

Sociodemographic and Clinical Characteristics of Persons with Epilepsy Attending an Epilepsy Clinic of a Tertiary Hospital in Bangladesh

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Abstract:

Background:

Epilepsy is a common neurological disorder found in all societies. It is seen that the relative frequency of various clinically important characteristics is different in persons with epilepsy (PWE) living in different geographical areas. The purpose of this study was to describe the sociodemographic and clinical characteristics of a cohort of patients with epilepsy from an Epilepsy Clinic of a tertiary hospital in Bangladesh.

Methods:

This cross-sectional study was conducted in the Department of Neurology at Rangpur Medical College Hospital, Rangpur, Bangladesh, from July 2022 to June 2023. The patients were recruited from the epilepsy clinic. A structured questionnaire was designed to collect relevant information by interviewing the consecutive PWEs.

Results:

A total of 252 PWEs were recruited, of which 134(53.2%) were male. Most [200(79.4%)] of them were young (age group 0 to 29 years) and had generalized seizures 147(58.3%). The median age of the 1st seizure was 11 years (range 0.5-73.0), and the median duration of epilepsy was 5.0(0-35) years in the present study. EEG, CT scan, and MRI could be done in 200(79.4%), 128(50.8%), and 68(27%, respectively. Among them, 24.2%(61), 10.7%(27), and 11.1%(28) patients had different types of abnormalities on EEG, CT scan, and MRI, respectively. A family history of seizures was present in 20(7.9%) patients. Sixteen patients(6.3%) were not getting any AEDs, 63.1% and 30.6% were on single and multiple AEDs, respectively. Sixty-five (25.8%) patients reported stopping the drug without any medical consultation. Forgetfulness was the most reported (21, 33.8%) reason for stopping drugs, followed by the misconception that the disease was cured (14, 21.5%), lack of time to buy pills (12, 18.5%), and no money to buy (9, 13.8%). Seventy-seven reported having two or more continuous seizures despite taking AEDs regularly.

Conclusions:

Present study documented some treatment gap and non-adherence to medication in PWE. PWE should be adequately advised about the disease and the effects of drug non-compliance.

Keywords: Epilepsy, Clinical, Demographic, Characteristics

Introduction:

Epilepsy is a common neurological disease in the world and with disproportionately greater burden in developing countries.¹⁻³ A recent national prevalence study estimated the national prevalence of epilepsy per 1000 was 8.4 in Bangladesh, i.e., at least 1.5–2.0 million people have epilepsy in Bangladesh.⁴ The high health care costs related to assessment and treatment, and hospitalization for seizures, as well as lost employment, income, and household work, are well recognized.⁵

Epileptic seizures can be controlled. Up to 70% of PWE could become seizure free with appropriate use of anti-epileptic drugs (AEDs). Discontinuing AEDs can be considered after 2 years without seizures and should consider relevant clinical, social and personal factors.⁶ However, in low-income countries, about three quarters of PWEs may not receive the treatment they need. In many low- and middle-income countries, there is low availability of AEDs.⁶ A recent study found the average availability of generic AEDs in the public

sector of low- and middle-income countries to be less than 50%. This may act as a barrier to accessing treatment.⁷

It is necessary to understand the pattern of seizures at a tertiary care level, so that the appropriate interventional measures according to the type of seizures and other issues may be addressed. Very few studies have been conducted in Bangladesh in this regard.⁸⁻¹⁰ Besides, there is a need for strengthening services towards treatment and follow-up of this vulnerable group due to socioeconomic factors and other factors.⁴ Rangpur area is still considered as economically backward and underdeveloped area of Bangladesh. This region also has a low level of health and educational system.¹¹ To the best of our knowledge, no study on epilepsy is conducted in this part of the country. So, present study aimed to assess the clinical and demographic characteristics of a PWE in this region, who attended an epilepsy clinic of a tertiary level hospital in Bangladesh. Finding this study would be helpful in adapting strategies for better and effective health planning.

Methods:

A descriptive cross-sectional study carried out in epilepsy clinic of Department of Neurology at Rangpur Medical College Hospital, Rangpur from July 2022 to June 2023. The epilepsy clinic provides comprehensive clinical care to PWEs and is run by neurologists of Neurology Department. This is the only center in this division comprising 8 districts and 17,610,956 inhabitants which provides such type of facilities.¹²

Ethical clearance was obtained from the Ethical Review Committee of Rangpur Medical College before starting the study. Informed consent was obtained from the patients or the attending caregivers. All PWEs attending the epilepsy clinic during the study period were included in the study. Patients with pseudo seizures were excluded.

