Frequency of Depression and Anxiety in Male and Female Epileptic Patients: Pakistan

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Summary

Objective: Epilepsy is a seizure disorder and neurological condition that can have profound physical, social and psychological consequences. To determine the frequency of anxiety and depression among male and female epileptic patients and to estimate mild, moderate and severe anxiety and depression level in epileptic patients. Cross sectional study design was used. Study setting includes psychiatric outdoor departments of Khyber Teaching Hospital Peshawar.Study duration at least 3 months after the approval of synopsis. Population consists of indoor and outdoor patients. Sample size were 200 calculated via WHO calculator with 95% confidencelevel and 5% error. Data were collected through non probability consecutive sampling. Inclusion Criteria was Patient presenting to psychiatric OPD with history of different types of epilepsy, Age was 14 to 60 years and both genders. Exclusion Criteria consist of Patients diagnosed and treated as depression or anxiety by Psychiatrist or Physician with Selective Serotonin Reuptake Inhibitors or Tricyclic Antidepressants. Patients with Schizophrenia, Schizoaffective Disorders and Bipolar Affective Disorder will be excluded. The results revealed that the reliability of Beck Depression Inventory is .54, and that of Beck Anxiety Inventory is .61, representing good range of reliability. Gender, Literacy and Education degree received has significant association with both depression and anxiety. Whereas, age, Residence and Socio-Economic status has non-significant association with both depression and anxiety construct. Depression and Anxiety both are positively associated to each other. Their association is moderate positive (Υ = .33, p< .01). Whereas, on Anxiety, there exist significant gender differences, which means that the male epileptic individuals and female epileptic individuals have significant differences among them and females scored higher than males.

Keywords: depression, anxiety, epileptic, cross sectional, 95% confidence interval

1. Introduction

Epilepsy is one of the chronic epidemics of the world disorders with persistent and unpredictable seizures, which have in-depth relations with consequences of social and psychological stressors (WHO, 2010). Approximately 80% of epileptic patients belongs to economically deprived countries. Epilepsy is a tag in many parts of the world, which forces an individual not to prefer go for treatment. Around three-quarters of those with active epilepsy remain untreated, resulting in a significant care shortage, which is frequently concentrated in economically deprived nations (Saxena, 2017).

Epilepsy ought to be a public health concern and there are cost-effective therapies that can significantly minimise morbidity, disease, and mortality (Ding et al., 2008; Megiddo et al. 2016). The occurring of anxiety and depression among gender tends to vary, is a comparatively new topic of study. Very few studies have been conducted to analyse difference between symptoms of anxiety and depression of both genders having epilepsy.According to intervention classification of Doses 10 for depression are the key symptoms of persistence sadness or low mood, loss of interest or pleasure, fatigue or low energy. These symptoms present for at least two weeks' period of time while anxiety disorder is a psychiatric disorder which are characterized by anxious feelings by physical symptoms by apprehension of danger and dread accompanied by restlessness, tension, tachycardia and dyspnoea unattached to without apparent object or cause.

Depression affects people with epilepsy at a rate that is two to three times that of the general Population. There is a clear correlation of epilepsy to depression, and anxiety disorders, as per studies. Such symptoms can worsen or improve after being identified with epilepsy, or as a result of living with epilepsy. Other abnormalities related to brain-structure,

pathways of monoamine, metabolism of glucose in cerebral parts and numerous other complications are interrelated due to the presence of depression in epileptic individuals (Ekinci et al., 2009).

After the identification of both depression and anxiety in patients of epilepsy, these disorders can be effectively treated with the treatment of epilepsy at the same time (Kwon & Park, 2014).

2. Literature Review

Epilepsy is a chronic neurological disorder that can affect a patient physically, socially and psychologically. Depression and anxiety are a frequent co morbidity having epilepsy has a major effect on their quality of life and illness. Very few studies have been conducted in Pakistan to address this problem especially ignoring the gender difference in epileptic patients. An epileptic seizure is defined by the International League against Epilepsy (ILAE) as "a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain". Epilepsy is characterised conceptually as an "enduring predisposition of the brain to generate epileptic seizures, with neurobiological, cognitive, psychological, and social consequences" (Fisher et al., 2005).

