ORIGINAL RESEARCH

Effect of designing a nursing educational protocol on frequency of epileptic attacks

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ABSTRACT

Background and objective: Educating the epileptic patient represents a critical part of quality care and is considered a therapeutic outcome for those patients. This study aimed to determine epileptic patients' knowledge regarding the disease and frequency of seizure attacks prior to the implementation of the educational protocol and to evaluate the effect of an educational protocol on epileptic patient's knowledge and frequency of seizure attacks.

Methods: Design: A quasi-experimental (pre-posttest) design was submit to meet the aim of the study. Patients: Sixty convenient male and female adult seizure patients were their age ranged between 18-64 years. Setting: This study was carried out in Neurological department and neurology out-patient clinic at Minia University Hospital. Tools of data collection: Four tools were utilized; Pre/posttest questionnaire sheet, Perceived Stress Scale, Epworth Sleepiness Scale, and patient teaching booklet.

Results: About 86.7% of the study sample has an unsatisfactory level of knowledge about seizures and 13.3% have satisfactory knowledge about seizures before the implementation of the protocol. While in posttest II it was noticed that 90.0% have satisfactory knowledge about seizures. There was a high positive significant correlation between perceived stress scale and frequency of attacks among the study subjects.

Conclusions: An improvement in seizure patients' knowledge after the implementation of the educational protocol. An improvement in patient's knowledge positively reflected on minimization and control frequency of seizure attacks. Recommendation: An educational and training protocol should be planned in a continuous manner and offered on regular basis to seizure patients.

Key Words: Epileptic attack, Nursing, Education, Protocol

1. INTRODUCTION

Epilepsy is taken into consideration as a chronic neurological disorder which influences nearly fifty million humans globally. Five million patients may experience a seizures fits more than once per month. Approximately eighty-five percent of people live in developing countries afflicted with epilepsy. Two million new cases occur in the world each year. The results of research endorse that about fifty per 100,000 of the overall population is the annual occurrence in evolved international locations, whereas doubled to one hundred per 100,000 in developing countries.[1]

At Al Kharga district–Egypt, The lifetime spread of epilepsy was 6.76/1,000, and its maximum spread became throughout early childhood, 4.99/1,000 population have been having active epilepsy. An annual incidence rate for epilepsy was

43.14/100,000, as the 2 peaks of prevalence are at early infancy and elderly; epilepsy age-specific prevalence rate has a U-fashioned sample. In New Valley, The treatment hole of epilepsy become just like that in growing international locations (sixty one and half percent).[2]

One hundred and fourteen (86.4%) epileptic patients pronounced one or more triggering elements which could increase their seizure assaults.[1] Emotional stress is the most common triggering elements (ninety-seven point four percent), sleep deprivation (78.1%), lacking meal (29.8%), lacking medicinal drug (21.9%), and noise (15.5%) as reported via the patients. Fifty-nine sufferers (44.7%) had negative seizure manipulate and seventy-one patients (53.8%) had been classified as non-adherent to medicine. Forgetfulness accounted for the fundamental motives for non-adherence (73.2%).

Educating the epileptic person represents a critical thing of quality care and is considered a therapeutic outcome for those sufferers. Epileptic sufferers have numerous teaching desires and need to adhere to many self-management behaviors to control the condition. To enhance self-management, sufferers need to have to get entry to education and educational protocols.[3] In Egypt, patients with epilepsy are discharged from the health facility with none education, representing a prime problem with their treatment.

Nurse's role in caring for patients with seizures is by teaching them about factors that increase the risk for seizures, such as alcohol use, fatigue, inadequate sleep, and stress. Teaching patients about prescribed anti-seizure medications; drug regimen, adverse effects, and regular monitoring of drug levels. Assessment and documentation of; conditions preceding the seizure, length of each seizure phase, course and nature of the seizure activity and also the level of patient's consciousness, vital signs, and the postictal period activity. Assessment of patency of the airway and patient position to maintain airway after any seizure. Evaluate patient self-management of medications and lifestyle in the ambulatory and home care setting,.[4]

1.1 Significance of the study

Epilepsy is taken into consideration as a chronic disease of the brain which affects people all over the world. It is characterized by way of frequent seizure attacks that are short episodes of involuntary movements. Approximately fifty million people complaining from epilepsy worldwide, making it the maximum chronic neurological disorder globally. Megiddo et al.[5] located a high treatment gap so a multifactorial approach is needed for enhancement of this gab and proper control of epilepsy; additionally located that inade-

quate sufferers training contributes to terrible epilepsy manage in Al-Manual Island and Egypt. Sufferers with epilepsy have diverse educational wishes and need to adopt many self-control behaviors to manage their disease. So, based on the preceding studies findings this study was performed to analyze the effect of an educational protocol on controlling the seizure attacks.[6]

1.2 Aims of this study

- Determine epileptic patients' knowledge regarding the disease and frequency of seizure attacks prior the implementation of the educational protocol.
- Evaluate the effect of an educational protocol on the epileptic patients' knowledge and frequency of seizure attacks.