Relevant data were collected by using a structured questionnaire. Variables included data related to sociodemographic characters, age of onset of epilepsy, type of seizure and other clinical manifestations, associated cause, precipitating factors, received medications and compliance to treatment. Investigations report like electroencephalography (EEG), CT scan, and MRI were noted if available.

Data were expressed as mean (standard deviation) and frequency (percentage). Only descriptive

statistics were used in the results. Data analysis was done using SPSS version 23.0.

Results:

For this study 252 PWE were recruited. The median age was 18 with a range between 0 and 73 years old. The most frequent age group was 10-19 years with 102(40.5%) patients, followed by 20-29 years with 65(25.8%) PWE. Only 3.2% of the PWE were 50 years and above. In this sample, 53.2% PWEs of the sample were males and 46.8% females. The majority of participants were from rural area and about 43.6% of the adult PWEs were unmarried. (Table-I)

Table-I: Sociodemographic characteristics of the persons with epilepsy (n=252)

Characteristics	no. (%)
Age group	
0-9 years	33(13.1)
10-19 years	102(40.5)
20-29 years	65(25.8)
30-39 years	29(11.5)
40-49 years	15(6.0)
50 years and above	8(3.2)
Sex	
Male	134(53.2)
Female	118(46.8)
Residential location	
Rural	183(72.6)
Urban	69(27.4)
Socioeconomic status	
Lower	63(25.0)
Lower middle	154(61.1)
Middle	32(12.7)
Upper middle	3(1.2)
Marital status (n=133)*	
Married	73(54.9)
Unmarried	58(43.6)
Divorced	2(1.5)
Educational level (n=231)[†]	
No formal education	32(13.8)
Primary	53(23.0)
High school	80(34.6)
Secondary	14(6.0)
Higher secondary & above	52(22.5)

* PWE <18 years were excluded [†]PWE <6 years were excluded

Family history of seizures was present in 20(7.9%) PWEs in this study. The relation of them with the PWEs are shown in Table-II.

Table-II: Family relation of relatives with H/O seizure in PWEs (n=20)

Relation	no. (%)
Brother/Sister	1(5.0)
Cousin	7(35.0)
Uncle	6(30.0)
Father/Mother	2(10.0)
Grand Parents	4(20.0)

The median age of the 1st seizure was 11 years (range 0.5-73.0), and the median duration of epilepsy was 5.0(0-35) years in the present study. Associated features with seizure and precipitating factors are described in Table-III.

Table-III: Seizure and associated features of the PWEs (n=252)

Characteristics	no. (%)
Associate features	
Loss of consciousness	233(92.5)
Tremble in your arms or legs	190(75.4)
Fall down and become pale	164(65.1)
Momentary seizure	141(56.0)
Tongue bite	113(44.8)
Stay absent/out of touch	49(19.4)
Smell a strange odor	5(2.0)
Precipitating factor	
Sleep deprivation	10(4.0)
Emotional stress	9(3.6)
Fever	3(1.2)
Drug withdrawal	2(0.8)
Exercise	2(0.8)
Sound	1(0.4)
Crowding	1(0.4)
Crying	1(0.4)
Past history	
Febrile seizure	37(14.6)
Head injury	3(1.2)
Stroke	3(1.2)
Birth injury	2(0.8)
Birth asphyxia	1(0.4)
Cerebral palsy	1(0.4)
Meningitis	1(0.4)
SLE	1(0.4)
SSPE	1(0.4)
History of treatment other than AED	
Indigenous (Kobiraj)	79(31.3)
Homeopathy	28(11.1)
Superstition	13(5.2)
Herbal remedy	7(2.8)

Generalized seizure was the most common seizure type (61.1%), followed by focal seizure (38.9%). Radiological profile of the patients are shown in Table-IV.

Table-IV: Investigations profile and type of seizure in the PWEs (n=252)

Variables	no. (%)
EEG	
Not done	52(20.6)
Normal	139(55.2)
Abnormal	61(24.2)
CT scan report	
Not done	124(49.2)
Normal	101(40.1)
Abnormal	27(10.7)
MRI report	
Not done	184(73.0)
Normal	40(15.9)
Abnormal	28(11.1)
Type of seizure	
Generalized	154(61.1)
Focal	98(38.9)

Current treatment profiles are shown in Table V. The majority were on single AEDs, and 25.8% of the participants reported stopping the drug without any medical consultation.

