Anxiety among Patients with Epilepsy attending Imam AL-Sadiq General Hospital in Babylon Governorate, Iraq

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Abstract:

Background: Anxiety is one of the most frequent psychiatric comorbidities in patients with epilepsy (PWE). People often develop anxiety after epilepsy is diagnosed, or after they have their first seizure. In fact, one common cause of anxiety in epilepsy is the fear of having a seizure.

Aim: To determine the prevalence and associated factors of anxiety disorders in patients with epilepsy.

Subjects and Methods: A descriptive; cross sectional study conducted at Imam Al-Sadiq Hospital, included 225 collected from 10th January/2022 to 10th May/2022. The sample was collected under the supervision of neurologist. We used the Generalized Anxiety Disorder 7 (GAD-7) to assess anxiety status.

Results: prevalence of anxiety among patient with epilepsy was 60.9%. Among participant with positive anxiety ,(37.3%) male compared to female (23.6 %). The mean age of epilepsy was (32.26 ± 13.94) .High percentage (17.3%) of anxiety was in the age group (30-39 year) . age group, educational status, duration of disease, type of seizure, frequency of seizure were found to be highly significantly associated with anxiety.

Conclusion: People with epilepsy were shown to have a high prevalence of comorbid anxiety. Health care professionals should be concerned with early diagnosis of comorbid anxiety in patients with epilepsy, as well as managing epilepsy to ensure seizure-free condition.

Key words: Epilepsy; Anxiety; Prevalence; Babylon.

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Introduction

Epilepsy is a chronic neurological disorder characterized by a lasting tendency for unprovoked seizures as well as the neurobiological, cognitive, psychological, and social impacts of this condition (Sarmast *et al.*, 2020).

It is characterized by the recurrence of seizures with neurological, cognitive, psychological and social impacts and it is a major public health concern in low and middle-income countries (LMICs) and comorbidities aggravate the burden associated with the disease (Muhigwa *et al.*, 2020).

Epilepsy has been associated with increased risk of various psychiatric disorders with prevalence rates ranging between 12% and 41%; this variation in rates is largely due to methodological differences among the studies . Anxiety is one of the most frequent psychiatric comorbidities in patients with epilepsy (PWE), The cause of the increased risk of both disorders in PWE is multifactorial. Genetic, neurochemical, anatomical, neurologic, and iatrogenic factors are among the most common studied etiologies (Alsaadi *et al.*, 2015)

Anxiety is the presence of fear or apprehension that is out of proportion to the context of the life situation. An anxiety disorder can be expressed in different ways such as uncontrollable worry, intense fear (phobias or panic attacks) or upsetting dreams or flashbacks of a traumatic event (Tegegne *et al.*,

2015).

anxiety is associate with the somatic symptoms of insomnia, poor concentration, sleep problems, fatigue, irritability, and tension in the muscles (Jackson and Turkington, 2005).

Comorbid psychiatric illness might increase health care needs and socioeconomic burdens due to long-term disability and morbidity and worsen epileptic patients diagnosis and treatment, exacerbate the prognosis(Al Mousawi et al., 2020).

Epidemiological data in some countries used for health services planning to epilepsy patients (Saud, Mater and Abd-Alrehman, 2020).

Epidemiological studies are necessary to establish public health priorities and health care, to provide necessary information for prevention, early detection and treatment, to identify education and service needs, and to promote effective health care and support programs for people with epilepsy (Fernández-Suárez *et al.*, 2015)

Aim

- Determine the prevalence of anxiety among patients with epilepsy attending neurology of outpatient clinic at Imam Al-Sadiq hospital.
- Determine the association between socio-demographic and other characteristics with anxiety state.

