

Global Perspectives in Epilepsy Management: An Integrated Review of Related Literature

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Abstract

This study is basically centered on the global perspectives in epilepsy management. The authors reviewed literature on epilepsy management in non-western and western contexts. The study reveals the ancient history, thought to be a spiritual condition since time immemorial. The authors examined the perceptions of the native tribes of Central and South America who still associate epilepsy with evil spirits and witchcraft. Some Asians too, have disregarded the western concept of epilepsy of epilepsy management in spite of the substantial economic development and improvement in health services and analysis was carried out on their perceptions towards the causes and treatment of epilepsy. In Africa, the reaction to epilepsy has been described as being shaped by traditional beliefs surprisingly similar to each other. Finally, the authors examined epilepsy medication, the supernatural views of epilepsy continue to dominate the perceptions of people towards the causes and treatment of epilepsy medications are continuously referred to as "western remain deeply rooted in spiritual and traditional medicines. Anti-epilepsy medications are continuously referred to as "western practices" in some non-western countries that are particular about their traditional knowledge. The attitudes of past societies towards epilepsy have left a legacy of stigma and damaging misconceptions which still persist today in non-western countries.

Keywords

Global Perspectives, Epilepsy, Epilepsy Management, Non-Western Countries, Western Countries

1. Introduction

In this paper, the authors carry out an overview of global perspectives in epilepsy management. The study reveals the ancient history of epilepsy that is thought to be a spiritual condition since time immemorial. The authors examined perceptions held by native tribes of Central and South America who still associate epilepsy with evil spirits and witchcraft. Some Asians too, have disregarded the western concept of epilepsy of epilepsy management in spite of the substantial economic development and improvement in health services and analysis will be carried out on their perceptions towards the causes and treatment of epilepsy. In Africa, the reaction to epilepsy has been described as being shaped by traditional beliefs surprisingly similar to each other. This paper thus examined the general belief that epilepsy is a supernatural cause and therefore not treatable with western medicine. These non-western perspectives seem to differ with the western approach to epilepsy management, which include pharmacological treatment, therapeutic drug monitoring and patient education and counselling.

2. Evolution of Epilepsy

The word "epilepsy" is derived from the Greek word *epilepsia* which means to take hold of or to seize Tuan [1]. Jankovic et al [2] argue this meaning is very close to what

Babylonians believed was the cause of epilepsy. They used the verb *sibtu* to denote epilepsy and practically this means being seized. In other, words one could say the traditional definition of the word epilepsy means to be seized. Tuan [1] emphasized that these epileptic seizures were believed to begin with the possession by a demon ending when the demon has departed the body. What it means is that the ancient people were convinced that a person under seizure was spiritually possessed.

Saraceno, Avanzini and Lee [3] and Tuan [1] highlight that the oldest medical records indicate that epilepsy has continuously affected people since the beginning of the recorded history. They further indicate that throughout the ancient history, epilepsy was thought to be a spiritual condition. The world's oldest description of an epileptic seizure is derived from a text in Akkadian, an extinct language that was spoken in ancient Mesopotamia (present day Iraq) and was written around 2000BC. According to Magiorkinis, Kalliopi and Diamantis [4] the person described as being epileptic in the text was diagnosed as being under the influence of a Moon God, and went under an exorcism. Jacobs and Louis [5] describe exorcism as a religious or spiritual practice of evicting demons or some other spiritual entities from an individual or an area they are believed to have possessed.

Saraceno, Avanzini and Lee [3] reiterates that the oldest known detailed record of epilepsy is found in the Babylonian medical text from 1067-1046BC. Babylonia is an ancient cultural area based in central-southern Iraq. Magiorkinis, Kalliopi and Diamantis [4] further pointed out that this record gives signs and symptoms as well as details of treatment and the likely outcomes. In other words, this record describes many features of different types of seizures. However, Saraceno, Avanzini and Lee [3] and Magiorkinis, Kalliopi and Diamantis [4] observe that Babylonians did not have a biomedical understanding of the nature of this disease and consequently attributed these seizures as possession by evil spirits and thus treatment was offered through spiritual means.

