	28.4
<b>Close Family with Epilepsy</b>		
- Yes	9	8.8
- No	93	91.2

Source: Field data (2017)

### **Awareness on the causes of epilepsy**

Majority of the nurses 67.7% (69/102) said “Yes” they are aware of the causes of epilepsy. This implies that more than half of the nurses have knowledge about the causes of epilepsy.

### **Knowledge of factors contributing to the development of epilepsy**

The various factors contributing to the development of epilepsy have been captured under this session. The results of the perceived causes of epilepsy show that 48.0% of the nurses associated birth trauma to be the cause of epilepsy which is correct response. In terms of hereditary, 22.5% of the respondent gave their accent to it which is a wrong response, whilst 13.7% of the respondents attributed the onset of the disease to brain injury which they were right. Though the same number of the nurses indicated witchcraft as the perceived cause of epilepsy, they were wrong with that response. Notwithstanding the perceived causes of epilepsy, the result of the data indicated that



57.8% of the respondents agreed that convulsion contribute to the development of epilepsy, 21.6% of the respondents agreed that high body temperature contribute to the development of epilepsy whilst 14.7% of the respondents concurred malaria as a contributing factor to the development of epilepsy. It is worth to say that all those responses given by the nurses were all correct. In connection with maternal factors, the result showed that 68.6% of the respondents agreed that maternal alcohol consumption is a risk factor in epilepsy, 64.7% of the respondents agreed that malnutrition is a risk factor in epilepsy, 49.0% of the respondents were in accord that drug use is a risk factor in epilepsy, while only a few 23.6% of the nurses knew maternal age above 30 years to be a risk factor for developing epilepsy. The above responses given by the nurses on the maternal risk factors to the development of epilepsy were all right.

Critical assessment of the maternal risk factors led to the ascertainment of some activities that sometimes trigger seizure in people with epilepsy. Out of the 102 respondents, 8.8% nurses said “Yes” staring at TV/Computer screen for too long could trigger seizure. Besides, 36.3% of the nurses cited Stress as a triggering factor. In terms of breathing too fast/deeply could trigger seizure in PWE, 3.9% of the nurses accented to that fact. More so, 12.7% of the nurses claimed Flashing or bright light could trigger seizure, 45.1% of them identified lack of sleep as a contributory factor that could trigger seizure in PWE. The responses given by the few nurses on this variable were all correct.

Data collected on the manifestation of epilepsy from the nurses depicted that out of the 102 respondents, 31.4% of the nurses said “Yes” to Shrill cry (Shouting) as a clinical feature of epilepsy. In addition, 49.0% of the respondents indicated positive to loss of consciousness. Whilst falling down was accepted by 48.0% nurses as a manifestation of epilepsy, majority 60.8% of the nurses claimed jerking of the body as the cardinal manifestation of epilepsy, and Rolling of the eyes was accepted by 30.4% of the nurses, and 45.1% of the respondents said “Yes” to foaming of the mouth. When it came to the biting of the tongue as a manifestation of epilepsy, 30.4% of the nurses affirmed it as a clinical feature; urination was mentioned by 23.5% of the respondents. Few 15.7% of the nurses responded “Yes” to abnormal behaviour as a manifestation. A critical assessment of the findings on manifestations of epilepsy from the respondents depicted that the responses afore-given were all right. It is deduced from the data that majority of the nurses do not know the clinical features of the disease. This is evident from the negative responses cited by the majority of the respondents. However, the manifestations serve as indicators in monitoring people with epilepsy so that urgent or immediate attention could be given to them. Table 2 depicts the detail results on knowledge of respondents on factors contributing to the development of epilepsy.