Subjects and Methods

A descriptive; cross sectional study conducted at Imam Al-Sadiq hospital, included 225 participants among patients with epilepsy attending the outpatient neurologic clinic. For assessment anxiety ,the most recommendatory anxiety screening tools was the Generalized Anxiety Disorder 7 (GAD-7). It is nine questions with a likert four score scale to assess patient answers. This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of "not at all," "several days," "more than half the days," and "nearly every day." GAD-7 total score for the seven items ranges from 0 to 21, 0–4: minimal anxiety ,5–9: mild anxiety ,10–14: moderate anxiety,15–21: severe anxiety (Scott *et al.*, 2020). A total score of five more was considered as positive depression score. Depending on study conducted at UAE (Alsaadi *et al.*, 2015) ,we classified patients with GAD-7 scores ≥10 as having anxiety disorder. To measure the socio-economic status(SES) of the patient we depending on socioeconomic index for health research in Iraq developed by Wali Omer and Tariq Al-Hadithi (Omer *et al.*, 2017)

Duration of Study

The data collection continued for the period of 4 months starting on 10th /January/2022 to 10th /May/2022.

Place of Study

This study was conducted in the neurology outpatient clinic of Imam Al-Sadiq General Hospital. This hospital is located in Babil Governorate, Hilla City, Iraq. It is a governmental institution that provides its services to Iraqi citizens.

Inclusion criteria

Patients with epilepsy aging 18 years and above of both sexes who were able to offer verbal consent, and were willing to participate in this study.

Exclusion Criteria

Patient less than 18 years old. Those patients provide incomplete or conflicting information during filling the questionnaire and uncooperative patient. Patients who suffered from an epileptic seizure during filling the questionnaire.

Pilot study

a pilot study has been conducted before the beginning of this study from 19th December 2021 to 30th December 2021. A pilot study of the pre-final version of the questionnaire was performed on a sample of 25 epileptic patients (11 females and 14 males) they were selected from the neurology outpatient clinic in Imam-Al-sadiq general hospital who had the same criteria of the study sample to participate in the study to evaluate the clarity of the questionnaire items. The sample of the pilot study was excluded from original sample of the study .

Data collection technique

A convenient sample targeted 225 adults patients with epilepsy who have been diagnosed by neurologists in Imam Al-Sadiq general hospital in Babylon governorate. Data were collected by using direct interview(face to

face interview) technique. Many patients were excluded from the study according to the exclusion criteria.

Statistical data analysis

- Alpha Cronbach (α) for the reliability of questionnaire (Internal consistency).
- SPSS version 26 software used for data entry and data analysis.
- Kolmogorov–Smirnov normality test was performed.
- Values were presented as mean ± standard deviation (SD) (based on their normality) for continuous variables and as number (percent),bar chart, pie chart and line chart of subjects for categorical variables.
- Fisher's exact test, Pearson Chi-square test for statistical analyses. Significance considered whenever the P value was equal or less than 0.05.

Result

A 225 patients with epilepsy were involved in this cross-sectional study. Mean of age was (32.26 ± 13.94), The highest percentage of epilepsy was in the age groups 20-29 years (26.6%) while the lowest percentages (6.2%) were in the age group ≤ 60 years. (55.6%) of them were males and (44.4%) were females, the male to female ratio was 1.25:1; (50.7%) were single; (78.7%) with unskilled manual occupations ; (27.5%) had Intermediate education;(74.7%) live in rural; (83.1%) without family history of epilepsy; as shown in table (1).

Table(1): The Distribution of studied sample according to Socio-Demographical Characteristics variables-(SDCv.)