Around 900BC, one Punarvasu Atreya described epilepsy as loss of consciousness [6]. However, the ancient Greeks had contradictory views on this definition. They insisted epilepsy as a form of spiritual possession and also associated the condition with genius and divine [4, 7]. The Greeks believed important figures like Julius Caesar and Hercules had the disease. The Greeks had no hard feelings towards all people with epilepsy as they felt some of those people with epilepsy were genius.

Notable exception to this thought of spiritual and divine view was the school of Hippocrates who rejected the idea that epilepsy was caused by evil spirits. Hippocrates was a Greek physician and is considered as one of the most outstanding figures in the history of medicine. Saraceno, Avanzini and Lee [3] and Magiorkinis, Kalliopi and Diamantis [4] contended that Hippocrates proposed that epilepsy was a medically treatable problem that originates in the brain. Hippocrates also accused those who were attributing a sacred cause to epilepsy as ignorant through a belief in superstitious magic. He believed heredity was an important cause, described the outcome to be worse if presented at an early age and noted physical characteristics and social shame associated with epilepsy [4]. Unlike the Babyloans and Greeks who were referring the disease as sacred disease, Hippocrates referred to it as the great disease. However, in spite of his effort detailing the physical origins of the disease, his view was not accepted at the time [3]. Evil spirits continued to be blamed for epilepsy.

Mervyn and Bladin [6] state that in Ancient Rome people could not eat or drink in the same pottery with someone infected with epilepsy. Jilek-Aall [8] also explains the trauma that people with this disease have suffered. According to him, in many cultures people with epilepsy have been stigmatized and shunned. Jilek-Aall [8] provided a case by Jean-Martin Charcoat, French Professor who discovered people with epilepsy under imprisonment and in another study were he discovered people with epilepsy seating side-by-side with the mentally ill, those with chronic syphilis and the criminally insane. According to Judika [9], epilepsy in Ancient Rome was known as the assembly hall and seen as a curse from the gods. Judika [9] also claims in northern Italy, epilepsy was traditionally known as Saint Valentine's malady. The attitude of people towards epilepsy was and in some parts of the world is still shaped with these traditional beliefs.

Tuan [1] explains that the work of the 19th century neurologist; John Hughlings Jackson marked the beginning of modern era treatment of epilepsy. Jackson [10] in Tuan [1] defined a seizure as an occasional, excessive and disorderly discharge of tissue on muscles. Jackson [10] in Tuan [1] recognised the association between these clinical seizure manifestations as well as their origin in the brain. Jung and Berger [11] in Tuan [1] further recalls another major contribution by a German psychiatrist Hans Berger, who in 1929 showed that it is possible to record from the surface skull electric currents generated in the brain. He named this form of recording electroencephalogram (EEG). Subsequently, it was demonstrated that there could be changes in the EEG during or between seizures in people with epilepsy [12].

In London, Shorvon [13], Sander, Barclay & Shorvon [14], Luongo [15], Silvester [16], Rose [17] and Stone [18] report an evolution of epilepsy theory and practice in between 1860 and 1910. Amongst the reported contributions towards epilepsy were the following; the development of the physiological structure theory of the nervous system in relation to epilepsy, investigation and demonstration of cortical localization of the epileptic activity, principle of focal epilepsy establishment and focal seizure types description, the discovery of bromide as the first effective drug treatment for epilepsy and the first surgical operation for epilepsy. Perucca and Gilliam [19] support bromide as the first effective anti-seizure medication. Another modern treatment known as phenobarbital was developed in 1912 followed by phenytoin in 1938 [20]. Since then, several anticonvulsant drugs have been manufactured and they are on

the market.

Nevertheless, these have continuously been referred to as "Western practices" in some non-western countries that are particular about their traditional knowledge. Despite the reported progress in London the supernatural views of epilepsy continue to dominate the perceptions of people towards the causes of epilepsy. For epilepsy treatment, many people especially those in non-western countries remain deeply rooted in spiritual and traditional medicines. Temkin [21] admits that the Hippocratic concept had little influence on the prevailing supernatural view of epilepsy. Tuan [1] further posited that the attitudes of past societies towards epilepsy left a legacy of stigma and damaging misconceptions which still persist today. People with epilepsy have continued to face fear, prejudice as well as discrimination in their everyday lives. What then is the current understanding of epilepsy in non-western contexts?

