Journal of Neuroscience and Behavioural Health Vol. 5(1), pp. 13-19, March 2013
Available online at http://www.academicjournals.org/JNBH
DOI: 10.5897/JNBH12.013
ISSN 2141-2286 ©2013 Academic Journals

Full Length Research Paper

Psychiatric symptoms and disorders in seizure cases referred to psychiatric out-patient service

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Accepted 7 March, 2013

Epilepsy and seizure disorders affect more than 1% adult population. Associated psychiatric problems are reported to increase and worsen the morbidity. In Nepalese context of scant data, this study was conducted to sort-out psychiatric symptomatology and disorders among psychiatry out-patient seizure patients. This hospital-based descriptive study analyzed 100 consecutive seizure patients visiting a psychiatric out-patient service in a 1-year period. Seizure diagnosis was as per clinical evidence and electroencephalography (EEG) findings; psychiatric symptomatology was checked and rated with the help of 'Brief psychiatric rating scale' (BPRS) and psychiatric diagnoses were made according to 'International Classification of Diseases: ICD-10'. In this study, 51% subjects were male. Forty-two patients had family history of significant illness, including seizure in 15% and psychiatric illness in 19%. Forty five percent had ICD-10 diagnosis of 'mental and behavioural disorders' and all, including the ramaining 55% had significant psychopathology. Mood (mainly depression) and anxiety disorders were the most common psychiatric co-morbidities. The most common BPRS items (besides seizure and related) were: somatic, mood, psychotic, hostility and anxiety symptoms. Hence, seizure may manifest with various psychopathology mainly: somatic, mood, psychotic, hostility and anxiety besides seizure-related (for example disorientation and motor) symptoms. A number of psychiatric disorders, mainly depression co-occur in seizure.

Key words: Epilepsy, mental illness, psychiatric symptoms, seizure.

INTRODUCTION

Seizure disorder or epilepsy is one of the most common neuro-psychiatric disorders, affecting about 1% of population within the age of 20 years, and even more in some parts of the world (Hauser and Annegers, 1993). It is one of the largest neuro-psychiatric contributors of Global Burden of Disease by Disability Adjusted Life Year (DALY) (World Bank, 1993). It may be associated with a range of other disorders; those as a causative factor, and effect or manifestation of seizure itself (Mendez, 2009; Raghuthaman et al., 2005; Lishman, 1998; Engel et al., 1986). Depression (Ettinger et al., 2004; Kanner, 2003), anxiety, and psychotic disorders (Nadkarni et al., 2007) are frequently reported higher than among general population (de Araújo Filho et al., 2007). Seizure is associated also with various syndromes, as a manifestation of seizure itself or as induced by seizure, referred to as 'organic mental disorders', for example psychotic, mood, etc (World Health Organization, 1993; American Psychiatric Association, 2000). Profile of those associated disorders and psychopathology offer the insight into common etiological factors in a particular setting and manifest features, leading to better management and prevention strategies.

We have few local data from Nepal about this common but disabling illness, more so about its co-morbid psychiatric disorders and associated symptoms. Hence, we conducted this cross-sectional descriptive study in the Department of Psychiatry, B. P. Koirala Institute of Health Sciences (BPKIHS), Dharan, Nepal in 2006/2007 to sort-out psychiatric symptomatology and disorders among

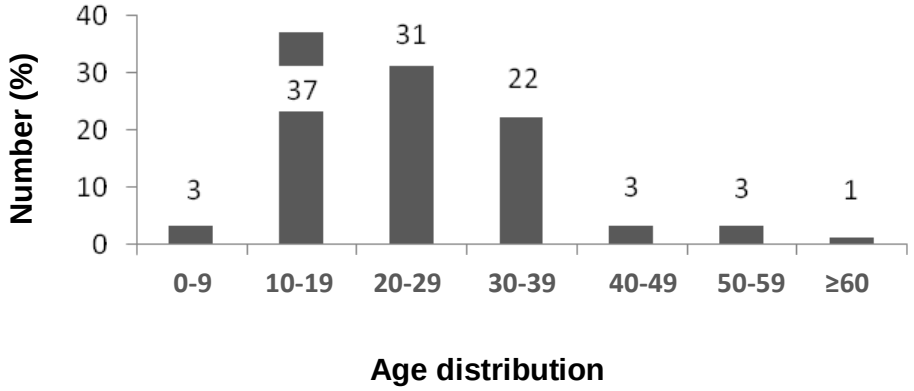

Figure 1. Age distribution.

seizure patients.