SDCv	Classes	n=225	%
Age (yr.)	< 20 years	53	23.6
	20-29	60	26.6
	30-39	48	21.3
	40-49	33	14.7
	50-59	17	7.6
	≤ 60 years	14	6.2
	Mean ± SD (Range)	32.26 ± 13.94	
Gender	Male	125	55.6
	Female	100	44.4
Marital status	Single	114	50.7
	Married	103	45.8
	Divorced	7	3.1
	Widow	1	0.4
Occupation	Unskilled manual occupations	177	78.7
	Semi-skilled manual occupations	20	8.9
	Skilled manual and non-manual occupations	7	3.1
	Associate professional occupations	16	7.1

	Skilled professional or senior managerial occupations	5	2.2
Educational level	Illiterate	55	24.4
	Primary (or read and write)	59	26.2
	Intermediate	62	27.5
	High school or vocational	26	11.6
	Institute (2 years)	9	4.0
	College (Bachelor degree)	8	3.6
	College (Master degree)	6	2.7
Residency	Urban	57	25.3
	Rural	168	74.7
Family History	Negative	187	83.1
	Positive	38	16.9

Table (2) presents the observed frequencies and percentages of "Socio-Economic Status- SES" with significant comparisons. The vast majority of the study sample (83.5%) had a low SES.

Table (2): Distribution of the studied sample according to (SES) with comparisons significant (N=225)

Socio-economic status	Group	No.	%	P-value
SES	Low	188	83.5	**χ^2= 260.987 P=0.001 (HS)**
	Middle	33	14.7	
	High	4	1.8	
	Total	225	100.0	

(*)HS: Highly Sig. at P≤0.01;Testing based on One-Sample Chi-Square test.

Prevalence of anxiety among participant:

(67.1%) of participant had positive anxiety and (32.9%) with negative anxiety as show in figure (1).

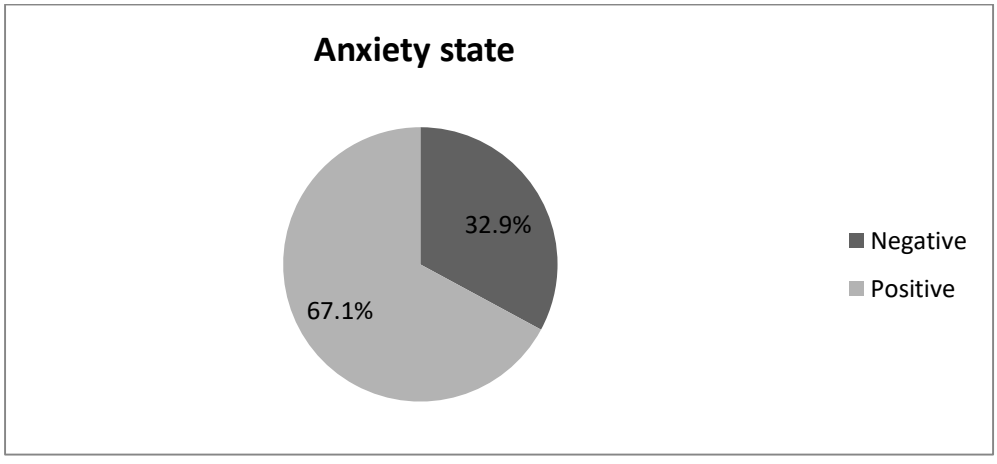
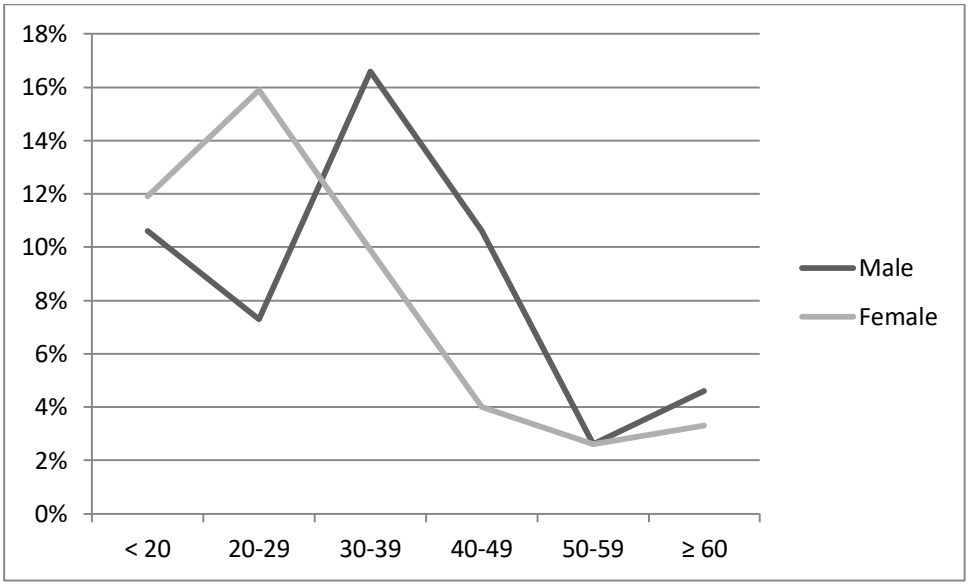