3. Epilepsy in Native Tribes of Central and South America

Carod-Artal and Vazquez-Cabrera [22] observe that beliefs about epilepsy in native tribes of Central and South America differ from those observed in other cultures, such as African and Asian. They report epilepsy to be a well recognised disease in pre-Columbian cultures as chronicled by the Spanish in the sixteenth century. According to Carod and Domenech [23], native societies in Central and South America beliefs are deep rooted in the traditional medical system whose knowledge is orally transmitted. This study relies on three different community groups; Maya Tzel community of Mexico, Kamayaru people of Brazil and Uru-Chipaya of Spain.

The Tzeltal community is one of the most deeply traditional groups from Central America. Carod-Artal and Vazquez-Cabrera [22] observe that the geographic location is in an isolated mountainous area, an ancient social structure and the religion is not yet influenced by the western culture. In Tzeltal language, epilepsy is called *tub tubik'al* and literally it means a person that breathes anxiously or shockingly [24]. In this traditional group, epilepsy is not considered an inborn disorder, but it is thought it is acquired most times during adult life and stay in the blood.

Carod-Artal and Vazquez-Cabrera [22] further state that the magical and religious conception in this culture is that epilepsy is derived from a religious system based on *nahualism*, a set of millenarian traditions that is present in most Meso-American cultures. They believe that *nahul* or an accompanying spirit is assigned to each man at birth. These *nahuals* live in the sacred mountains and they do share their destiny with man. According to Carod-Artal and Vazquez-Cabrera [22] these animal spirits can be a jaguar, a puma, sparrow-hawk among some other animals depending on social or religious of the person. Carod-Artal and Vazquez-Cabrera [22] pointed out that *nahuals* of the evil forces teach the person accompanying animal spirit the secrets of witchcraft and on the other hand, the *nahauls* of good forces should avoid it. The person's animal accompanying spirit acquires some knowledge about witchcraft for life in the event that he survives in this fight.

The Tzeltal people strongly believe that epileptic seizures are as a result of some attachment that is suffered by the accompanying animal spirit of the individual after a fight that happens between the *nahauls* or spirits that serve forces of good and those that serve to the evil [25]. The Tzelta believe in *nahualism* and it means a person who chronically suffers epileptic seizures is a wizard within the community. Although this condition has no cure, they think it can be improved. A combination of two herbs called *kaxlamtunim* and *cheneh pox sbil* can be used to treat seizures [26]. These dry and worn grains and seeds of both plants are mixed and diluted in cold water, daily, during one week [22]. This clearly demonstrates the knowledge, attitude and practices of the Tzeltal people towards epilepsy. They harbor traditional belief towards the causes and treatment of epilepsy.

For the Kamayura community of Brazil, Carod-Artal and Vazquez-Cabrera [22] state the tribe is located in Brazil and epilepsy in this tradition is called *teawurup*. In this tradition, neurological diseases are thought to be caused by the revenge of the spirit of an animal killed by a Kamayura hunter or fisherman [26]. According to the ancient tradition, if a Kamayura man hunts an animal, the spirit of that animal will remain loose and try to take revenge of its assassin. They think the animal spirit may attack the Kamayura hunter when he is asleep and dreaming. As a consequence, the hunter suffers some seizures [22].

Epilepsy also happens in young and elderly people. It is characterized by recurrent episodes of sudden falls, a toniccolonic movement of limbs and emission of saliva by the mouth. Epilepsy may also happen to children and in this case it is thought the father of the child could have killed an animal called armadillo and this spirit will be attacking the child during his dreams [22]. For that reason, nobody in this tradition wants to hunt or eat armadillo. This is the origin of the epilepsy taboo in Kamayaru.

Epilepsy is treated with two plants called *tsimo* and *wewuru* whose roots are kneaded and diluted in non-boiling water for four hours [22]. These are then applied in the eyes of the patient several times for three days. These roots can also be boiled and ingested to induce vomiting as it is thought that the vomit therapeutic properties treat epilepsy. Another common treatment is the infusion of root called *enamuun* which is cooked and then taken for ten days, four times a day [25]. For children, they are treated with sap of a plant called *kamarapalap* applied on the skin of the boy and by means of series of prayers made when applying the potion [22]. The patient should also fulfill a diverse of other rules during the therapeutic phase. He cannot eat monkeys, *motum* (type of wild hen) or any type of fish. It is only when he is cured that he can eat these forbidden foods.