1.3 Research hypotheses

To accomplish the purpose of the present study, the subsequent hypotheses were suggested:

(1) Epileptic patients who will receive the educational protocol will be more knowledgeable about how to control and minimize the frequency of seizure attacks.
(2) A relationship will exist between seizure educational protocol and frequency of seizure attacks.

2. PATIENTS AND METHODS

2.1 Research design

To conduct this study a quasi-experimental research (pre posttest) design has been used.

2.2 Setting

The present study was conducted at the neurological department and out-patient neurology clinic at Minia University Hospital.

2.3 Patients

A purposive sample of 60 (a male and female adult patient) was assigned in the current study, for study group according to the determination of the sample size based upon the following sample calculation formula (9): $N = t^2 \times p(1-p)/m^2$; $N = 1.96^2 \times 0.04(1-0.04)/0.05^2$

2.3.1 Inclusive criteria

- Adult patients (18-64 years).
- Patients have a history of Epilepsy at the chronic clinic of this hospital for 6 months duration at least.
- Conscious and oriented.
- Free from severe cognitive and communication impairment.
- Didn't receive any educational protocol related seizure.

2.3.2 Exclusion criteria

Epileptic patient suffering from another disease such as brain tumor and stroke.

2.4 Tools

Data for the study were gathered, utilizing the subsequent tools.

Tools I: Pre/posttest Interview questionnaire sheet: This tool has been utilized to assess epileptic patient's knowledge about the seizure and how to manage and minimize the frequency of seizure attacks in addition to patient's socio-demographic and medical data. After reviewing the relevant literature, Interview questionnaire sheet was constructed by Lewis et al.[7] which were designed by researchers to evaluate patient knowledge about the disease. It was designed and translated into Arabic. The questionnaire paper was administered by researchers to patients to respond to all its components before and after the tests (immediately after six months).

The questionnaire was divided into two parts as follows:

Part I: The patient's health needs an evaluation paper that contains two parts:

A-Social, demographic and medical data.

(1) The patient's age, gender, occupation, level of education, address, and diagnosis.
(2) Past medical history suffering from chronic diseases such as (diabetes cardiovascular disease,or respiratory disease) the frequency of seizure attacks last year, the type of confiscation.
(3) Current treatment data such as (a type of treatment, drug adherence, etc.).

B-Patient knowledge is considered a disease. This section covers the following information.

- Knowledge 1: Patients perception concept, included 10 questions.
- Knowledge 2: Patients on how to control and reduce seizure attacks included 17 questions.

The scores of each item ranged from zero to 1 (correct answer equal 1, incorrect answer equal zero).

The total score of knowledge was calculated by summation of all knowledge items with the total score (twenty-seven). Therefore the participants who get 70% or more were considered as having a satisfactory level of knowledge, and if the participants get less than 70% they were considered as having an unsatisfactory level of knowledge.

Tool II: Perceived Stress Scale (PSS): This scale was used to evaluate the stress level before the educational protocol, 6 and 12 months after implementation of the educational protocol, this scale was developed by Cohen and Williamson.[8]

Scoring system: Responses of the PSS are reversed to obtain the scores (for example, zero equal four, one equal three, two equal two, three equal one and four equal zero) this is done to the four positively stated items (four, five, seven, and eight) and then summing across all items of the scale. A short four-item scale can then be made from the questions two, four, five and ten for the PSS ten-item scale. Patient's scores range from zero to forty with higher scores indicating higher perceived stress.

- Total scores from zero to thirteen is categorized as low stress.
- Total scores from fourteen to twenty-six are categorized as moderate stress.
- Total scores from twenty-seven to forty are categorized as high perceived stress.

Epworth Sleepiness Scale (ESS) developed by Johns MW[9] was used to assess patient's sleepiness, the test list of 8 different situations in which the patient rate his tendency to become sleepy on the scale of zero no chance of dozing to three, high chance of dozing.

Scoring system for this scale is calculated by the sum of patients answer total score is based on a scale of zero to twenty-eight the scale estimates whether experiencing excessive sleepiness that possible requires medical advice.

(1) Total scores from zero to seven is categorized as abnormal sleep.
(2) Total scores from eight to nine are categorized as the average amount of daytime sleepiness.
(3) Total scores from ten to fifteen are categorized as excessive sleepy.
(4) Scores ranging from sixteen to twenty-four are categorized as Excessive sleepy and should seek a medical advice.