MATERIALS AND METHODS

This study, with purposive sampling, enrolled 100 consecutive seizure disorder (SD) patients clinically diagnosed or diagnosed with the help of electroencephalography (EEG), and associated with one or other clinically significant/manifest psychopathology for which they came in contact and consulted with the psychiatrist/investigator in the study period of 1 year duration from August, 2006 to July, 2007. Those patients who did not give consent and were severely medically unstable were excluded.

The number of subjects required that is, sample size was calculated by using the formula: $N = (1.96)^2 \times P \times (100 - P) / [P \times \beta]^2$. Where, N = number of sample, P = estimated prevalence and β = beta error, maximum permissible is 20%; the smaller the figure, the better is the power. We took 50% as the estimated prevalence of psychiatric co-morbidities because we came across the range of 30 to 60% for comorbid psychiatric disorder as a whole in literature (Mendez, 2009; Raghuthaman et al., 2005; Lishman, 1998). The subjects were those who had some psychiatric symptom and had come for psychiatric consultation and also because the objective was to study psychopathology profile too, besides the disorder. Hence, keeping the average for estimated prevalence, P as 50% and β error at 0.2, the calculated sample size was 96, and additional 4% subjects were taken for better representation. Hence, the sample size was taken to be 100. The initial concept was to enroll either minimum of 100 or a sizable number that could be enrolled in 1 year period, whichever would be greater and possible. The estimated sample size could be enrolled in more or less of the stipulated study period.

A brief explanation about the study was given and informed written consent was taken from the subject or significant others. Strict confidentiality of information was maintained. The socio-demographic profile and information about the illness (reason for referral, co-morbid conditions, and psychiatric diagnosis) were recorded on a Performa pre-designed for this study. The detailed psychiatric work-up and necessary investigations were done as per the indication, and their affordability and referrals were made to respective departments. The physical diagnoses were recorded as per the department from or to where the referrals were made. The final psychiatric diagnosis and co-morbidities were made according to the 'International Classification of Diseases-10' (ICD-10) (World Health Organization, 1993).

Psychiatric symptomatology were checked, studied and rated with the help of 'Brief psychiatric rating scales' (BPRS) (Overall and Gorham, 1962). This scale is physician rated and is one of the most researched instruments in psychiatry. The process of rating with this scale takes about 15 to 30 min. Reliability coefficients of 0.56 to 0.87 have been reported (Sajatovic and Ramirez, 2003). The rating scale was utilized in this study as a symptom check-list since it consists of a wide range of psychopathologies. The psychopathologies were rated on 1 to 7 point Likert scale, 1 being absent and 7 being extreme, by asking with patient or family member and by direct observation during the assessment by the investigator.

In this study, the score of 4 that is, moderate or more has been operationally defined as clinically significant for the item to be included as present. Data were entered into computer and analyzed using 'Statistical package for social studies' (SPSS 10) software.

RESULTS

Out of a total of 100 patients, 51 were male (with M: F ratio of almost 1: 1), 42% were married, 56% unmarried and 1% widow(er) and separated each. Average age of the subjects was 24.08 (range: 3, 60) years. Age group (10 to 19 years) constituted the largest proportion of 37%, followed by (20 to 29 years) 31% and (30 to 39 years) 22% (Figure 1). We had subjects of different caste/ethnic groups: 32% Mongol (Rai/ Limbu/ Tamang/ Magar/ Sherpa/ Gurung, etc.), 21% Brahmin, 16% Terai ethnic origin (Mandal, Raya, Jha, Yadav, Shah, Gupta, etc.), 12% Chhetri, 10% dalit/disadvantaged, 6% Newar and 3% Indian. Hindus were the most (78%), followed by Buddhists (12%), Muslims 2%, Christians and Kirat 4% each and 43% came from semi-urban, 29% urban, and 28% rural setting. We also had subjects of diverse professions: students (48%), homemakers (25%), labo-rers (9%), farmers (8%) and others. One fifth (20%) were illiterate and the subjects were relatively better educated