For the Uru-Chipaya community of Spain, epilepsy is called *tukuri* and it is believed the origin of epilepsy is a witchcraft which enters the nose and the head as a wind [22].

It remains inside the bones, muscles or sometimes within the head. The worst attack usually happens when a person falls down to the ground like a dead person. These attacks are believed to be caused by various causes. Some of these seizures are related to domestic violence or family mistreat. Some believe epilepsy is caused by sleep deprivation. Childhood epilepsy is explained as Chipaya mothers who strike their children until they lose their consciousness [22].

Epilepsy can be treated by eating a wing-ant called *curupancho*. This is an insect that appears in the rainy days. This insect is caught, dried, milled and poured down in a cup with boiled water. The patient should take this warm water every night, on Tuesday and Friday for three days. These days are considered as magic, sacred and ceremonial days for the Uru-Chipaya people. There is also a butterfly called *jesko* that appears during rainy days that can be used to treat epilepsy. Eating a pigeon is another popular treatment for epilepsy. The Chipaya people cut its head and drink the blood in order to treat epilepsy [22].

From the foregoing, it can be noted that epilepsy is associated with supernatural powers in native tribes of Central and South America. Consequently, they prefer indigenous practices of epilepsy management even if western medication is available. The treatment gap in native tribes of Central and South America is failing to take into consideration the cultural environment of people with epilepsy and consequently, they shun western medication. In the next section, the authors take a look at epilepsy in South East Asia.

4. Epilepsy in South-East Asia

Ismail et al [27] posit that the most commonly used term for epilepsy in South Asia is mirgee which means 'fit' but explain that this has a very negative connotation. In spite of the substantial economic development improvement of health in services, studies have shown that Asia as whole remains a heterogeneous and resource constrained continent. Mac et al [28] observe that more than 50 million of people with epilepsy in the world are estimated to be in Asia. Yang et al [29] notes some biological differences in epilepsy between the Asian and the West which partly explains why smaller doses of antiepileptic have been found to be ineffective some trials involving these Asians. Tan [30] believes the climate differences related to encephalitis and malaria also explain the causes of many acute symptomatic seizures in some parts of Asia, particularly in Japan. Several studies that have been conducted on the knowledge and attitudes of the Asian community towards people with epilepsy and they reflect that many communities remain negative towards people with epilepsy [28]. A third to half, particularly in the Chinese community thinks that a person with epilepsy cannot work like any other person. In this paper, the authors examine epilepsy in India, Sri Lanka and Nepal.

A study on the interplay between epilepsy and religion in India by Khwaya, Singh and Chaundry [31] shows India is equally affected with social/religious beliefs and superstitions about epilepsy. Their study shows that some patients attribute epilepsy to the curse of God, bad deeds in current or past life. Epilepsy is also regarded as contagious by some people and Khwaya, Singh & Chaundry [31] observe that after the onset of epilepsy some patients become more religious. In a similar study, Ismail et al [27] observe that the belief that epilepsy is caused by the spirit possession is wide spread amongst the Indians. They also note that some Indians have attributed epilepsy to sins committed in a past life. Some Muslims believe epilepsy is caused by spirit possession and many have attributed it to the will of Allah. Hindus and Sikhs believe sins committed in the past life cause the condition.

As a plateau to epilepsy development, some consult priests, some wear amulets to ward off evil spirits, and some organize special prayers in the hope of a cure [31]. There are also reported cases of sacred dreams and to this end, Skuse [32] is of the view that epilepsy and religion are inter related. In their study, they also observe that about one third of people with epilepsy had sought for spiritual healing before seeking medical help. Carrazaqna et. al [25] also states that people with epilepsy have explained their seizures as religious experience. Sparting [37] in Khwaya, Singh and Chaundry [31] also report sudden religious conversions in patients with epilepsy.