Epidemiology of depression in epileptic patients

Epilepsy is linked to depression in both directions. Epilepsy was associated with an elevated onset of depression before and after epilepsy diagnosis in a matched randomised cohort sample based on the UK General Practice Research Database. This finding may point to the existence of similar underlying pathophysiological pathways in epilepsy and depression (Hesdorffer et al., 2012). Commonly diagnosed comorbid mental condition in epilepsy is known to be depression. Depression was more prevalent in PWE patients than in patients with other illnesses or in the general population, according to studies performed in Canada, Italy, the United Kingdom, and the United States. In those trials, 9–37 percent of PWE meet the depression criterion (Kobau, Gilliam, & Thurman, 2006), whilst depression was seen in 9–10% of patients with other illnesses (Perini et al.1996) and 6–19% of the general population (Kesssler et al., 2005). Depression was also shown to be more common in PWE than in healthy controls in our sample, which was conducted in Korean health facilities; 27.8 percent of PWE and 8.8 percent of healthy controls were found to be depressed (Kwon and Park, 2013). According to a new meta-analysis of initial population-based data, the average prevalence of active depression in PWE was 23.1 percent (Fiest et al., 2013).

Epidemiology of Anxiety in epileptic patients

The bidirectional correlation between anxiety and epilepsy was discovered in a matched randomised cohort analysis based on the UK General Practice Research Database (Hesdorffer et al., 2012). According to a Canadian population-based survey, the lifetime rate of anxiety is 2.4 times greater in people with PWE than in people without epilepsy. Anxiety was shown to be more prevalent in PWE than in people without epilepsy in studies performed in Canada, the United Kingdom, and the United States; specifically, it was 11–25 percent in PWE (Jacoby et al., 1996) and 7–11 percent in people without epilepsy (Kobau, Gilliam, & Thurman, 2006). In our research, performed in Korean tertiary-care hospitals, anxiety was more frequent in PWE than in healthy controls: the rates of anxiety were 15.3 percent in PWE and 3.2 percent in healthy controls (Kwon and Park, 2013).

3. Methodology

Current study is cross-sectional in order to assess the anxiety and depression in epileptic patientsin KTH hospital, Peshawar. psychiatric outdoor departments of Khyber Teaching Hospital Peshawa. Duration of at least 3 months after the approval of synopsis. Population indoor and outdoor patients. Sample size was 200 calculated via WHO calculator with 95% confidence level and 5% error. Data will be collected through non probability consecutive sampling. Inclusion Criteria: Patient presenting to psychiatric OPD with history of different types of epilepsy. Age, 14 to 60 years both genders. Exclusion criteria Patients diagnosed and treated as depression or anxiety by Psychiatrist or Physician with Selective Serotonin Reuptake Inhibitors or Tricyclic Antidepressants. Patients with Schizophrenia, Schizoaffective Disorders and Bipolar Affective Disorder will be excluded. Data collection approval will be obtained from institutional research and ethical board before starting the study. Data were collected via questionnaire and interview after taking an informed consent. Data will be collected in psychiatric outdoor and indoor departments of Khyber Teaching Hospital Peshawar. Those who meet the criteria for anxiety depression will be educated for specialized treatment. Strict exclusion criteria will be followed to minimize the bias resulting from confounders. Confidentiality of the patients will be assured and no information will be provided to third parties without prior permission from the patient unless there is risk of harm to self or others. Beck's depressive inventory is a self-reported questionnaire validated to screen the severity of depression originally designed by Aron T. Beck in 1961 is a 21 item questions with a multiple-choice self-reporting inventory.

It is mostly used in studies to measure severity of depression. Beck's anxiety inventoryis a self-report measure validated tool to screen the severity of anxiety originally designed by Aron T. Beck is a 21 item questions multiple choice self-reporting inventory to sasses' mild, moderate and severe anxiety. Demographic details, and chronicity and nature of problems will be recorded via the pro forma attached. Data were evaluated using the SPSS Version 20.