Figure (1):Distribution of study sample according to anxiety state (N=225)

As show in figure (2) the highest percentage (16.6%) of males with positive anxiety were in the age group (30-39), while the highest percentage (15.9%) of females with positive anxiety were in the age group (30-39).



Figure(2):positive depression between both gender

Regarding to anxiety score, (32.9%) of patient with minimal anxiety ,(23.6%) with mild anxiety,(32.4%) with moderate anxiety and (11.1%) as show in figure (3).

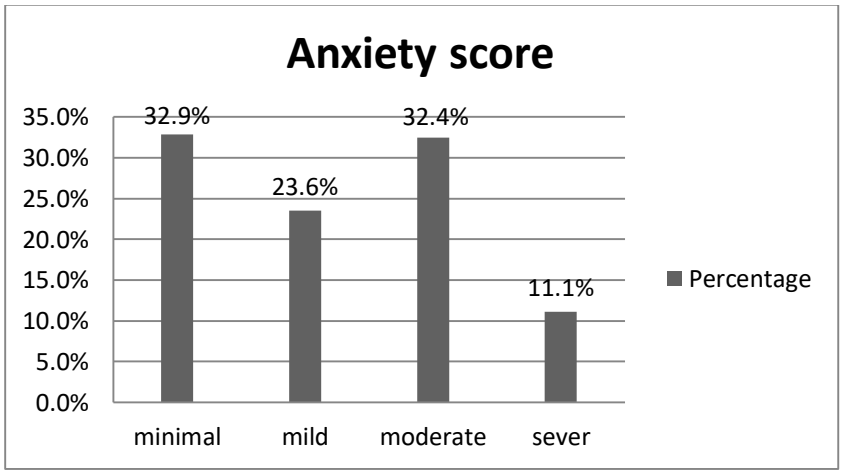


Figure (3): The severity of anxiety among epileptic patients (N=225)

Patient with major anxiety disorder was (43.6%) as shown in figure (4)