A study by Ismail et al [27] also discovered that many people with epilepsy sought help from traditional healers rather than anti-epileptic drugs. Most respondents in the study indicated that they had to make use of two forms of traditional South Asian therapy; religious healing and herbal treatment. Religious healing involves consultations with *pirs* (for Muslims) and *gurus* (for Hindus and Sikhs). Epileptic patients are required to drink blessed water or to recite from holy texts. Muslims are required to wear an amulet containing verses from the Koran. Some people with patients visit herbal practitioners for alleviation or cure of epilepsy.

Seneviratne [33] report a significant number of people in Sri Lanka believe and have tried religious and spiritual healing for epilepsy treatment. Muslims think that prayer has the power to heal many ailments, epilepsy included. In a similar study in Sri Lanka, Padmamali et al [34] observed that 41.5% among rural Sri Lankans had resorted to spiritual healing methods because they have a strong belief in in those methods. According to a report by the World Health Organisation [35], some communities in Sri Lanka continue to perpetuate many myths and misconceptions about epilepsy. It is thought epilepsy is a punishment of evil deeds and breaking some taboos.

A report by WHO [35] emphasized that the strange epilepsy behaviors exhibited by people with epilepsy have led some people in Sri Lanka to a common rural belief that epilepsy is due to possession of spirits. In some parts of Sri Lanka, people who believe in these supernatural powers offer worship and animal sacrifice. It is believed the person with epilepsy should be taken to the sorcerer and have those spirits exorcised. Some believe that a patient having a seizure should not be touched or else the disease will be passed on to you and that women with epilepsy cannot bear children, as such they should not marry.

Scott, Lhatto and Sander [36], Shorvon and Farmer [37], Wang, Wu and Wang [38] and Collier [39] support the notion that fear of stigmatization resultantly from cultural beliefs contribute to the treatment gap among people with epilepsy. They also identify lack of knowledge and illiteracy as some of the factors that contribute to the treatment gap. However, some myths associated with epilepsy to the effect that women with epilepsy cannot be married are described as a major challenge in Sri Lanka.

Nepal, also located in South East Asia is multi-religious and multi-ethnic in its population structure consisting of the Hindus, Buddhist among some others. According to Rajbhadhari [40], the practice of traditional treatment of epilepsy is common among all the Hindu castes as well as Buddhists in Nepal. The Nepalese have a strong belief in the super natural origin of epilepsy. They are also strongly aligned to the various methods that are used to protect people with epilepsy from evil spirits or ghosts as well as to appease or appeal to the gods for help. Finkenbine et al [41] also report that it is more convenient to visit a traditional healer than to go for health medication. Traditional healers also make house calls to treat people with epilepsy. However, Rajbhadhari [40] attributed the frequent visit to traditional healers to the low numbers of doctors in the country.

Sharma [42] state that a study on 150 traditional healers proved that they are very influential and they are usually the first point of contact for any health problem in the rural population as well as some people in the urban set-up. It was discovered that traditional healers used a variety of methods to treat fainting attacks, and this include sprinkles treated water over the forehead. Some use herbal medicine, casting anti-spell water for patients to drink, and inviting god to come by offering puja [42, 40]. Dizziness is considered as a manifestation for possession of people with epilepsy. Rajbhadhari [40] state that a number of methods are used to treat the possession attack and this include jharphuk, herbal medicine, inviting god to come through *puja*, and wearing amulet. Rajbhadhari [40] recommends reinforcement of traditional technologies in anticonvulsant treatment as he believes this may be helpful in improving treatment compliance.

From the foregoing, it can be noted that communities in the southern-east part of Asia continue to perpetuate traditional beliefs about epilepsy [35]. Epilepsy is frequently thought as a punishment for evil deeds. In some cases it is viewed as causation for breaking certain taboos. These traditional beliefs prevent people with epilepsy from seeking western medication. The strange behaviors exhibited by people with epilepsy during the convulsion stage have led them to believe that they are possessed by evil spirits [35].

5. Epilepsy in Africa

Is epilepsy truly an "African ailment"? This is an interesting question that is posed by Bhala et al [43] in a study on the comparison of epilepsy in Africa versus Asia.