**Table 2: Knowledge of respondents on factors contributing to the development of epilepsy**

Factors contributing to the Development of Epilepsy	Response rate (N=102)	
	Correct (%)	Wrong (%)
<b>Perceived causal factors</b>		
- Curse	95 (93.1%)	7 (6.9%)
- Hereditary	79 (77.5%)	23 (22.5%)
- Brain injury	14 (13.7%)	88 (86.3%)
- Witchcraft	88 (86.3%)	14 (13.7%)
- Birth trauma	49 (48.0)	53 (52.0%)
- Spiritually possessed	90 (88.2%)	12 (11.8%)
- Brain infection	10 (9.8%)	92 (90.2%)
- Poison/Bad blood	96 (94.1%)	6 (5.9%)
<b>Personal factors</b>		
- Convulsion	59 (57.8%)	43 (42.2%)
- High temperature	22 (21.6%)	80 (78.4%)
- Malaria	15 (14.7%)	87 (85.3%)
- Parasitic infections	9 (8.8%)	93 (91.2%)
- Others factors	4 (3.9%)	98 (96.1%)
<b>Maternal factors in epilepsy</b>		
- Maternal alcohol	70 (68.6%)	32 (31.4%)
- Malnutrition	66 (64.7%)	36 (35.3%)
- Drug use	50 (49.0%)	52 (52.0%)
- Maternal age >30 years	24 (23.6%)	78 (76.4%)
<b>Triggering factors</b>		
- Lack of sleep	46 (45.1%)	56 (54.9%)
- Stress	37 (36.3%)	65 (63.7%)
- Flashing/Bright light	13 (12.7%)	89 (87.3%)
- Staring at screen for long	9 (8.8%)	93 (91.2%)
- Breathing too fast	4 (3.9%)	98 (96.1%)
<b>Manifestation of Epilepsy</b>		
- Jerking of the body	62 (60.8%)	40 (39.2%)
- Loss of consciousness	50 (49.0%)	52 (51.0%)
- Falling down	49 (48.0%)	53 (52.0%)
- Foaming of the mouth	46 (45.1%)	56 (54.9%)
- Shrill cry (Shouting)	32 (31.4%)	70 (68.6%)
- Rolling of the eye	31 (30.4%)	71 (69.6%)
- Biting of tongue	31 (30.4%)	71 (69.6%)
- Urination	24 (23.5%)	78 (76.5%)
- Abnormal behaviour	16 (15.7%)	86 (84.3%)

Source: Field data (2017)

### Categorization of level of knowledge on epilepsy

Participants who scored 16 correct or more out of the 31 items on the knowledge of factors contributing to the development of epilepsy were operationally labelled as having “high” knowledge and those who scored less or equal to 15 seen as having “low” knowledge. This is shown in table 3.

**Table 3: Level of knowledge of participants**

Level of knowledge	Frequency (N=102)	Percentage (100%)
- High	41	40.2
- Low	61	59.8

**Source: Field data (2017)**

The categorization indicates that majority, 59.8% (61/102) of the nurses were less knowledgeable on the epilepsy.

### Attitude towards epilepsy

Since the nurses’ attitude would influence their practice towards the disease, it was important to assess the nurses’ position towards epilepsy. In terms of PWE having the same intelligence as non-epileptics, out of the 102 respondents, 34.3% supported that idea and they were right. About 8.8% were of the view that PWE could have the same employment as the general public do, and their response was correct. When it comes to relationship, 6.9% of the nurses said they would have amorous relationship with PWE for which they were also right in their response, and 17.6% of the nurses do not suspect PWE to have mental illness which is also correct in their response.

