

## Demographic Features of Epileptic Patient Visiting Tertiary Care Hospital Peshawar

Abdul Aziz <sup>a</sup>, Abdul Saboor<sup>b</sup>, Fazal Hadi<sup>c</sup>, Muhammad Sulaiman<sup>d\*</sup>

<sup>a</sup> Neurophysiology Technologist Life Care Hospital Peshawar Pakistan.

<sup>b</sup> Neurophysiology Technologist Khyber Medical Canter Peshawar, Pakistan.

<sup>c</sup> Neurophysiology Technologist Northwest General Hospital Peshawar, Pakistan.

<sup>d</sup> Demonstrator Faculty of Allied Health Sciences IPMS Khyber Medical University Peshawar, Pakistan.

### Abstract

*Epilepsy is one of the most common serious brain disorders, affecting over 70 million people worldwide. Epilepsy can affect people of all ages .It occurs most often in two age groups: infants and older adults. Infants are at higher risk due to factors like genetic issues or birth complications, while older adults are more at risk because of conditions like strokes or dementia. Epilepsy is characterized by a range of physical, behavioral, and cognitive manifestations. The signs and symptoms of epilepsy can vary widely from person to person. The aim of this study is to ascertain the demographical characteristics of individuals with epilepsy in Khyber Pakhtunkhwa, the research seeks to analyze the demographic aspects of epilepsy in this population, encompassing age of onset, gender, socioeconomic status, , and literacy. The investigation also intends to explore potential correlations between demographic factors and clinical features among epileptic patients in Khyber Pakhtunkhwa. The current study was a cross-sectional, descriptive study performed over a duration of 2 months. Using World Health Organization sample size calculator, and assuming the level of significance as 95% with margin of error as 5% and population proportion with seizure disorder as 50%, the resultant sample size was 364. A total of 364 epileptic patients were recruited in our study, 184 were male patient accounting for 50.5% and 180 were female accounting for 49.5% patient. In our study data of 364 epileptic patients according to type of seizures. Highest number of patients were found in >10 to 20 years of age group with n=99, followed by >1 to 5 years of age group with n=67, followed by >5 to 10 years of age group with n=64 and the lowest number of patient were found in >60 years of age group with n=9. Epilepsy is a neurological disorder affecting both male and female but the highest ratio is found in children below the age of 5 years. We have collected data from 364 epileptic patient which shows that there is high percentage of male patients as compared to females as in previous studies which are almost similar to our study.*

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**Correspondence:** Muhammad Sulaiman

Demonstrator Faculty of Allied Health Sciences IPMS Khyber Medical University Peshawar, Pakistan

Email: [msulaiman.ipms@kmu.edu.pk](mailto:msulaiman.ipms@kmu.edu.pk)

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## 1. Introduction

Epilepsy is one of the most well-known problems of the brain. The origins of epilepsy historical records are intertwined with the history of human civilization, dating back to ancient times. The earliest known reports on epilepsy can be found in Assyrian texts, which date back to around 2,000 B.C. (E. Magiorkinis, et al 2010). The ancient Greeks referred to seizures as "the sacred disease," believing them to be a divine affliction. Pediatric epilepsies refer to a group of different disorders affecting children, which include various types of epilepsy syndromes ranging from mild to severe. Over the past two decades, there have been significant advancements in understanding these syndromes and their underlying causes. Epilepsy is characterized by a range of physical, behavioral, and cognitive manifestations. The signs and symptoms of epilepsy can vary widely from person to person, these signs and symptoms are widespread, can significantly impair daily functioning, and often have lasting effects even after the seizure episode has passed (Kleen JK, 2012). Seizures can have a range of effects on individuals with epilepsy. They may experience temporary loss of consciousness during seizures, which can be brief or last for several minutes. After a seizure, confusion, memory gaps, or difficulty recalling events may be encountered. In Pakistan, there is a lack of proper epidemiological studies on epilepsy, but it is estimated that around 9.99 out of every 1000 people have the condition. Epilepsy is most common in individuals under the age of 30, affecting approximately 2 million people in this age group. Shockingly, about one-tenth of the global burden of epilepsy is borne by Pakistan (Beghi E 2020). They face difficulties in carrying out daily tasks and struggle with decisions related to marriage and having children. Women, in particular, feel that they are more of a danger to others and receive less support from their families compared to men. They also tend to believe that they should not marry, but in reality, they end up getting married more often. This is because of social and cultural pressures, as parents are usually responsible for arranging their daughters' marriages (Sridharan R 2002).