They were motivated to carry out this study because, *"international health agencies often refer to epilepsy as an African disease and the scientific literature has spoken the same tone.* "[43]. Indeed, for many Africans, the reaction to epilepsy is shaped by traditional beliefs surprisingly similar to each other one way or the other. In some studies, it has been suggested that modern treatment is sometimes unavailable and there is a general belief that epilepsy is a supernatural cause and therefore not treatable with western medicine. This paper provides a comprehensive analysis of epilepsy in Sudan, Nigeria and Ghana.

Al-Safi [44] state some Sudanese believe there is one Supreme Being who manages human life through a number of *uro* spirits living in the next world. It is believed this Supreme Being acts through the mediums on earth. Al-Safi [44] argues that epilepsy is strongly believed to be afflicted to these spirits. He identifies tribes such as the Dago in the Nuba Mountains of Sudan, the Mndari tribe in the Southern Sudan, the Nuer and Dinka as all affected by this Supreme Being belief. A study by Baskind and Birbeck [45] on traditional and spiritual medicine among Sudanese children also agrees with Al-Safi [44] perception that Sudanese have a strong spiritual belief in African medicine.

In their findings Mohammed and Babikir [46] observed that about 90% thought epilepsy as an untreatable and contagious disease. They also discovered that about 70.5% had used traditional and spiritual medicine for epilepsy treatment. Mohammed and Babikir [46] also observe that the common spiritual technique used by the Sudanese is incantations (46.6%), spitting cure (37.2%) and the ritual incensing (36.7%). The Sudanese also use herbs, black cumin commonly referred in their language as nigella sativa and olive oil. Interestingly, about 42.5% indicated that they had started traditional or spiritual treatment before seeking medical advice. However, only 2.4% reported stopping the medical treatment as advised by traditional healers. The study also revealed that about 43.3% were convinced that spiritual or traditional treatment was effective in epilepsy management with 60% indicating there was no difference. Mohammed and Babikir [46] also observed that even though the majority of these Sudanese patients were on medical treatment, they were also using traditional and spiritual methods as well. To this end, Mohammed and Babikir recommend traditional and spiritual methods in epilepsy management.

Studies on epilepsy and traditional beliefs have been carried out in Nigeria for some time. In 1970, in a study on people with epilepsy in Nigeria, Osuntokun and Odeku [47] discovered that they suffered psychosocial hardships because they considered epilepsy to be a social disgrace. A 1985 study by Awaritefe, Longe and Awaritafe [48] in the Bini tribe of Nigeria showed that epilepsy was believed to be a disease in which the heart gets blocked by foam, consequently restricting circulation which results in seizures. A study conducted on the literate population in Nigeria also confirmed witchcraft as the second most-often-mentioned cause of epilepsy [48]. In another study, Asada-Pooya et al., [49] reported that epilepsy was believed to be contagious and this was popular even among medical school students. In spite of the "bring epilepsy out of the shadow" campaign which has been instituted by the World Health Organisations and other organisations to try and educate communities on modern era medication, it appears the Nigerians still have a strong belief in traditional and spiritual modes of epilepsy management.

A recent study on knowledge, attitude and perception towards epilepsy among medical students in Uyo, Southern Nigeria by Ekeh and Ekripo [50] shows that Nigerians still harbour traditional beliefs on the causes and treatment of epilepsy. In this study, about 26.44% students affirmed that epilepsy is transferable. Some students (22.31%) believed epilepsy is contagious with 24.79% indicating saliva as a route of transmission. About 38.02% reported blood as a route cause for epilepsy. Shorvon [51] also state that the traditional African belief about epilepsy in Nigeria is that it is a spiritual disease that is caused by evil spirits, witchcraft and excessive palm. Interestingly, medical students were supportive on this traditional African belief irrespective of the clinical exposure that the students had. Osuntokun [52], Sanya et. al [53] and Tekle-Haimanot, Adebe and Forsgren [54] all agree with the findings by Ekeh and Ekripo [50] that the belief among many Nigerians is that epilepsy is a contagious disease and its routes of transmission are saliva, urine, blood and even faeces. In their findings, Ekeh and Ekripo [50] also state that some students did not know antiepilepsy medication, but rather indicated traditional and spiritual medicines as options for epilepsy treatment.