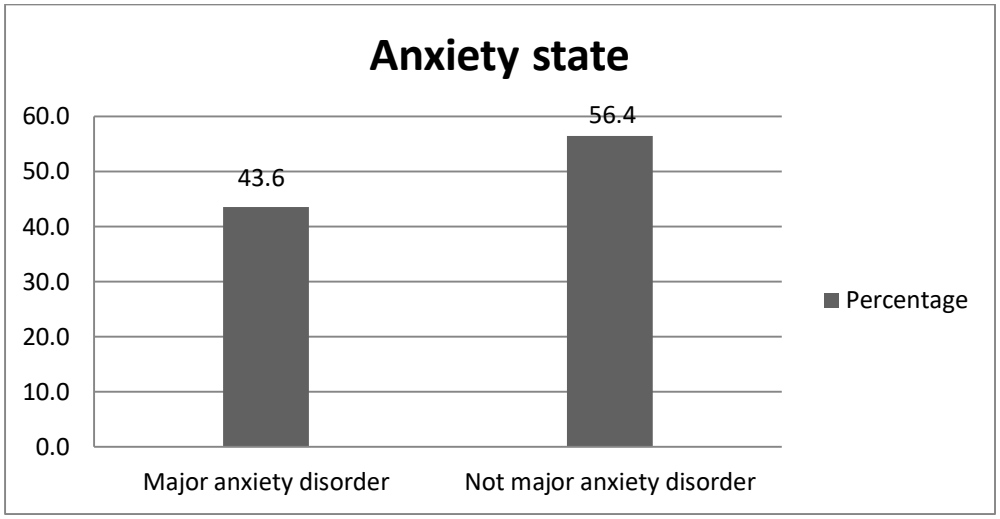


Figure (4): Major anxiety disorder among participant(225)

As show in table (4.2.5) the association of characteristic SDVs and other characteristic variable with anxiety status among epilepsy patients, , such as:

Non-significant association between gender and anxiety state at (P.V=0.351), but highly significant association between anxiety state and age group at (P.V= 0.005)

The association between marital status and anxiety state was highly significant at (P.V=0.005),whereas residency had non-significant association (P.V=0.491)with anxiety status.

So was the educational level had highly significant association with anxiety at(P.V=0.001), as was with depressive state.

Non-significant association(P.V=0.104) between occupational status and anxiety state, but significant association between socioeconomic status (P.V=0.031) and anxiety status

family history of epilepsy with anxiety state had significant association at (P.V= 0.02)

There was highly significant association between duration of disease and anxiety state at (P.V=0.001), also highly significant association between type of seizure with depressive state (at P.V= 0.005).

There was highly significant association between frequency of seizure during last 12 month and anxiety state at (P.V= 0.001).

The association between therapy pattern and anxiety state was statistically non-significant at (P.V= 0.083).

Table (3): Association between SDVs and other characteristic with anxiety state (N=225)

Variable		Anxiety state				P-value
		Negative		Positive		
		No.	%	No.	%	
Gender	Male	46	20.44%	79	35.11%	P=0.351 (NS)
	Female	28	12.4%	72	32.0%	
age group	< 20	28	12.4%	25	11.1%	P=0.005 (HS)
	20-29	28	12.4%	32	14.2%	
	30-39	9	4.0%	39	17.3%	
	40-49	13	5.8%	20	8.9%	

	50-59	9	4.0%	8	3.6%	
	≥ 60	3	1.3%	11	4.9%	
Marital status	**Single**	44	19.6%	70	31.1%	**P=0.005 (HS)**
	Married	44	19.6%	59	26.2%	
	Divorced	2	0.9%	5	2.2%	
	widow	0	0.0%	1	0.4%	
Residency	**Urban**	25	11.1%	32	14.2%	**P=0.491 (HS)**
	Rural	65	28.9%	103	45.8%	
Education status of patient	**Illiterate**	7	3.1%	48	21.3%	**P=0.001 (HS)**
	Primary (or read and write)	25	11.1%	34	15.1%	
	Intermediate	27	12.0%	35	15.6%	
	High school or vocational	16	7.1%	10	4.4%	
	Institute (2 years)	4	1.8%	5	2.2%	
	College (Bachelor degree)	5	2.2%	3	1.3%	
	College (Master degree)	6	2.7%	0	0.0%	
	PHD or equivalent	0	0.0%	0	0.0%	
Occupational status of patient	**Unskilled manual**	66	29.3%	111	49.3%	**P=0.104 (NS)**
	Semi-skilled manual	12	5.3%	8	3.6%	
	Skilled manual and non-manual	1	0.4%	6	2.7%	
	Associate professional	9	4.0%	7	3.1%	
	Skilled professional or senior managerial	2	0.9%	3	1.3%	
	Highly skilled professional	0	0.0%	0	0.0%	
socio-economic status	**Low**	71	31.6%	117	52.0%	**P=.031 (S)**
	Moderate	15	6.7%	18	8.0%	
	High	4	1.8%	0	0.0%	
Family history of epilepsy	**Negative**	81	36.0%	106	47.1%	**P=.029 (S)**
	Positive	9	4.0%	29	12.9%	
Duration of disease	**<10**	59	26.2%	57	25.3%	**P=0.001 (HS)**
	10-19	21	9.3%	28	12.4%	