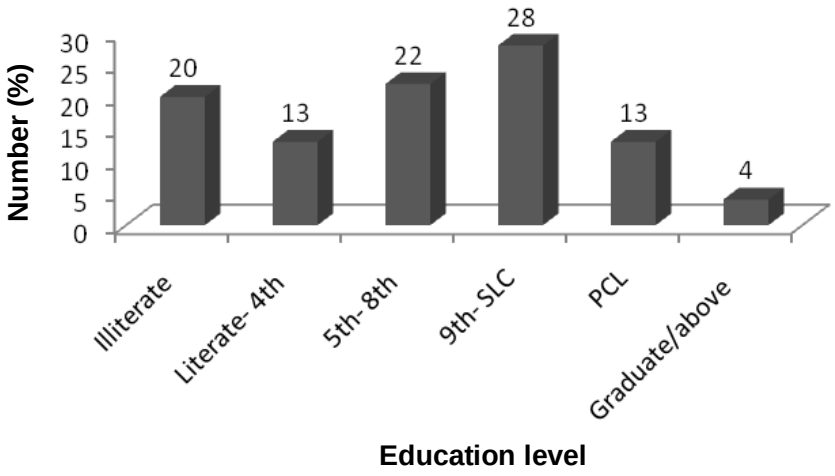

Figure 2. Educational level.

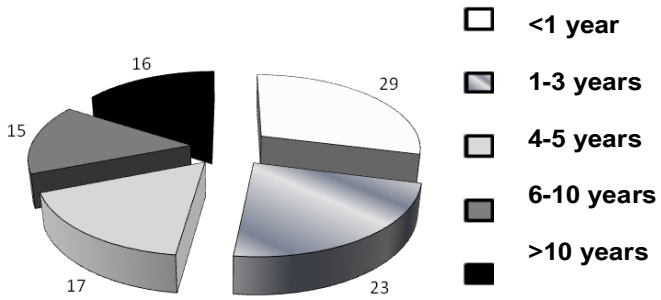

Figure 3. Total duration of seizure illness (%).

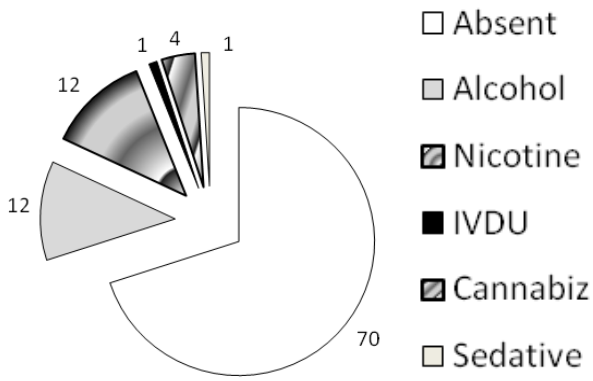

Figure 4. Current psychoactive substance usage (%).

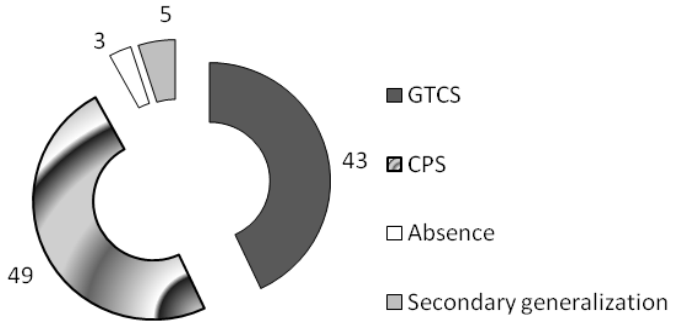

Figure 5. Types of seizure (%).

better educated as a whole (Figure 2).

Most of the cases were brought or accompanied by family member for psychiatric consultation (Table 1). Almost all (96%) had sudden onset and 90% had episodic course of illness. About one third had illness of less than 1 year. More than two-third had seizure morbidity of 1 to 10 years (Figure 3). Nearly half of the total subjects (46%) reported some stressors preceding the seizure attacks. Relational and health related stressors were among the common ones (Table 2). The most common complaints were directly related to seizures, that is misrecognition and or unresponsiveness due to alteration of consciousness (89%). Other main symptoms were somatic or physical complaints (56%) and mood (43%) symptoms (Table 3).