Results on this item show clearly that out of the 102 study participants, majority responded in the negative to the items given on the questionnaire, which they were all correct. In terms of Urine, 99.0% answered “No,” likewise response for Flatus (97.1%) and Faeces (95.1%). In connection with Marriage, majority (91.2%) opted “No,” and the same negative response for Physical contact (89.2%) and Sharing of food (85.3%) respectively, for which the respondents were right in their answers. Furthermore, results on this item indicated that 95.1% of the nurses responded “No,” meaning that breathe of epileptic patient is not infectious, for which their response was correct. Also, 97.1% of the nurses responded “No” the droppings of animals cannot spread epilepsy, for which response was correct. Notwithstanding, none of the respondents could mention any animal(s) whose droppings can spread epilepsy. Furthermore, 97.1% of the respondents disclaimed that coming in contact with the excretions (body fluids) from PWE can be infectious, which was a correct response from the study participants. It was observed from the data that all the nurses (100%) agreed to the fact that saliva could not be a mean of transmission of epilepsy as their response to that item were in the negative, which was also correct. It was observed from the result that respondents disclaimed, denied and refuted the fact that epilepsy is neither an air-borne disease, nor an animal dropping transmitted disease, and is not contagious through the excretion of body fluids. The detail results of the attitude towards epilepsy are in Table 4.

**Table 4: Attitude towards epilepsy**

Attitude	Response rate (N=102)	
	Correct (%)	Wrong (%)
<b>Nurses attitude towards PWE</b>		
- Have same intelligence	35 (34.3%)	67 (65.7%)
- Have same employment	9 (8.8%)	93 (91.2%)
- Amorous relationship	7 (6.9%)	95 (93.1%)
- Suspicion of mental illness	18 (17.6%)	84 (82.4%)
<b>Ways of transmission</b>		
- Urine	101 (99.0%)	1 (1.0%)
- Flatus	99 (97.1%)	3 (2.9%)
- Animal dropping	99 (97.1%)	3 (2.9%)
- Excretions/body fluids	99 (97.1%)	3 (2.9%)
- Breath from epileptics	97 (95.1%)	5 (4.9%)
- Faeces	97 (95.1%)	5 (4.9%)
- Marriage	93 (91.2%)	9 (8.8%)
- Physical contact	91 (89.2%)	11 (10.8%)
- Sharing of food	87 (85.3%)	15 (14.7%)
- Saliva	102 (100.0%)	0 (0.0%)

Source: Field data (2017)

### Categorization of attitude towards epilepsy

Attitude towards epilepsy was operationally classified into good and poor attitudes. Respondents who had three appropriate responses on the attitude were seen as having “good” attitude towards epilepsy, and those who had four or more inappropriate responses were thus classified as having “poor” attitude towards epilepsy. The table 5 below highlights on the attitude categorisation.

**Table 5: Categorization of attitude towards epilepsy**

Attitude	Frequency (N=102)	Percentage (100%)
- Positive	72	70.6
- Negative	30	29.4

Source: Field data (2017)

Looking at the categorisation above, it is clear that 70.6% (70/102) of the nurses have good attitude towards epilepsy.

### Socio-demographic determinants on knowledge and attitude on epilepsy

The influence of socio-demographic characteristics on knowledge and attitude on epilepsy were assessed to test their statistical strength on the study. The table 6 (a, b) below highlights the detail of the associations.

**Table 6a: Socio-demographic factors and knowledge on epilepsy**

Variable	Knowledge on epilepsy		p-value
	High (N=41) (100%)	Low (N=61) (100%)	
<b>Age</b>			
- 21 – 30 years	30 (73.3%)	50 (82.0%)	0.234
- 31 – 40 years	7 (17.1%)	10 (16.4%)	
- 41 – 50 years	2 (4.8%)	1 (1.6%)	
- 51 – 60 years	2 (4.8%)	0 (0.0%)	
<b>Sex</b>			
- Female	6 (14.6%)	7 (11.5%)	0.133
- Male	35 (85.4%)	54 (88.5%)	
<b>Religion</b>			
- Christianity	30 (73.2%)	53 (86.9%)	0.017*
- Muslim	7 (17.1%)	5 (8.2%)	
- Traditionalist	4 (9.7%)	0 (0.0%)	
- Others	0 (0.0%)	3 (4.9%)	
<b>Speciality area</b>			
- RGN	4 (9.8%)	5 (8.2%)	0.045*
- RMN	2 (4.9%)	0 (0.0%)	
- RM	3 (7.3%)	0 (0.0%)	
- CHN	16 (39.0%)	36 (59.0%)	
- Others	16 (39.0%)	20 (32.8%)	
<b>Close family relationship with epilepsy</b>			
- Yes	8 (12.2%)	1 (8.2%)	0.001*
- No	34 (87.8%)	56 (91.8%)	