Tool III: Construction patient teaching booklet about seizure and instructions on how to control and minimize the frequency of seizure attacks. It was developed by the researchers. It is also supplemented with information based on a review of relevant literature on seizure and health instructions on how to control and reduce seizure attacks through (maintaining normal sleep and preventing insomnia, feeding, controlling stress, feeding, epilepsy, the importance of adherence to treatment, and first aids during seizure episode.

2.5 Administrative design

A letter was directed from the Dean of the Minia Nursing Faculty to the Head Neurological and Psychiatric Department-

Minia University Hospital, written consent was obtained to take a part in the study after explaining the aim and the nature of the study was taken and contents of the teaching strategies were explained to gain their cooperation. The nature and purpose of the study were clarified of was done in the initial interview with each patient. The researcher emphasized that the participation is completely voluntary; confidentiality and anonymity were assured throughout the whole study.

2.6 Technique for data collection

Phase I: Preparatory study phase: Current local and global literature on various aspects of the study problem has been reviewed using books, articles and internet. The proposed study settings were evaluated for a number of patients with seizures to be conducting the study.

Pilot study: It was executed in October 2016 for testing the tools for clarity, completeness, validity, and practicability, it included (six) patients to determine the time needed for filling the tools. It has also been done to study the effectiveness and feasibility of tools. The necessary corrections have been made accordingly. The questions were tested to see if they were relevant and if the type of information needed was derived, which is adjusted according to the responses and comments made by the patients. The researchers modified some questions. Omitted some unwanted details, either to push or reduce the long tool. Also to evaluate the possibility and effectiveness of using study tools on hospital policy so that excluded from the study sample patients included in the pilot study.

Constant validity: It was established by a panel of researchers who reviewed the tools for clarity, relevance, comprehensive understanding, applicability and easiness for administration, minor modifications were required.

Reliability of tools: Test-retest reliability of the Perceived Stress Scale (PSS) was (0.85). The Epworth Sleepiness Scale had an excessive stage of inner consistency as measured by way of Cronbach's alpha (0.88).

Phase II: Implementation phase: Researchers began collecting data, once permission was obtained to proceed with the proposed study. Once patients were admitted to the neurological department, the study was conducted. Each patient was interviewed for 30 to 45 minutes using direct interview technique. The data were collected over a period of one year. During the first interview, the researcher presented herself to create a communication channel with the patient. The purpose and nature of this study was explained before answering the questions for their approval and cooperation, and completing the interview questionnaire sheet. The perceived stress monitoring and drowsiness of the stress and sleepiness

scale was performed before the application of the educational protocol and six months and one year later. The educational protocol was carried out while the patients were in the Neurological department and follow up was done in the Neurology clinic by all researchers. Each patient was assessed for knowledge by the researchers and measurements of the patient's frequency of attacks before application of the educational protocol and after six months and one year from implementation of the educational protocol; the researchers monitor and follow up the patient frequency of attacks through attending an outpatient clinic or by telephone. The illiterate patients are assessed the knowledge though interview by the researchers. The whole was implemented during morning shifts. The educational protocol was done through six sessions. The period was estimated of each session ranged from thirty to forty-five minutes. The first two sessions began by explaining the theoretical information about meaning of seizure, its causes, and predisposing factors, types of medication use, treatment and compliance of treatment, prevention of the recurrent seizure attacks. The next four sessions were concerned to the practical part about first aids when seizure attacks occur, nursing measures to maintain good sleep and measures to minimize and cope with stress, and nutritional instructions for seizure patients. Finally a summary for what has been taught during the previous session also the objectives of the new session was always done before beginning any session.

The sessions were introduced to the patients by the researchers. Teaching methods-the theoretical part-was introduced using discussion, demonstration and re demonstration. Each patient was given a copy of the illustrated booklet in the form of hand-outs powered by photos to help him, uneducated patients, to understand this instruction.

An open conversation was made between researchers and patient to ensure that he understands, answer any query and verify information and practice. The effect of the learning protocol on the patient's condition was reached by assessing the patient's scores (scores or scores) before and after the protocol tool's transformation and stress level turned into measured by the perceived stress scale and degree of insomnia become assessed consistent with the Epworth Sleepiness Scale.

2.7 Limitation of the study

The patients didn't come regularly in follow up to monitor the frequency of attracts which necessitated to follow-up them by telephone.

2.8 Statistical analysis

SPSS-21 has been utilized for the statistical analysis of data. Each tool was analyzed, categorized and coded by the re-

searcher. Presentation of data was done using descriptive statistics in the form of frequencies and percentages for qualitative variables, and quantitative variables were represented using means and standard deviations. F-test or (ANOVA) has been utilized for multiple groups. Pearson correlation analysis was used for assessing the inter-relationships between quantitative variables. Statistical significance was considered at p value < .05.