Table-V: Current treatment profile of the PWEs (n=252)

Variables	no. (%)
Currently taking AEDs	
None	15(6.0)
Monotherapy	160(63.5)
Polytherapy	77(30.6)
Ever stopped drugs without medical advice	65(25.8)
Reasons for stopping drugs (n=64)	
Forgot to take drug	22(33.8)
Think that disease was cured	14(21.5)
No time to buy	12(18.5)
No money to buy drug	9(13.8)
No faith on drug	6(9.2)
Not motivated to buy drug	1(1.5)
Feared of drug reaction	1(1.5)
Have ≥ 2 continuous seizures without stopping	77(30.6)

Discussion:

In the present study, the mean age of the patients was 18 years, with a slight predominance of male sex (sex ratio 1.14). As in most studies, this difference can be attributed to the greater exposure of males to head trauma and the fact that females tend to conceal their diagnosis of epilepsy.^{8,9,13,14.}

About three-fourths (72.6%) of the PWEs lived in rural areas. Two previous studies from Bangladesh reported slight urban predominance.^{8,9} However, a meta-analysis of published and non-published community-based studies in India showed a higher prevalence rate of epilepsy of 5.5 per 1000 in rural areas than that of 5.1 per 1000 in urban areas.¹⁵ Most of the studied PWEs in this study were from lower or lower middle socioeconomic class of the society, and it was found in another study that the prevalence of epilepsy is higher among adults with low socioeconomic status.¹⁶

The family history of epilepsy has a significant impact on epilepsy, its classifications, and the EEG findings, and may underlie the presence of genetic etiology, but often under reported.^{17,18} In the present study, family history of seizures was present in 7.9% patients and commonly reported in second degree relatives. Previous studies from other countries found positive family history of epilepsy in 10-20% of epileptic patients,^{14,19} which were more than present observation.

There was a history of stroke, head injury, and birth trauma in 1.2%, 1.2%, and 0.8%, respectively. The etiology of seizure varies with age. Birth trauma, birth asphyxia, central nervous system infections are common in neonate and infancy whereas head trauma, brain tumor, stroke, infections are common causes in middle aged and elderly.²⁰ About 15% of the patients had a positive history of febrile seizure in our study.

The most frequently observed seizure was generalized seizure followed by focal seizure. These observed frequencies are similar to the community-based survey from Bangladesh.⁴ In contrast, hospital-based studies of Bangladesh showed a high frequency of partial epilepsies which ranged between 54.0% -77%.^{8,9}

A previous study done in another tertiary hospital in Bangladesh found that EEG was done in 76 out of 100 patients and had found abnormalities in 37(48.7%) cases,⁸ which was lower in the present study (24.2%). Low catchment of epileptic foci from EEG in patients with single unprovoked

seizures underscores the importance of precise history and imaging for proper diagnosis of illness. Further evaluation was done by CT scans in 50.8% patients, and MRIs in 27% in the present study and abnormality was detected in 10.7% and 11.1%, in CT and MRI, respectively.

The present study identified some important gaps in epilepsy care ranging from lack of access to care and delayed diagnosis, to delayed treatment and lack of treatment optimization. In our study, 93.7% of the PWEs were currently on AEDs. Initial exposure to indigenous treatment was common. Previously, Khan et al. Also observed that, most of the patients attending their epilepsy clinic (83%) went to available local medical facilities, almost half of them (45%) took concurrent indigenous treatment.⁹

In the present study, one fourth of the participants reported stopping the drug without any medical consultation after treatment initiation with AEDs. Previous studies also reported that despite knowledge on epilepsy and its appropriate treatment, non-adherence to AEDs is high.^{4,9,10}

A study conducted in Chittagong Medical College Hospital including 253 PWEs, 38.8% patients were adherent to their treatment and only 33.6% of the patients had controlled seizure, forgetfulness (35%) was the most reason for nonadherence.²¹ Forgetfulness was the most commonly reported reason for stopping drugs, followed by the misconception that the disease was cured, lack of time to buy drugs, and no money to buy in our study. Inadequate treatment is another issue found in the study as out of 236 PWEs who were on AEDs, 77 reported having two or more continuous seizures despite taking AEDs regularly.

Limitations:

Apart from the inherent limitations of a hospital-based study, our study has fewer samples and hence cannot be generalized. Moreover, we could not apply the recent ILAE proposal for the classification of epilepsy syndrome.

Conclusions:

In conclusion, most of the PWEs were young and had generalized seizures. Many patients could not be evaluated with EEG, CT scan, and MRI. Though the majority of the PWEs were receiving AEDs, non-adherence and inadequate treatment were highly prevailing in PWEs. An awareness program is needed to reduce the treatment gap and myths about epilepsy, thereby helping both in

improving seizure treatment. Future studies using the latest LAE 2017 seizure classification system are desirable.

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