(\*)=p is statistically significant based on chi square analysis Source: Field data (2017)

When the socio-demographic characteristics was cross-tabulated with knowledge of epilepsy, a significant difference was observed among religion ( $p=0.017$ ), specialty area ( $p=0.045$ ), and close family relationship with epilepsy ( $p=0.001$ ).

**Table 6b: Socio-demographic factors and attitude**

Variable	Attitude towards epilepsy		p-value
	Good (N=72) (100%)	Poor (N=30) (100%)	
<b>Age</b>			
- 21 – 30 years	54 (75.0%)	20 (66.7%)	0.345
- 31 – 40 years	12 (16.6%)	9 (30.0%)	
- 41 – 50 years	3 (4.2%)	1 (3.3%)	
- 51 – 60 years	3 (4.2%)	0 (0.0%)	
<b>Sex</b>			
- Female	57 (79.2%)	26 (86.7%)	0.037*
- Male	15 (20.8%)	4 (13.3%)	
<b>Religion</b>			
- Christianity	60 (83.3%)	24 (80.0%)	0.012*
- Muslim	8 (11.1%)	5 (16.7%)	
- Traditionalist	4 (5.6%)	0 (0.0%)	
- Others	0 (0.0%)	1 (3.3%)	
<b>Speciality area</b>			
- RGN	12 (16.6%)	5 (16.7%)	0.054
- RMN	9 (12.5%)	0 (0.0%)	
- RM	7 (9.7%)	0 (0.0%)	
- CHN	22 (30.6%)	15 (50.0%)	
- Others	22 (30.6%)	10 (33.3%)	
<b>Close family relationship with Epilepsy</b>			
- Yes	6 (8.3%)	5 (16.7%)	0.216
- No	66 (91.7%)	25 (83.3%)	

(\*)=p is statistically significant based on chi square analysis **Source: Field data (2017)**

When the socio-demographic characteristics was cross-tabulated with attitude towards epilepsy, a significant difference was observed among sex ( $p=0.037$ ), and religion (0.012). The area of specialty ( $p=0.054$ ) was statistically insignificant.

## DISCUSSION

### Knowledge on epilepsy

The knowledge of the study participants on epilepsy regarding the causes in the development of epilepsy was analyzed. The results on being aware of the cause of epilepsy indicated that a majority 67.7% (69/102) of the nurses responded 'Yes' of their awareness of the causes of epilepsy. This implies that majority of the nurses have basic knowledge about the causes of epilepsy. This assertion was in sharp contrast to a study in Ghana that indicated 172 (45.3%) of the respondents

did not know the cause of epilepsy among literate adults in urban population, saying they are ignorant of the cause of the disease.<sup>[19]</sup>

On the perceived causes of epilepsy, 48.0% of the nurses associated birth trauma to be the cause of epilepsy, 24.5% knew of brain injury, 22.6% claimed hereditary as a cause of epilepsy whilst 9.8% of the nurses said brain infection is also a cause of epilepsy. However, 13.7% of the respondents attributed witchcraft to be the cause of epilepsy, spiritual possession accounting for 11.8% of the respondents, few 6.7% of the respondents said it is caused by curses and 5.9% also said epilepsy could be caused by poisoning or bad blood. This result is in harmony with other studies conducted in Ghana<sup>[19,20]</sup> and Uyo, Southern Nigeria.<sup>[22]</sup> It can be deduced that the causes of epilepsy are categorized into physiological and cultural superstitious causes of the disorder. Specifically, the physiological causes took the form of brain injury, birth trauma and brain infection whilst the cultural superstitious causes also manifested through curse, heredity, spiritual possession and poisoning or bad blood.