One third of the subjects had a clinically significant illness in their past history, and more than two fifth (42%) had illness in their blood relatives, including 15% with seizure disorder (Table 4). One third (30%) of all seizure patients reported to abuse psycho-active substances (Figure 4). About one fourth of them had some personality traits and 4% had mental retardation which affected the clinical course of illness (Table 5). About half of these seizure subjects had complex partial seizures and 43% generalized tonic clonic seizures (Figure 5).

All subjects had one or other significant BPRS symptom item. Seizure related symptoms: loss of consciousness

Table 1. Sources of referral.

Source of referral	%
Family members	69
Internal Medicine	11
Emergency	4
Family medicine OPD	4
Pediatrics	3
Gynecology/Obstetric	1
Other health centre	1
Alternative medicine	1
Relatives/friends	3
Self	3

OPD: Out-patient department.

Table 2. Types of stressors#.

Stressor type	%
Relational	10
Relative away	4
Death of relative	3
Illness of relative	3
Study related	4
Physical illness/health	10
Environmental	3
Stopping treatment	4
Political/social conflict	8
Sleep disturbance	2

Table 3: Presenting complaints#.

Complaint	%
Misrecognition/ Unresponsive	89
Thought, speech	7
Substance use	3
Behavioral problem	29
Mood symptoms	43
Anxiety	20
Perceptual	16
Somatic/ physical symptoms	56
Self harm	4
Personality changes	3
Others	41
'Aunse purne' (cultural expression)	4

consciousness, abnormal body movements, and stereotypy/mannerism were the most common symptom items among BPRS psychopathology. Other common items were somatic concerns, hallucinatory behavior,

Table 4. Past and family history of illness#.

Illness in past	%
Absent	67
Seizure	9
Neurological	12
Other medical diseases	4
Psychiatric	10
Substance use disorder	1
Not available	2
Illness in family	
Absent	57
Seizure	15
Neurological	8
Other medical diseases	2
Psychiatric	19
Substance use disorder	4

Table 5. Pre-morbid temperament/ traits/ personality.

Personality trait	No. of cases (%)
Well adjusted	64
Cluster 'A'	3
Cluster 'B'	8
Cluster 'C'	12
Others	4
Not applicable	7
Low IQ	4

anxiety, depression and hostility (Table 6). Forty five percent fulfilled the ICD-10 criteria for a psychiatric disorder. The most common psychiatric diagnoses were mood (affective) disorders (23%) and anxiety neurosis (15%). Deliberate self harm was seen in 4%. Out of the total subjects, 55% had some clinically significant psychopathology which did not fulfill criteria for an ICD-10 diagnosis (Table 7). Migraine was the most common physical disease among these seizure cases (Table 8). The most common treatments included antiepileptic drugs. They required some sort of psycho-education, counseling or psychological intervention (Table 9).

DISCUSSION

Seizure disorder, including epilepsy, has the prevalence of about 1% of adult population (Hauser and Annegers, 1993) and is one of the most common and disabling

Table 6. Significant psychological symptoms of BPRS (with scores ≥ 4).

BPRS item	%
Somatic Concern	73
Anxiety	55
Emotional withdrawal	23
Concept disorganization	16
Guilt	8
Tension	39
Mannerism/posturing	69
Grandiosity	19
Depressed mood	42
Hostility	40
Suspiciousness	10
Hallucinatory behavior	56
Motor retardation	29
Uncooperativeness	23
Unusual thought content	8
Blunted affect	9
Excitement	37
Disorientation/derealization	89

Table 7. Psychiatric diagnosis#.

Diagnosis	%
ICD-10 diagnosis present	45
Delirium	1
Substance use (F10-F19)	7
Schizophrenia (F20-29)	4
Mood (affective) (F30-39)	23
Neurotic, Stress, anxiety (F40-49)	15
Mental retardation	4
ADHD	1
Intentional self harm	4
Significant mental symptom only	*55*

Table 8. Co-morbid physical diagnosis#.

Disease	%
Infection/malignancy	3
Thyroid/endocrine	3
Migraine	12
Head injury	2
Cardio-vascular	3
Vertigo	1

Table 9. Management strategies#.