In a study on the experiences of people living with epilepsy in Ghana, Deegbe [55] discovered that the majority of participants strongly believe epilepsy is linked to a spiritual cause. Participants in the study indicated that they had consulted spiritualists and pastors who proclaimed that their condition was due to evil spirits. Some Ghanaians also harbour the traditional African belief that epilepsy is caused by someone with evil intentions against a person with epilepsy who can indirectly inflict him/her with epilepsy spiritually due to envy for a bright future. De Graft Aikins et al [56] depicts that certain Ghanaian traditional and cultural beliefs chronic illness such as epilepsy are attributed to spiritual causes such as witchcraft, sorcery and evil work of the devil.

In a study of beliefs on epilepsy in Northern Ghana, Adjei et al [57] made some interesting findings which they expressed as horrific perceptions. Epilepsy is believed to be caused by harbouring anal worms in males. They also discovered that a greater proportion of the population is still much attached to the perception that spirituality is the cause of epilepsy. It is widely believed in Northen Ghana that adulterous women have epilepsy as punishment and alternating hot with cold baths can be a cure for epilepsy.

In a study on knowledge, attitude and practice of epilepsy in a literate population, Nyame and Biritwum [58] also report more than one quarter of the literate urban people in Ghana attribute epilepsy witchcraft to similar causes. They discovered that traditional beliefs and attitudes about epilepsy are still held firmly by the adult working population. Some participants in the study indicated that epilepsy is caused by witchcraft and that they use herbs or consult priests to treat epilepsy. What it shows is that both the literate and the illiterate have positive perceptions towards traditional African perspectives on epilepsy.

From the foregoing, it can be concluded that the majority of Ghanaians harbour the perception that epilepsy caused by evil spirits, can be treated with traditional herbs or prayers. The Ghanaians, like the Nigerians and Sudanese also believe the traditional mode of epilepsy treatment is more useful in epilepsy management.

For many Africans, the reaction to epilepsy is shaped by traditional beliefs surprisingly similar to each other one way or the other. This study only looked at epilepsy in three countries; Sudan, Nigeria and Ghana but several other countries in the continent share the same belief.

6. Epilepsy in Western Context

Tuan [1] argues that the work of the 19th century English Neurologist John Jackson marks the beginning of modern medical era of epilepsy. He adopts the Jackson's definition of a seizure; an occasional, excessive and disorderly discharge of the nerve tissue or muscles. For Fisher et al [59], an epileptic seizure is a transient occurrence of signs or symptoms due to abnormal excessive and or synchronous neuronal activity in the brain. Both definitions imply the same thing, excessive or disorderly muscles linked to the brain activity. Jackson [10] in Tuan [1] also recognised the association between the clinical seizure and clinical manifestations and their origin within the brain.

Epilepsy Scotland [60], FEDOMA [61], Cherney [62] and Epilepsy Foundation [63] state that epilepsy causes the brain to send abnormal signals and this activity results in seizures. Fisher et al [59] concludes that the definition of epilepsy requires the occurrence of at least one epileptic seizure. These seizures happen because of a number of reasons such as injury or sickness. Cherney [62] and Epilepsy Foundation [63] thus describe epilepsy as a condition that causes recurrent seizures and is treated with anti-epileptic drugs (AEDs). Below, we take a look at different approaches used in epilepsy management within the western context.

Tuan [1] argues that effective drugs have been available since 1850 when bromide was first introduced. He also believes Anti-Epileptic Drugs (AEDs) remain the mainstay in epilepsy treatment. Treatment is prophylactic and aims to reduce or eliminate the risk of further seizures as long as the treatment is maintained. Drug treatment is also individualized and AEDs are selected according to the patient's type of seizures and other individual characteristics. There are more than 20 prescriptions of AEDs available and one's option depends with age, lifestyle, and type of seizure and how often he/she has seizures [60-63]. In Zimbabwe, the commonly used drugs are Phenobarbital, Carbamazepine and Phenytoin [64]. If you are a woman treatment depends on your chance of pregnant. Cherney [62] and Epilepsy Scotland [60] agree that the most common way to treat epilepsy is with anti-epilepsy drugs. Findings have revealed that they allow up to 60-70% staying free from seizures and they are less harmful because they are scientifically proven, unlike traditional modes of anti-epilepsy treatment [62]. Glauser et al [65] and Glauser et al [66] also support AEDs, arguing that treatment with AED in patients with epilepsy aims to provide the best quality of life with no seizures and fewest adverse effects from treatment.