When factors that could trigger seizure in people with epilepsy were assessed, 45.1% of nurses identified lack of sleep as a contributory factor that could trigger seizure in epileptic patients, 36.3% cited stress whilst 3.9% attributed fast breathing to trigger seizure in epileptic patients with few 8.8% affirming staring at computer screen for too long. This result is indicating that majority of the nurses did not know what could trigger seizure in people living with epilepsy as most of their responses were in the negative. However, seizures could be triggered in anyone under certain conditions such as life-threatening dehydration or high temperature among other factors.<sup>[37]</sup>

Regarding manifestation of epilepsy, 60.8% nurses said jerking of the body is a manifestation of epilepsy, followed by loss of consciousness 49.0%; foaming of the mouth (45.1%) of nurses knew as a manifestation of epilepsy; 48.0% knew falling down to be a manifestation of epilepsy, while shouting was described by 31.4% nurses as manifestation of epilepsy. 30.4% of respondents identified rolling of the eye and tongue biting as manifestation of epilepsy, 23.5% respondents said urination is manifestation of epilepsy with only a few 15.7% respondents associating abnormal behaviour to epilepsy. The few who responded in the affirmative result was in consonance with other studies that cited responses such as convulsion, falling down, rolling of eyes, foaming of mouth, urination, and biting of tongue as manifestations of epileptic attack.<sup>[7,25]</sup> The socio-demographic characteristics of religion (Muslim) ( $p=0.017$ ), area of speciality (RMN) ( $p=0.045$ ) as well as close family relationship with epilepsy ( $p=0.001$ ) were significantly associated with knowledge on epilepsy.

### **Attitude towards epilepsy**

The results of this study on amorous relationship showed that 93.1% of the respondents posited that they will not engage themselves in amorous relationship with a person with epilepsy. This was in congruent with the assertion that epileptic persons suffer untold social deprivations and discrimination in marital life.<sup>[7]</sup> It was reported that 44.8% of their respondents indicated their refusal to marry people with epilepsy.<sup>[41]</sup> This is in consistent with the findings of this research report. Further discussion indicated that nearly 35% of the students believed that persons with epilepsy could not lead a happy married life.<sup>[27]</sup> In support of the findings of this research, approximately 25% of health care workers would not allow their child to marry someone with

epilepsy and 20% thought people with epilepsy should not marry.<sup>[46]</sup> Findings from another study indicated that a person with epilepsy should not be married and bear children and majority agreed to have a divorce or separate spouse if diagnosed of epilepsy.<sup>[47]</sup> To buttress the assertion afore-indicated, a study in South West Cameroon gave the results in support of this research that about 33 percent of student nurses and 52 percent of laboratory assistants would object to their children marrying people with epilepsy.<sup>[40]</sup> In support of these assertions, it has been published that nearly one-third (32.2%) felt that epilepsy interferes with marriage,<sup>[43]</sup> as one study confirmed that the divorce rate is higher in PWE.<sup>[48]</sup> In sharp contrast to the findings of this study, epilepsy does not appear to be a major stress factor in marriage as long as the spouse is knowledgeable about the condition. Such couples often exhibit a greater degree of mutual concern and support.<sup>[49]</sup> In support of the counter arguments, a report has indicated that 85.1% of their respondents approved marrying an epileptic.<sup>[34]</sup> Besides 75% of a study's respondents would allow their son or daughter to marry someone with epilepsy.<sup>[46]</sup> Similar findings has showed that 84% and 85% of nurses and physicians would maintain a relationship with a person with epilepsy, with 61% of nutritionists doing the same.<sup>[50]</sup>

When attitude towards epilepsy was associated with the socio-demographic characteristics to determine its influence, a significant difference was observed among sex (female) ( $p=0.037$ ) and religion (Muslim) ( $p=0.012$ ). However, specialty area (RMN) ( $p=0.054$ ), did not statistically impact on the study, and there was no statistical significance on how age and close family relationship with epilepsy influence knowledge on the disease.