Results:

Demographic information was collected across Gender. Age, Residence, Socioeconomic status, Literacy Status, and Education Degree received. A total of 108 males and 92 females participated in study. The age of the participants lies between 16 to 65 years. Most of the participants were residing in Dir, KhyberPakhtunkhwa Pakistan. Remaining were from Peshawar and Mardan of KhyberPakhtunkhwa Province, Pakistan. On socioeconomic demographic, 68 participants were belonging from Upper class, 77 middle class, and 55 from lower class. Whereas, 118 participants were illiterate, and 82 participants were literate. Lastly, the educational degrees received were Matric, FA/F.Sc, BA/B.Sc, and MA/M.Sc. Descriptive statistics show information across study variables, Depression and Anxiety. The Depression has Mean of (M = 31.84), which means higher reporting of Depression. Whereas, the Anxiety has Mean (M = 29.79), which also indicates higher reporting on anxiety scale. This means that participants have higher depression and anxiety Depression and Anxiety both are positively association with each other. Their association is moderate positive (Υ = .33, p< .01). It means that increase in depression also witness increase in anxiety. On Depression there exist significant gender differences (Males: M = 28.21, SD = 4.23), (Females: M = 36.09, SD = 4.96), t (198) = -12.12, p = .001. This means that the male epileptic individuals and female epileptic individuals have significant differences among them. The negative sign shows that females scored higher than males.

Whereas, on Anxiety, there exist significant gender differences (Males: M = 28.69, SD = 6.80), (Females: M = 31.07, SD = 5.04), t (198) = -2.83, p = .005. This means that the male epileptic individuals and female epileptic individuals have significant differences among them. The negative sign shows that females scored higher than males.mean differences on education along the study variables, i.e., depression and Anxiety. Table shows that there are significant mean differences in depression and anxiety. On Depression there exist significant mean differences (Illiterate: M = 35.81, SD = 3.91), (Educated: M = 26.12, SD = 3.34), t (198) = 18.26, p = .001. This means that the illiterate epileptic individuals and educated epileptic individuals have significant differences among them. Illiterate epileptic individuals scored higher than educated epileptic individuals on depression.

Whereas, on Anxiety, there exist significant mean differences (Males: M = 30.79, SD = 5.75), (Females: M = 28.34, SD = 6.46), t (198) = 2.81, p = .005. This means that the male illiterate epileptic individuals and educated epileptic individuals have significant differences among them. Illiterate epileptic individuals scored higher than educated epileptic individuals on anxiety.

Discussion

Study revealed that Depression and Anxiety both are positively association with each other. This means that both depression and anxiety are present in the epileptic patients and they positively associated with each other. If there is increase in depression symptoms, an increase in anxiety symptoms also will be observed. Literature reported the same results. The increase in epileptic symptoms results in higher depression and anxiety, and vice versa (Oguz, Kurul, Dirik, & Eylül, 2002). The epileptic patients reported severe mood disruption as compared to control group (Piazzini, Canevini, Maggiori, & Canger, 2001), showing the association of epilepsy, depression and anxiety. Furthermore, there is positive association of Epilepsy with depression and anxiety (Kwon & Park, 2014). Consequently, the depression and anxiety is positively associated with the Epilepsy, indeed the epileptic person will develop one or other form of depression and anxiety symptoms.

Study revealed that there are significant gender differences in depression and anxiety. Anxiety and depression rated higher psychological comorbidities in epileptic patients, with higher prevalence the general healthy population (LaFrance Jr, Kanner, & Hermann, 2008; Lopez, Schachter, & Kanner, 2019). The association amongst epilepsy and psychological disruption is two directional, more specifically epileptic patients are at higher risk of developing psychological disturbances, whereas in certain cases patients with psychological disorders also developed epilepsy (Hesdorffer et al., 2012). This two directional relationship is because of the common origin and ground of both the psychological problems, and of epilepsy itself (Kanner, 2011). The Psychological impairment would more specifically alter the epileptic seizures, or impact seizures, and utmost the epileptic patient lives. To increase eminence of life plus endorse effectiveness in the management of epilepsy, testing of anxiety and depression would be more preferable, and therefore clinician's priority. But more often, this association of trio goes unnoticed (Kanner, 2016).