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	20-29	7	3.1%	17	7.6%	
	>30	3	1.3%	33	14.7%	
Type of seizure	**Generalized**	53	23.6%	103	45.8%	**P=0.005 (HS)**
	Focal	34	15.1%	25	11.1%	
	Combined	3	1.3%	7	3.1%	
How many Seizure occur during last 12 month ?	**Less than one time in month during last year**	30	13.3%	14	6.2%	**P=0.001 (HS)**
	Once or more per month during last year	46	20.4%	118	52.4%	
	Not occurred at all during last year	14	6.2%	3	1.3%	
Therapy pattern	**Monotherapy**	55	24.4%	64	28.4%	**P=0.083 (NS)**
	Multitherapy	28	12.4%	62	27.6%	

***Significant difference between proportions using Pearson Chi-square test at 0.05 level.**

***For cell have expected count less than 5, we used Fisher's Exact Test at 0.05 level.**

*** NS: Non Sig at P≤0.05, S: sig at P≤0.05, HS: high sig at P≤0.05.**

According to GAD-7 tool, the present study showed that a high proportion of epileptics complained from anxiety. The mean age of epilepsy was (32.26 ± 13.94). This result is compatible with several studies carried out in different countries including; in study conducted in Karbala, Iraq by (Al Mousawi *et al.*, 2020) found the mean age of the patients in the sample was 28.88 ± 14.28 year ; in UAE by (Alsaadi *et al.*, 2015) found that mean age was 33.6 years; in Iran was 36.2 ± 19.8 years as a study performed by (Pakdaman *et al.*, 2021); The mean age of the patients was 31.74 ± 10.39 years in study conducted in eastern Turkey by (Turan *et al.*, 2022). Moreover,

(55.6%) of participant were males and (44.4%) were females, the male to female ratio was 1.25:1. This study was noted that there was less difference between male and female and these results were consistent with other studies. In Iraq, study conducted in Al-Najaf city by (Ali, Ali and Baiee, 2020) found that males (54.7%) more than females (45.3%) in all sample; in Karbala by(Al Mousawi *et al*,. 2020) the percentage of male was (51.67%) ;in Iran ,study conducted by (Pakdaman *et al.*, 2021),the percentage of male was(50.4%) and female percentage (49.6%) ;in eastern Turkey (Turan,et. al., 2022) found a (56.7%) male and female was (43.3%); The difference might be explained by the presence of the most frequent risk factors in various locations, as well as the concealment of disease in women for sociocultural reasons.

Highest percentage (50.7%) of participants were single ,this result agreement with study conducted in Baghdad by (Jafaar et al, 2014) found that 56% of participants were single; also agreement with the result of study in Ethiopia by (Chaka *et al.*, 2018) with (50.2%) of participants were single.

Most patients (78.7%) were had unskilled manual occupation such as cleaner, gardener, housekeeper, laborer, shoe mender, street vender),these result agreement with study conducted in Al-Najaf by (Ali *et. al.,* 2020) found that (77%) of participant with unskilled manual occupation.

The majority of study sample were reported to have intermediate education (27,5%), (24.4%) had primary education and (26%) was Illiterate . This result is almost similar to the result of a study conducted in AL-Najaf by (Ali *et. al.,* 2020) who reported that intermediate education (18.9%), (25.7%) had primary

education and (32.4%) was Illiterate; consistent with other study in Ethiopia by (Mesafint *et al.*, 2020) found that highest percentage (29.4%) of patient with intermediate education. Regarding result of marital status and educational status in this study may be due to the negative attitudes and misconceptions around epilepsy.