Treatment modality	%
Antipsychotic	15
Benzodiazepines	23
Antidepressant	18
Carbamazepine	49
Sodium valproate	39
Other AED	26
Supplementation	25
Other/IV fluids	8
Counseling/psycho-education/psychological	78

Multiple response category: one respondent may have ≥ 1 responses.

neuro-psychiatric disorders (World Bank, 1993). It is basically the neuro-psychiatric manifestation of paroxysmal hyper-synchronous brain discharges (Mendez, 2009; Raghuthaman et al., 2005; Lishman, 1998). Different seizure or epilepsy types have various clinical features, for example alteration of consciousness (simple or complex) and convulsions (focal or generalized), as comprehensively classified by 'International League against Epilepsies' (1981) (Engel, 2001). Seizure is an important differential diagnosis in cases of episodic phenomena, with a mixture of neurological, somatic and psychiatric symptoms and seizure attack is sometimes precipitated by psycho-social stress, though to a less extent, as most of the mental disorders (Mendez, 2009; Raghuthaman et al., 2005).

Besides the psychiatric manifestations, seizure patients are reported to suffer more from various psychiatric problems than general population. Mood, anxiety and other neurotic (pseudo-seizures or dissociative), psychotic disorders, personality problems, mental retardation and cognitive changes, and suicide and self injurious behaviours are seen more among seizure cases (Mendez, 2009; Raghuthaman et al., 2005; Lishman, 1998). It is however, at times difficult to distinguish them as independent or secondary to seizure activity.

The co-morbid mental illness further worsens the quality of life of the patients. Hence, psychiatric manifesttations and associations in seizures or epilepsies deserve a particular attention. Timely identification and proper proper management will enhance the better productivity and quality of life whereas seizure itself is reported under-diagnosed and under-treated (Eisenberg, 1997). More so because of prevalent myths and misconceptions about psychiatric illness, epileptics hesitate to seek help from mental health professionals even when they are in dire need.

There is a dearth of data about seizure, particularly about its psychiatric manifestations and associations in Nepalese context. We have to rely on our clinical

Observations (Shakya., 2012) and to make assumptions from the data of other parts of world. This study aimed to explore the associated psychopathology and psychiatric co-morbidities in seizure disorders. It was also anticipated that it would open avenues for the studies in other aspects of the disease; like psycho-social, community based prevalence, etiological aspect etc.

This is a hospital based cross sectional descriptive study in 100 consecutive seizure disorder cases, with some psychiatric complaints or symptoms hence, coming in contact with the investigator in the Department of Psychiatry, BPKIHS, Dharan, Nepal during the study period. It utilized the ICD-10 and BPRS as research tools, both being administered by clinician and widely validated across the world (Overall and Gorham, 1962; Sajatovic and Ramirez, 2003). For pre-morbid personality problem, the cluster concept of Diagnostic and statistical manual of mental disorders, fourth edition (DSM-IV) (American Psychiatric Association, 2000) was adopted for the sake of simple and comprehensive categorization. As both systems of classification of disorders have similar or equivalent categories to a great extent, this cluster concept would not make much difference.

Majority of the subjects were in the age range of 10 to 39 years. It is on the whole because child and adolescent patients usually visit the Department of Pediatrics and adult patients visit Department of Psychiatry and Internal Medicine in this institute. The 'male: female' ratio being more or less 1:1 is consistent with most of the studies (Hauser and Annegers, 1993; Mendez, 2009; Raghuthaman et al., 2005). Mere 20% illiterate subjects seeking help in this study, obviously less than the general population, reflects the fact that more illiterate people might have been suffering from seizures or epilepsies in community without treatment (Eisenberg, 1997).

Most of the cases in this study were brought by family members when the symptoms did not disappear with other measures, mainly traditional healing, or when they developed additional problems like psychiatric illness. They presented late to medical services; less than one third of the subjects had come to this service within 1 year of the onset of seizure morbidity, reflecting the sad reality about the under-diagnosis (Eisenberg, 1997). Majority had sudden onset and episodic course of illness. Nearly half of the total subjects recall some precipitating stressors for seizure attacks, relational and health related problems being the most common ones.