Even though scholarships on gender differences found that females epileptic patients are more often victim of higher level of depression as well as anxiety as compared to males (Altemus, Sarvaiya, & Epperson, 2014). A research paper has predicted the gender differences in trio co-morbidity, and found that female suffered more, developed more severe depression and anxiety symptoms as compared to males, therefore more susceptible for trio association, leaving female more harmed in comparison to male epileptic patients (McLean, Asnaani, Litz, & Hofmann, 2011). Therefore, evidences suggest that female epileptic patients suffered more as compared to males from co-morbidity of depression and anxiety.

Conclusion:

The study can be concluded depression and anxiety co-morbid with epilepsy symptoms, severing the epileptic patient life. Females' epileptic individuals are at a high risk to develop anxiety and depression as compared to male epileptic individuals. Whereas, that the ratio of anxiety and depression in females is more common than males, in short female epileptic patient scored higher on scale of anxiety and depression. Study shows that there exist higher depression and anxiety among female epileptic patients (see gender differences t test tables). General perception is that females are more vulnerable to these disorders when having major illnesses. On Depression male epileptic individuals and female epileptic individuals have significant differences. Similarly, on Anxiety, there exist significant gender differences, means that the male epileptic individuals and female epileptic individuals have significant differences. Concluding the argument, female scored higher as compared to males, therefore study revealed higher prevalence of depression and anxiety in females.

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Demographic Information Table

Variable	*f*	%age	Variable	*f*	%age
Gender			**Socioeconomic status**		
Male	108	54	lower	55	28
Female	92	46	middle	77	38
Age			upper	68	34
16-25	30	15	**Literacy Status**		
26-35	55	28	Illiterate	118	59
36-45	64	32	Educated	82	41
46-55	31	15	**Education Degree Received**		
56-65	20	10	Illiterate	118	59
Residence			Matric	8	4
Peshawar	52	26	FA/FSc	25	12
Dir	93	49	BA/BSc	29	14
Mardan	55	26	MA/MSc	20	10

Descriptive Statistics Table (N = 200)

				Range			
Measures	N	*M*	*SD*	Min	Max	Skew	Kurt
Depression	200	31.84	6.03	17	46	.03	-.16
Anxiety	200	29.79	6.15	9	45	-.23	.38

Skew: Skewness, Kurt: Kurtosis

Demographics Correlation

Measures	Gender	Age	Residence	Socio-economic status	Literacy	Education Degree
Depression	.65**	.07	-.07	-.06	-.79**	-.69**
Anxiety	.19**	.03	-.03	-.02	-.20**	-.15*

*** p< 0.01, * p < 0.05*

Correlation between study variables

Following table shows correlation between study variables, i.e. Depression and Anxiety

Measures	Depression	Anxiety
Depression	-	
Anxiety	.33**	-

*** p< .01.*

Gender Differences between Depression and Anxiety

	Male (n=108)		Female (n=92)				CI 95%		Cohen's
Measures	M	SD	M	SD	*t* (198)	*p*	LL	UP	d
Depression	28.21	4.23	36.09	4.96	-12.12	.001	-9.16	-6.59	-1.71
Anxiety	28.69	6.80	31.07	5.04	-2.83	.005	-4.03	-0.72	-0.40

Mean Differences along Education

	Illiterate (n=118)		Educated (n=82)				CI 95%		Cohen's
Measures	M	SD	M	SD	*t* (198)	*p*	LL	Upper	d
Depression	35.81	3.91	26.12	3.34	18.26	.001	8.637	10.729	2.66
Anxiety	30.79	5.75	28.34	6.46	2.81	.005	.732	4.162	0.4