

Comorbidity of psychiatric and psychosocial problems in Epilepsy

Parinka and Umed Singh

Department of Psychology, Kurukshetra University, Kurukshetra

Epilepsy is a condition frequently accompanied by psychiatric and psychosocial problems and a reduced quality of life. The present study was mainly aimed at understanding the comorbid psychiatric and psychosocial problems that significantly influence the daily life of persons with epilepsy. For this, 100 patients of epilepsy aged 18 to 40 years were selected from hospitals and clinics of neurologist/psychiatrists to participate in the study along with 100 normal controls. Data were collected by administering Personality Assessment Inventory by Morey, 1999. Data were analyzed by descriptive statistics (Mean, SD, SK, and KU) to ascertain the normalcy of data, t-ratios to compare the two groups in terms of their mean scores of ten clinical scales and two interpersonal scales; and Discriminant Function Analysis to examine the joint contribution of all the twelve variables in differentiation of two groups. Results revealed that patients with epilepsy scored significantly high on ten clinical scales i.e Somatic Complaints, Anxiety, Anxiety-Related Disorders, Depression, Mania, Paranoia, Schizophrenia, Borderline Features, Anti social Features, and Drug problem and two interpersonal scales i.e Dominance and warmth. In Discriminant Analysis, Depression, Anxiety-related Disorders, Borderline Features, Warmth, Somatic Complaint, Anxiety and Dominance emerged most potent discriminators classifying the two groups correctly by 100%. Overall findings revealed the patients with epilepsy tend to develop the neurotic and psychotic spectrum disorders along with the interpersonal behavioural problems and these psychopathological and social variables should be taken into account in diagnosis and treatment strategy for epilepsy.

Keywords: psychiatric problems, psychosocial problems, epilepsy

Epilepsy is a condition characterized by two or more unprovoked seizures (ILAE, 1991). Epilepsy is chronic neurological disorders associated with increased prevalence of psychopathology (Plioplys, 2003), psychosocial problems and a reduced quality of life (Jacoby, 1994). The term psychosocial is pertaining to or concerning the mental factors or activities which determine the social relations of an individual (Webster, 2011). Epilepsy can have substantial psychological and social consequences for everyday life. A psychosocial burden has been uncovered which suggests that people with epilepsy suffer as much from a social disease as a neurological disorder (Baker, 2002). Patients with epilepsy feel more stigmatized (Link & Phelan, 2006) and have increased levels of anxiety and depression (McCagh et al., 2009) compared with the general population. Furthermore, people with epilepsy have a lower marriage rate and fewer friends than people without epilepsy. The quality of life of people with epilepsy is often restricted by driving bans, which may cause additional problems in socialization, employment, self-esteem (Ablon, 2002) and a fear of others reactions (Fisher, 2000). Epilepsy may, but does not inevitably, affect emotional, behavioral, social, and cognitive functioning. Studies investigating these problems frequently use the term 'psychopathology' because of the diverse and confusing ways this term has been used. Psychopathology refers to psychiatric problems of various types, maladaptive emotional disorders, psychosocial adjustment difficulties, and behavioral and personality characteristics. Epileptic seizures are uncontrollable and unpredictable which make living with epilepsy difficult. Also the patient's fears and concerns regarding his or her seizures, perceived stigma and discrimination particularly in the area of employment and lack of social support are considered potential etiological psychosocial variables in the development of psychiatric disturbances (Hauser & Hesdorff, 1990; Hermann & Whitman, 1992). Epilepsy has psychological consequences such as a higher