Jilek-Aall and Rwiza [67] confirm a follow-up of antiepilepsy medication study in Tanzania which revealed that about 52.4% of epileptic patients managed to achieve complete seizure suppression, with 36% reducing epilepsy frequency of seizures whilst only 7.9% experienced no change during their 20 years of treatment. Nimaga et al [68] also report that in rural Mali, about 80% of the 96 patients treated with Phenobarbital became seizure free within one year. The general belief among medical practitioners is that epilepsy can be treated or controlled [69]. Chandra et al [70] also support the notion that treatment of epilepsy is easy because most of the epileptic patients can be managed without sophisticated investigations. Chandra et al [70] claim that a study carried out in India has revealed poor adherence to prescribed medication as the main cause of unsuccessful drug treatment for epilepsy. While it has been noted that epileptic seizures could be controlled with medications such as Phenobarbital, Carbamazepine and Phenytoin in 70% of the patients [64], the effectiveness of all medicines including anti-epilepsy Drugs (AEDs) depends on adherence to the whole treatment process. This includes taking of medicines required quantities, timeously going for medical/health reviews as appointed. However, Epilepsy Support Foundation Zimbabwe [71] has indicated that about 86% of people living with epilepsy are not on anti-epilepsy medication, implying that they are not taking these AEDs.

According to EITF [72], once a diagnosis of epilepsy has been made, patients and their families have questions concerning the diagnosis and how this will affect their lives. Austin, Carr and Hermann [73] argue that this lack of knowledge increases the level of stigmatization and negative attitudes about their condition. The healthcare provider thus has a responsibility to ensure that patients and their families have been provided with clear, accurate and timely information in as far as their condition is concerned. Patients also need to be informed about how they will access the resources as this affects the long-term adjustment to their condition [74].

EITF [72], IOM [74] and Austin, Carr and Hermann [73] agree that education and counselling needs vary across lifespan. For children and adolescents, they need to be educated how to manage seizures at school and common learning problems, dealing with fears, school and vocational planning, establishing health habits, drugs, and alcohol, transition to adulthood and impact of epilepsy on family dynamics [72]. As for adults, they need education and counselling on career and vocational concerns, discussions

with employers, driving regulations and transportation concerns, sexual and gender specific topics, drug-alcohol interactions, independent living and impact of epilepsy on relationships and family dynamics [74]. Seniors too need to be educated and counseled on medication side effects, adverse interactions, adherence, drug-alcohol interactions, independent living and safety [74].

From the foregoing, it can be noted that education and counselling is an important subject matter in epilepsy management. It could also be the reason why there is a big treatment gap in Zimbabwe. As observed by Mutanana [75], patients are not well informed about challenges associated with epilepsy medication which explains why they opt for traditional methods especially if they suffer from the general side effects of the medication. Tuan [1] suggests establishment of community based mental health centers to offer psychosocial support for people with epilepsy. In Zimbabwe, mental health service is offered at Government Hospitals and non-governmental organizations such as Epilepsy Support Foundation Zimbabwe. Mental health centers have the responsibility to provide care for people with epilepsy in the community.

7. Conclusion

Despite the reported progress on anti-epilepsy medication, the supernatural views of epilepsy continue to dominate the perceptions of people towards the causes of epilepsy in nonwestern countries. For epilepsy treatment, many people especially those in non-western countries remain deeply rooted in spiritual and traditional medicines. Anti-epilepsy medications have continuously been referred to as "Western practices" in some non-western countries that are particular about their traditional knowledge. As such, the Hippocratic concept had little influence on the prevailing supernatural view of epilepsy. The attitudes of past societies towards epilepsy have left a legacy of stigma and damaging misconceptions which still persist today in non-western countries. People with epilepsy have continued to face fear, prejudice as well as discrimination in their everyday lives.

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