The level of education plays a significant role in how people with epilepsy are perceived. Those with higher education have fewer children, face less avoidance from classmates and neighbors, encounter fewer obstacles in pursuing education, are encouraged to be avoided less frequently, get married more often, and feel that they are more dangerous to others. Interestingly, most people with epilepsy believe that their condition has a physical basis, and only a small percentage (3.1%) attribute it to supernatural causes (Sridharan R 2002). People with epilepsy have a higher risk of mortality compared to the general population. The increased mortality is often linked to the underlying cause of the epilepsy. The risk of mortality is higher for individuals with epilepsy compared to the general population, which is a significant concern for both patients and healthcare providers. Early identification of patients at the highest risk of premature death is crucial so that appropriate preventive measures can be implemented. Epilepsy is a heterogeneous condition, and the likelihood of premature mortality often depends on the underlying cause (Hitiris et al 2007). In simpler terms, understanding the causes of epilepsy is crucial for determining the likelihood of recurrent seizures and for making an accurate epilepsy diagnosis. Genetic factors, in particular, likely play a role in varying degrees in the risk of seizures for people with epilepsy. The importance is determined not only by how common they are but also by their clinical impact and relevance to epilepsy (Balestrini S 2021).

Genetics play a significant role in different types of epilepsy. Through various studies, scientists have identified many genetic mutations that either cause or increase the likelihood of developing certain forms of epilepsy.

Depression episodes are very common among people with epilepsy, affecting anywhere from 11% to 62% of patients with the condition. Even though researchers have found a strong link between epilepsy and psychiatric issues, we still don't fully understand the nature of this relationship (Ogunniyi A et al 1987). Several environmental factors have been associated with an elevated risk of developing epilepsy or triggering seizures in individuals already diagnosed with the condition (R. Shankar 2020). Men and women of all ages and from all ethnic backgrounds can develop epilepsy, a neurological condition that has no regard for race or geography. However, people under the age of 60 and those in their first two decades of life are more likely to develop epilepsy than those over the age of 60 (K. Myers et al 2019).

It must be recognized that more than 80% of people living with epilepsy reside in developing nations, where the illness is largely untreated. If given the appropriate care, these individuals could have normal lives, but most do not (H. Meinardi 2001).

In affluent nations, epilepsy is typically reported to be between 40 and 70 per 100,000 individuals yearly, typically higher in young children and the elderly. Uncertain explanations seem to be behind the increasing occurrence of poorer people in developed nations (W. Sander 2003).

Many different symptoms are associated with epilepsy, and some conditions are known to make it more likely to occur.

## 2. Material and methods:

### 2.1 Research Design

The study was accomplished in Hayatabad medical complex and Lady Reading Hospital Peshawar. HMC and LRH are the tertiary care hospitals in Khyber Pakhtunkhwa the current study was a cross sectional, descriptive study performed over a duration of 2 months (1<sup>st</sup> June to 1<sup>st</sup> August). After using World Health Organization sample size calculator, the calculated sample size is 364, assuming 95% confidence level and 5% margin of error and assuming the prevalence of epilepsy in Peshawar city as 38.4% in population of 35.25 million in KP.

### 2.2 Sample

The target population was epileptic patients in LRH and HMC coming from different districts of Khyber Pakhtunkhwa.

### 2.3 Ethical Consideration

Ethical committees of Hayatabad medical complex Peshawar and Lady Reading Hospital Peshawar had approved the study.

## 3. Results:

In our study the distribution of epileptic patients occurs in two categories according to gender male and female the percentage of male patients was 50.5% and the percentage of female patients were 49.5% the male are more affected than female. Our observations were in line to Khan et al. that epilepsy was high in male population that male are more affected epileptic patients is compared female 124.

In this study 364 patients education level was determined which showed that most of the patients had no education level with 47.3% n=172, while patients with primary education was nearly half of no education level with 24.2% n=88 and secondary education was close to primary with 22% n=80. Though we found an inverse figure as reported by Mohammad et al. where epilepsy is more prevalent in female than male patients in Iran several studies have reported varying results concerning the association between cousin marriages and the prevalence of epilepsy. Some studies have suggested that consanguinity may contribute to a higher incidence of certain types of epilepsy, while others have not found a significant association. The prevalence of this disease in some families is higher than the normal population in some countries due to cousin marriage but in our study the ratio of cousin marriage was 31% had the epilepsy similarly reported by Asadi Pouya et al. showed that the incidence of epilepsy in

the parents with cousin marriage is higher than those with normal parents. Cousin marriage is one of the probable risk factors for epilepsy.