rate of psychiatric disorders, mood disturbance, suicide, social isolation (Baker et al., 2009); perception of shame and guilt and low self esteem, anxiety and a pessimistic feeling about life (MacLeond & Austin, 2003). Majority of the studies concentrate on psychiatric disorders particularly on psychotic disorders, mood disorders, and anxiety disorders. Existing data on personality disorders in patients with epilepsy reveal prevalence between 4 and 38% (Schwartz & Cummings, 1999; Krishnamoorthy et al., 2001; Swinkels et al., 2003). Mendez et al. (1986) observed that epilepsy patients (although they met the criteria for a major depressive disorder) had atypical peri-ictal features with more paranoia and psychotic symptoms. These patients also had a more chronic dysthymic course between the major depressive episodes, in which they showed more irritability and emotionality. The overall severity of depression disorders cause significant disruption to patients' daily activities, social relations and quality of life (Kanner & Balabanov, 2002). Many patients with epilepsy have problems with interpersonal relationships, low self-esteem, increased levels of anxiety and depression and are frequently described as persistent and rigid. Epilepsy can have far reaching psychological and social ramifications and for some individuals these can be more debilitating than the seizures (Hermann & Jacoby, 2009). The management of interpersonal relationships can be deeply influenced by family roles and these relationships can be both causes and consequences of an accumulation of unsolved personal dynamics (Billings and Moos, 1984). Thus, the psychological impairment could exert an even more negative impact on coping strategies and other dimensions of adjustment, such as recreational activities (Mirnics et al., 2001). In concordance studies, Manchanda et al. (1996) found higher dimensional scores for the epilepsy patients on dependent and avoidant.

Awareness of the psychosocial problems and psychiatric problems which may arise is essential for professionals working with epilepsy and families of persons with epilepsy. Such difficulties

can have a profound impact on a person's mental health and also upon seizure control. Treatment of youth with comorbid epilepsy and psychiatric disorders is a challenge because the specific aspects of both conditions have to be carefully managed for optimal treatment results. For this, comprehensive understanding of comorbid psychopathological and social problems is essentially required. The present study is an empirical attempt to understand the comorbid psychiatric and social problems that can be highly relevant in the management/treatment strategies for epilepsy.

Method

Participants

100 female patients of epilepsy (aged 18 to 40 years with the mean age of 29 years) duly diagnosed by neurologists/psychiatrists in accordance with the International League Against Epilepsy Classification (Engel, 2001) and 100 normal matched subjects participated in the present study. The patients of epilepsy were selected from hospitals (LNJP, Kurukshetra, and Lady Harding Medical college, Delhi), neurologists/psychiatrists' private clinic (Aggarwal Nursing Home, Kurukshetra) with due permission from consulting doctors and consent from the patients or attendant. The inclusion criteria were age >18 years, a history of epilepsy >2 years, authentically diagnosed, willingness to participate, referral by the consulting doctors and no history of other pathological or chronic disease.

The normal matched group of subjects (N=100) was selected from the localities of cities matched in age and other demographic variables. Only those subjects were included who volunteered to participate, and were not having the history of any psychopathological or other chronic medical disease.

Instruments

The participants of the study were tested with Personality Assessment Inventory (Short Version PAI, Morey, 1999). PAI is a self administered objectively scorable inventory designed to provide information on critical clinical variables. PAI originally consists of 344 items comprising 22 non-overlapping full scales: 4 validity scales, 11 clinical scales, 5 treatment consideration scales, and 2 interpersonal scales. The validity scales are Inconsistency (INC), Infrequency (INF), Negative Impression (NIM), and Positive Impression (PIM). Clinical Scales consists of Somatic Complaints(SOM), Anxiety(ANX), Anxiety Related Disorder (ARD), Depression(DEP), Mania(MAN), Paranoia(PAR), Schizophrenia (SCZ), Borderline Feature(BOR), Antisocial Feature(ANT), Alcohol Problem(ALC), and Drug Problems (DRG), and Treatment Consideration scales include Aggression (AGG), Suicide Ideation (SUI), Stress (STR), Non-Support (NON), and Treatment Rejection (RXR). Interpersonal scales consist of Dominance (DOM) and warmth (WAR). In the present study short version of PAI was used that consists of 160 items, which give estimates of scores for 20 of 22 full scales. In the present study PAI was scored for only 10 clinical scales and 2 interpersonal scales. The variables of PAI have reported to be satisfactory across various clinical samples.

Results and Discussion

Obtained data were analyzed using the SPSS 11.5 for descriptive statistics (Mean, SD, SK and KU) ascertain the normality of data, t-ratio to compare the two groups (Epilepsy and Normal matched) in terms of significance of differences in mean scores of 12 variables (Table-1). Discriminant Function Analysis was used to examine the joint contribution of all the twelve variables in differentiation of two groups (Table-2)

Table 1: Comparison of two groups (Epilepsy and Normal groups, N each=100) with their Mean scores, SD, SK and KU.