Highest percentage (74.7%) of participant live in rural, this result consent with other study in Iran conducted by (Ghaem *et al.*, 2010) found (85.8) of participant was live in rural. that similarity between the current study and theirs lies in that the majority of both studies subjects living in an rural residency.

(16.9%) with positive family history of epilepsy which is Less than what we saw in other studies, in Karbala by (Al Mousawi *et al.*, 2020) that found (25%) of patient with positive family history; in al-Najaf,(47.3%) of participant with positive family history in study conducted by (Ali *et. al.,* 2020). The reasons for this difference are unclear and likely represent a complex mixture of psychological, social, regional and biological issues.

(83.5%) of participants in current study with low socioeconomic status, these result disagreement with other study, in Baghdad by (Jafaar *et. al.,* 2014) that found highest percentage (44%) of study sample with moderate SES; in Basrah by (Shakir and Al-Asadi, 2012) found that (43.2%) of participant with moderate SES . This differences may be due to sample size or regional variation.

the prevalence of anxiety was (67.1%) among participants, much more than what we found in some other studies; in UAE by (Alsaadi *et al.*, 2015) found that anxiety among PWE were 26.2%;in Addis Ababa, Ethiopia by (Tegegne *et al.*, 2015) found that (33.5%) of PWE suffer from anxiety and in Songkhla, Thailand by (Phabphal *et al.*, 2007) the prevalence of anxiety was (39%) among PWE , 33 to 39 % of Brazilian participants (Stefanello *et al.*, 2011) and 30 % of Chinese by (Kwan *et al.*, 2009).

Egyptians. The difference between the results may be related to the negative attitudes and misconceptions around epilepsy and economic state in the country. Antiepileptic drugs, seizure-related factors and psychosocial variables contribute to high rates of disorder and may be related to the economic situation in the country.

The results of current study show highly significant association between anxiety state and age group, marital status , educational level , socioeconomic status, family history of epilepsy , duration of disease, frequency of seizure, this result consistent with study conducted in Ethiopia by (Tegegne *et al.*, 2015) and in Greece by (Kimiskidis *et al.*, 2007)

different studies indicated that people with low economic status and participants in low educational level had a higher risk of anxiety (Sirven *et al.*, 2015), (Kanner *et al.*, 2012) and the results of these studies are consistent with our study.

Regarding clinical factors, the finding was consistent with many previous studies conducted in Ethiopia , Korea and also in Korea (Tegegne *et al.*, 2015), (Doţen, 2020) and (Kwon and Park, 2014) respectively.

This result may be related to :

1.Because of the negative attitudes and misconceptions around epilepsy, people with epilepsy and their families face discrimination and stigma . people with epilepsy may not be permitted to attend school in some settings, and adults with the disorder may be unable to obtain suitable job or marry. Thinking about these things may be cause for anxiety.

2.Some factors that are responsible for seizures may also be responsible for anxiety, which can manifest itself in various ways in epilepsy
3.Both psychological and biological components of anxiety are particularly apparent in people with seizures.

Conclusion

In this study, prevalence of anxiety was found to be high among people with epileptic. Age group ,marital status , educational level , low socioeconomic status, positive family history of epilepsy , duration of disease and frequency of seizure were significantly associated with comorbid anxiety. Health care professionals should be concerned with early diagnosis of comorbid depression in patients with epilepsy, as well as managing epilepsy to ensure seizure-free condition.

Recommendation

1. Clinicians and neurologists should early identify comorbid psychiatric illnesses like anxiety in people with epilepsy.

2.Policies on national health, mental health and non-communicable diseases should take account of care for people with epilepsy

3.Efforts are needed to improve public attitudes, reduce stigma and protect the rights of people with epilepsy. To correct misconceptions and counter negative attitudes towards people with epilepsy

4. To give greater evidence on the prevalence and factors associated with this co-morbid anxiety and other mental disorder in epileptic people, further study should be conducted in various parts of the country.

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