When they presented to the health service, seizure related symptoms like loss or alteration of consciousness, misrecognition and abnormal body movements (stereotypy/mannerism) were the most common symptom items among the BPRS psychopathology. Other frequent psychopathologies were somatic concerns (headache, body ache, etc), hallucinatory behavior, anxiety, depression and hostility. Though in general population also, depression and anxiety are the most common mental problems (Murray and Lopez, 1996), they are even more among these epileptic subjects. This fact has been replicated in the diagnostic profile of this study too, showing mood and anxiety as being the most common psychiatric co-morbidity, and in the BPRS scoring of associated or manifested psychopathology, showing somatic concerns, hallucinatory behavior, anxiety, depression and hostility as being other most common symptom items with scores 4 or more. Thirty percent re-vealed to use psycho-active substances currently, mainly alcohol and nicotine, which was less than in other general psychiatry patients' profile studies of this institute (Shakya et al., 2009), but clearly in excess to general population (Murray and Lopez, 1996).

One third of the subjects had some significant illness, mainly neuro-psychiatric illness in their past. More than two fifth (42%) of the subjects had family histories of significant illnesses. Fifteen percent of the subjects had some blood relatives with seizure which is similar to Western data (Mendez, 2009; Lishman, 1998).

In this hospital based study conducted in general psychiatry service setting, partial seizure (mainly complex) was the most common seizure type (49%), followed by generalized tonic clonic seizures (GTCS 43%). This is consistent with the fact about the prevalence of seizure types in adult population (Mendez, 2009; Raghuthaman et al., 2005). About one third had some personality traits significant enough to affect the clinical course of illness. People of all clusters were affected by seizures, though Cluster C traits were the most common. Mental retardation was present in 4 cases.

In seizure and epilepsy patients coming to this psychiatric service, 45% had psychiatric co-morbidities (ICD-10 diagnosis), mood and other neurotic/anxiety disorders being the most common as in Western/other studies (Mendez, 2009; Raghuthaman et al., 2005) and the remaining 55% had some significant mental symptoms, with the BPRS score 4 (moderate) or more but did not fulfill the ICD-10 criteria for any psychiatric disorder.

Suicide phenomena are relatively more in these seizure patients than in general population (Thapa and Carlough, 2000). The high rate may be because of the high co-morbidity and severe grading of psychopathology at the time of presentation. The suicide problem in this region needs validation with further community based studies.

As in other parts of the world, the Nepalese clinicians rely on various antiepileptic drugs like Carbamazepine, Sodium valproate and other anti-epileptic drugs. High psychiatric symptoms and co-morbidities were additional consideration during management of these cases; many of them needed benzodiazepines, anti-psychotics and antidepressants. Carbamazepine and Sodium valproate were over representing in this study, maybe because they were considered also for their mood stabilizing and other favorable effects besides antiepileptic property. Some

forms of psychological interventions are complimentary to drug therapy, for example psycho-education.

Our study is biased in a way since it enrolled only those patients who had some manifest mental symptoms and came in contact with the investigator in Department of Psychiatry. Hence, this may not reveal the true prevalence rate but we believe that this study satisfactorily depicts the range of possible psychopathology and psychiatric disorders associated with seizure disorders and looking at the cause and effect relationship of psychiatric symptom/disorder and seizure is beyond the objective/scope of current study which might be the topic for further research here. These observations however corroborate that psychiatric affliction, association, manifestation or co-morbidity is common in seizure disorders and epilepsies from different standpoints: etiological, clinical manifestations, co-morbidities and management. Hence, collaboration among various departments is crucial and it increases the success rate of treatment. The seizure patients should also be aware about these facts and should not hesitate to seek psychiatric help when needed.

Conclusions

1. Seizure and epilepsy patients usually present late (after 1 year of seizure) to the psychiatric service when they also have other co-morbidity, other traditional measures do not work, they are severely affected (high BPRS scores) and have to be brought by family members.
2. Some of them have past history of illness, including neuro-psychiatric illness. Many of them have family history of illness, including some with seizure disorder or epilepsy.
3. These seizure patients present with various symptoms such as altered consciousness, stereotypy, other somatic complaints, anxiety, hallucinatory behavior, mood symptoms, etc.
4. Some of them use substances, including alcohol and nicotine, and also have some significant personality traits, mainly of cluster ‘C’. A remarkable proportion of seizure patients presenting with some psychiatric symptoms fulfill the criteria for psychiatric disorders. Others with symptoms also have clinically significant ones. The most common psychiatric diagnosis was mood (affective) disorders, followed by neurotic, stress related and anxiety. A terrific number of them displayed deliberate self harm. Hence, seizure disorders have a wide range of psychiatric association as manifestation or co-morbidity.

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