**Table 1****Distribution of Epileptic Patients According to Age (N=364)**

Age	Frequency	Percent
1 day to 5 months	12	3.3
>5 months to 1 year	19	5.2
>1 to 5 years	67	18.4
>5 to 10 years	64	17.6
>10 to 20 years	99	27.2
>20 to 30 years	40	11.0
>30 to 40 years	22	6.0
>41 to 50 years	18	4.9
>50 to 60 years	14	3.8
>60 years	9	2.5

A total of 364 epileptic patients were recruited in this study. Highest number of patients were found in >10 to 20 years of age group with 27.2% (n=99), followed by >1 to 5 years of age group with 18.4% (n=67), followed by >5 to 10 years of age group with 17.6% (n=64) and the lowest number of patient were found in >60 years of age group with 2.5% (n=9) and >5 months of age group with 3.3% (n=9).

**Table 2****Distribution of Epileptic patients according to Gender (N=364)**

Gender	Frequency	Percent
Female	180	49.5
Male	184	50.5
Total	364	100.0

A total of 364 epileptic patients were recruited in this study, 184 were male patient accounting for 50.5% and 180 were female accounting for 49.5% patient.

**Table 3****Distribution of Epileptic patients according to Education (N=364)**

Education	Frequency	Percent
Nil	172	47.3
Primary	88	24.2
Secondary	80	22.0
Intermediate	15	4.1
Bachelors	7	1.9
Masters	2	.5
Total	364	100.0

**Table 4****Distribution of Epileptic Patients According To Socioeconomic Status (N=364)**

Status	Frequency	Percent
Lower class	187	51.4
Middle class	174	47.8
Upper class	3	.8
Total	364	100.0

364 patients record was taken which showed most number of patients socioeconomic status was low. 51.4% n=187 belonged to lower class while 47.8% n=174 were middle class and only 0.8% n=3 patients were from upper class.

#### 4. Discussion:

In our study the distribution of epileptic patients occurs in two categories according to gender: male and female. The percentage of male patients was 50.5% and the percentage of female patients were 49.5%. The male

are more affected than female. Our observations were in line to Khan et al. that epilepsy was high in male population that male are more affected epileptic patients is compared female. In our study 83 patients (22.8%) of patients had the positive family history are to known to be a greater risk of developing the epilepsy so therefore it suggested that genetic cause maybe be the main reason. It's also reported that children with family history of febrile seizure especially complex febrile seizure are at increased risk of IGE but in our study the correlation among IGF and family history was not convincing but mostly find on gender basis. Males were found to be a higher risk of family history of febrile seizures is positive. Similarly that one case control study in Suriya regarding the risk factors associated with epilepsy in children according to them there was a positive connection between family history of epilepsy and febrile seizure and also reported by Chentouft et al (2015) showed that increased in the incidence of the disease in those patients with a positive family history.

Our data reveal a positive family history of epilepsy in 364 patients, of which one-third were first degree relatives. Our observations are consistent with the findings of Pal et al (Pal DK 2017). Several studies have reported varying results concerning the association between cousin marriages and the prevalence of epilepsy. Some studies have suggested that consanguinity may contribute to a higher incidence of certain types of epilepsy, while others have not found a significant association. The prevalence of this disease in some families is higher than the normal population in some countries due to cousin marriage but in our study the ratio of cousin marriage was 31% had the epilepsy. Similarly, showed that the incidence of epilepsy in the parents with cousin marriage is higher than those with normal parents. Cousin marriage is one of the probable risk factors for epilepsy.

#### Conclusion:

We have collected data from 364 epileptic patient belongs to different areas of Khyber pakhtunkhwa. The prominent features among individuals with epilepsy included a favorable family history of the condition and the prevalence of consanguineous marriages. After doing cross sectional study we concluded that epilepsy is mostly found in male as compared to female

#### Recommendation:

We should take good Initiatives aimed at raising public awareness to distribute precise information about epilepsy. Develop and implement community-based educational initiatives to inform local populations about the early signs and symptoms of epilepsy, encouraging prompt medical attention and reducing delays in diagnosis. Encourage further research on epilepsy within the context of especially clinical features and demography of epileptic patient. Improve health care facility to avoid complications related to epilepsy.

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