Var	Clinical Group				Normal Group				t-value	Sig/NS
	Mean	SD	SK	KU	Mean	SD	SK	KU		
SOM	2.14	.97	.51	.04	1.02	.98	.80	.26	8.03	p<.01
ANX	4.03	1.42	-.18	-.56	1.86	1.32	.68	-.01	11.15	p<.01
ARD	5.38	1.74	.27	-.33	2.00	1.39	.67	.14	15.04	p<.01
DEP	5.81	1.92	-.05	-1.03	1.26	1.20	1.40	2.88	20.07	p<.01
MAN	1.97	.82	1.61	5.48	3.15	1.90	.69	.45	-5.67	p<.01
PAR	4.90	2.64	.57	-.16	2.87	1.75	.24	-.80	6.39	p<.01
SCZ	1.62	.67	.75	-.91	1.36	1.07	.91	.88	2.15	p<.01
BOR	8.75	2.41	.18	-.39	2.74	1.72	.46	.00	20.27	p<.01
ANT	1.87	.74	.56	.32	1.09	1.01	.70	-.31	5.63	p<.01
DRG	1.78	1.01	.57	-1.53	.18	.71	3.76	2.40	12.91	p<.01
Interpersonale scales										
DOM	5.22	2.04	-.07	-.75	1.96	2.12	1.23	1.81	11.04	p<.01
WRM	5.11	2.22	-.22	-1.26	1.07	1.98	2.01	3.66	14.01	p<.01

Table 1 reveals that epileptic patients have obtained significantly high scores on ten scales of psychopathology viz Somatic Complains, Anxiety, Anxiety-Related Disorders, Depression, Mania, Paranoia, Schizophrenia, Borderline Features, Anti social Features, and Drug problem than normal controls depicting that epilepsy patients tend to develop both the neurotic and psychotic-spectrum disorders after being diagnosed. Measures of somatic complain, anxiety, anxiety related disorders and depression

represent neurotic-spectrum, whereas measures of paranoia, schizophrenia, borderline features and anti social features represent the psychotic-spectrum disorders (Morey, 1999). The present findings are very much confirmatory to the earlier findings which have reported high rate of comorbid psychopathological problems among epilepsy patients than in general population. There are numerous studies reporting that the severity anxiety and depression in epileptic patients is higher than normal controls (Beyenburg et al,

2005, Oguz et al., 2002; Ott et al., 2001). Major depression and panic disorder are more prevalent in epileptic patients than in general population (Schwartz & Marsh, 2000). Anxiety is often a dominant symptom of the adjustment disorder which most patients go through when first diagnosed with epilepsy (Jackson & Turkington, 2005).

Epilepsy patients scored significantly high on the two interpersonal scale i.e. dominance and warmth than their counterpart normal subjects. It suggests that epileptic patients tend to have high level of need for dominating and controlling. They prefer to interact with others in situations in which they can be in control. They are generally domineering and tend to have little tolerance for those who disagree with their plans and desires. Person with epilepsy are generally eager to be liked by others and find it hard to be critical of others even when such criticism is merited. Their need for acceptance is quite pronounced and can result in marked dependency. Behavioral disorders such as hyperactivity, social withdrawal, conduct problems and aggression have been consistently seen in person with epilepsy. Biological, psychosocial, demographic and medication factors contribute to behavior disorders (Mchough & Slavney, 1998). Comorbidity of epilepsy and psychiatric disorders are often, yet the most common are depression, nervousness and anxiety, less common being psychosis and schizophrenia (Gaitatzis et al., 2004). These findings also highlights the relevance of coping with social problems in terms of attempts to show dominance and warmth in epilepsy patients in confirmation to the earlier findings.

Discriminant analysis (Epilepsy Patients vs normal controls)

Although the comparison of mean scores of two groups on ten scales of psychopathology and two of interpersonal scales provided the differential profile of epilepsy patients and normal controls, yet to examine the extent to which 12 variables jointly differentiated successfully between the two groups, Discriminant Function Analysis (Tabachnick And Fiddle, 1989) was applied. By identifying the significance of selected variables in linear combination, this analysis permits (1) the understanding of synergistic role of identified discriminators in the separation of the two groups (Epilepsy vs Normals), and (2) their classification accuracy, which is an additional indicator of the effectiveness of the discriminant function.