The findings of this study also revealed that 82.4% of the nurses suspect epileptic people to have mental illness. In tune with the result from this analysis is a report where 10% equated epilepsy with insanity,<sup>[45]</sup> thus confirming the notion put forth by majority of the nurses for this research. More so, report from other studies have shown that people with less awareness and knowledge about epilepsy tend to have negative attitudes toward the disease and misperceptions such as epilepsy being a form of insanity.<sup>[33]</sup> To support the assertion, a report cited that nearly 35 percent of the nursing students believed epilepsy is a mental illness.<sup>[27]</sup> This assertion is similar to the findings of this research report. Consequently, it has been observed in another study that 26.4 percent of the university students correlated epilepsy with mental disease.<sup>[34]</sup> Similar findings by various authors showed that respondents equate epilepsy to mental illness.<sup>[39,40,41,42]</sup> It is obvious from the discussions on this issue of suspicion of mental illness that majority of the nurses for this study associate epilepsy with mental illness and this points to lack of knowledge of the disease.

In sharp contrast to the findings of this research is the revelation that the highly educated did not view epileptics as not mentally sick persons.<sup>[19]</sup> More so, a publication claimed that 67.8 percent of their respondents believed persons with epilepsy were neither mad nor insane<sup>[43]</sup> to defend the earlier assertion. In support of this defense is the publication that 68 respondents thought "epilepsy is not a form of mental illness," and 66 (97.05%) believed that people with epilepsy are not insane.<sup>[33]</sup>

Though epilepsy may co-exist with mental illness, in some cases, and some PWE have exhibited abnormal behaviour after the crisis phase of the attack, as per personal clinical observations, most PWE are intellectually sound and have excel both academically and in other professions. To conclude, epilepsy is not a psychotic disorder.



Data from this study further stressed that 65.7% (67/102) of the respondents agreed that people with epilepsy do not have the same intellectual capabilities as the general public. In connection with epileptics' intellectual capabilities, there is evidence of association between epilepsy and specific learning disabilities as 42.7% of their respondents knew that the person with epilepsy may have learning problems.<sup>[44]</sup> In affirming the findings of this research, people with mild to moderate intellectual disability (ID) lifetime epilepsy have been reported to have prevalence at between six and 15 percent. In those with severe ID epilepsy occurs in around 25 percent whilst in those with profound ID (IQ<20) (Ring, 2013). These findings show a strong correlation between epilepsy and intellectual capabilities of PWE.

Though majority of the nurses 57.8% did not give any answer to the mode of transmission of epilepsy, few 14.7% respondents perceived sharing of food could possibly transmit epilepsy, and 10.8% nurses said physical contact with a patient can facilitate transmission of the disease while 9(8.8%) respondents said it could be transmitted through marital union. On other ways of transmission of the disease, 4.9% indicated breath from an epileptic patient is infectious, 2.9% said animal dropping and contact with excretions respectively from epileptic patients could spread the disease. This result confirms other studies where respondents are of the view that epilepsy is contagious and could be spread through contact (physical), saliva, blood, urine, and faeces/flatus [19,26,22,27,28]. When the attitudes of the nurses towards epilepsy were classified, it tends out that majority 70.6% (72/102) had positive attitude towards the disease. This led to investigating the strength of the socio-demographic characteristics as against the attitude of the nurses. It tends out that the variables that influence attitude were sex (female) (p=0.037), Muslim religion (p=0.012), and area of speciality (RMN) (p=0.054). There were no statistical associations between other ways of transmission of epilepsy and attitude.

## CONCLUSION

Nurses at the Asutifi North District tended to have low knowledge and positive attitude on epilepsy. It is important to improve training and health care delivery for epilepsy. This is because there still exist cultural beliefs among some of the respondents on the spread of the disease as heredity, spiritual possession and curse. These serve as a drawback to the positive attitudes shown towards epilepsy.

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