Stepwise Discriminant Analysis with respect to patients with Epilepsy vs Normal Group(N=100 each group)

Variables	F-to-remove	WL	WLD	SDFC
DEP	37.17	.202	.148	.440
ARD	36.66	.174	.147	.436
BOR	30.20	.325	.143	.406
WRM	17.66	.152	.135	.325
SOM	18.36	.142	.135	.323
ANX	15.81	.131	.134	.309
DOM	11.23	.124	.131	.261

WL= Wilk's Lamda, WLD= Wilk's Lamda Decrement, SDFC= Standardised Discreminant Function Coefficient

Canonical Discriminant Functions

Function	Eigen-value	%Variance	C%V	CC
1	7.091	100	100	.936
Test of function	Wilk's Lamda	Chi-square	Df	Significant
1	.124	406.649	7	.000

C%V= Cumulative %variance, CC= Canonical Correlation

Classification Summary

Original group	Predicted group membership		
	Group 1	Group 2	Total
1	100	0	100
2	0	100	100
Count %			
1	100	0	100
2	0	100	100

100% of original cases correctly classified

Table 2 provides a summary of the outcome of stepwise discriminant analysis. As can be noted, out of 12 potential discriminating variables, a set of only seven discriminators viz Depression, Anxiety-related Disorders, Borderline Features, Warmth, Somatic Complaints, Anxiety and Dominance formed the discriminant equation/function. These seven variables in combination contributed maximally in discriminating patients with epilepsy from their normal counterparts (Eigen value=7.091). This also shows that Mania, Paranoia, Schizophrenia, Drug Problems and Antisocial Features did not comprise the discriminant function. Based on F-to-Remove values the selected set of seven discriminators was arranged in the rank order of their relative importance for discrimination/separation between groups of epilepsy patients and their control counterparts. As is clear from Table-2, Depression with largest F to Remove value, made the highest contribution to the overall discrimination above and beyond the contribution made by other selected variables. The values of Wilk's Lamda corroborated the observed group differences over the same set of seven variables. Since Depression increased maximum within-group cohesiveness, this variable is found more than followed by other variables in that order. The values of Wilk's Lamda decrement further confirmed the relative unique contribution of each variable to the discriminant equation above and beyond the contributions of proceeding variables. While developing the discriminant function equations, Standardized Discriminant Function Equations (SDFE) were created. The magnitude of these coefficients regardless of signs also depicts the relative and unique contribution of each variable to the discriminant function (Table 2). The SDFC provided additional information to the conclusions derived on basis of the F-to-Remove and Wilk's Lambda/decrement values. SDFC values also documented that Depression contributed highest to the discrimination/separation of the patients with epilepsy and their counterpart normal controls. The direction of significant differences in respect of these discriminators was generally consistent with the signs of SDFC loadings.

In discriminant function analysis another important question is the accuracy of classification based on identified set of discriminators. Klecka (1985) suggested that classification accuracy can be used along with F-to-Remove, Lamda, and SDFCs to indicate the amount of discrimination contained in selected variables. However, he pointed out that if chance of accuracy is 50% (two groups of equal size), the classification accuracy should be at least 62.5% (25% greater than that is achieve by chance). Based on discriminant function (Depression, Anxiety-related Disorders, Borderline Features, Warmth, Somatic Complaints, Anxiety and Dominance), the correct classification rate for epileptic patients and normal controls group is 100%. Thus, in epilepsy group and normal groups, no cases were incorrectly classified. The overall classification accuracy of known cases emerged to be 200 out of 200 (100%), a percentage higher than 62.5%. It provides an additional

confirmation of the degree of group discrimination/separation i.e. between epileptic patients and normal group. Thus, Depression, Anxiety-related Disorders, Borderline Features, Warmth, Somatic Complaints, Anxiety and Dominance are hallmark symptoms of epilepsy patients which discriminate them from normal individuals.

Implications of the study

These results provide information about patients with epilepsy that may be useful in the management of their mental health problems. Awareness of mental health problems of epilepsy patients among their family members, relatives and society in general may be helpful in the change of societal stigmatic perception of epilepsy victims. The main implication of the present findings lie in the fact that above mentioned psychopathological and behavioural variables on which epilepsy patients have scored significantly high, must be taken into account in both the diagnosis and treatment of epilepsy. Hence, the present study is suggestive for eclectic approach (collaboration of medical and psychosocial treatment) to be used in both the diagnosis and treatment. For more generalizable results it is suggested to carry out the similar studies on large samples.

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