3. RESULTS

Table 1 shows that about two third of the study sample was males and 33.3% their age ranged from 21 to 30 years. Their educational level revealed that around half had a secondary school. 26.7% were having governmental work, 76.7% of the study sample was living in rural areas and 40.0% of them were married.

Table 1. Distribution of study sample related to their demographic characteristics (n = 60)

Items	N.	%
Sex		
Male	42	70
Female	18	30
Age		
Less than 20	14	23.3
21-30	20	33.3
31-40	12	20
41-50	12	20
51-64	2	3.3
Level of education		
Cannot read and write	14	23.3
Read and Write	2	3.3
Primary education	8	13.3
Preparatory education	6	10
Secondary	28	46.7
University	2	3.3
Occupation		
Worker	12	20
Employee	6	10
Governmental	16	26.7
Farmer	12	20
Housewife	12	20
Retiree	2	3.3
Place of residence		
Rural	46	76.7
Urban	14	23.3
Marital status		
Single	30	50
Widow	4	6.7
Married	24	40
Divorced	2	3.3

Table 2 reveals that 33.3% of patients consider that the stress is the precipitating factor for the onset of seizures.

Table 2. Distribution of the study sample related to their situations precipitated the onset of seizures (n = 60)

Item	No	%
Stress	20	33.3
Excessive effort	12	20.0
Sleep deprivation	17	28.3
Non-adherence to the drug	11	18.3

Table 3 shows that 26.7% of the study patients were suffering from a daily attack, compared with, 73.3% of patients were not suffering from attacks posttest II.

It is clear from the Table 4 that there is an increase in total Patients' knowledge after implementation of protocol than before Also the mean scores of knowledge were 40 ± 10.3, in post-test I and decline in knowledge retention in posttest II 34 ± 12.6 with statistical significance p-value = .05.

Figure 1 shows that 85.7% of illiterates and 34.8% of educated have an unsatisfactory level of knowledge about seizures before the implementation of the protocol. While there was an improvement in the level of knowledge immediately after implementation of the protocol and in posttest II with statistical significance p-value = .04.

Figure 2 shows that comparison between total scores of knowledge of male and females study sample pre and post-test I and II from the implementation of the training protocol and 71.5% of male and 83.4% of females has an unsatisfactory level of knowledge about seizures before implementation of the protocol. While there was an improvement in the level of knowledge immediately after implementation of the protocol and in posttest II with statistical significance p-value = .03.

Figure 3 shows that 50% of the study sample has abnormal sleep and 13.3% have excessive sleep and should consider medical attention before the implementation of the protocol. 43.3% of patients have an average amount of daytime sleep after six months from implementation of the protocol. While after one-year post-intervention it was noticed that 46.6% of the studied patients have an average amount of daytime sleepiness and 3.4% of them were excessively sleepy and should consider medical attention.

Figure 4 shows that 40% of patients suffer from high stress, while after six months it was noticed that 43.7% of patients have low stress. 76.6% of the studied sample has low stress after one year from the implementation of the protocol.

Table 5 shows that there was no significant correlation between total knowledge and frequency of attacks among the study sample before implementation of the protocol. While there was a positive significant correlation between total

knowledge and frequency of attacks among the study sample six months and one year after implementation of the protocol.

Table 6 shows that there was a significant correlation between sleep scale and frequency of attacks among the study patients before implementation of the protocol. Compared to posttest I and II there was a positive significant correlation between sleep scale and frequency of attacks among the study patients.

Table 3. Distribution of study sample related to the frequency of seizure attacks

| Items	Pretest = 60		Posttest I=60		Posttest II=60	
	N.	%	N.	%	N.	%
-Daily	16	26.7	2	3.3	0	00
-Weekly	14	23.4	2	3.3	0	00
-Every month	16	26.7	16	26.7	8	13.3
-Every 4 months	2	3.3	10	16.6	4	6.7
-Every 6 months	4	6.7	14	23.4	4	6.7
-Never happened	8	13.3	16	26.7	44	73.3

Table 4. Percentage distribution of the study sample according to their knowledge about seizures, knowledge about how to decrease the frequency of attracts (n = 60)

| Items	Pretest		Posttest I		Posttest II		F-value	p-value
	N.	%	N.	%	N.	%		
Knowledge about seizures								
-Satisfactory	10	23.4	55	91.6	59	98.3		
-Un satisfactory	46	76.6	5	8.4	1	7.0		
Knowledge about how to decrease the frequency of attracts								
-Satisfactory	13	21.7	57	95.0	56	93.3	29.2	.05*
-Un satisfactory	47	78.3	3	5.0	4	6.7		
Total knowledge								
- Satisfactory done	8	13.3	54	90.0	48	80.0		
- Un satisfactory done	52	86.7	6	10.0	12	20.0		
Mean ± SD	19 ± 9.2		40 ± 10.3		34 ± 12.6			

* $p \leq .05$
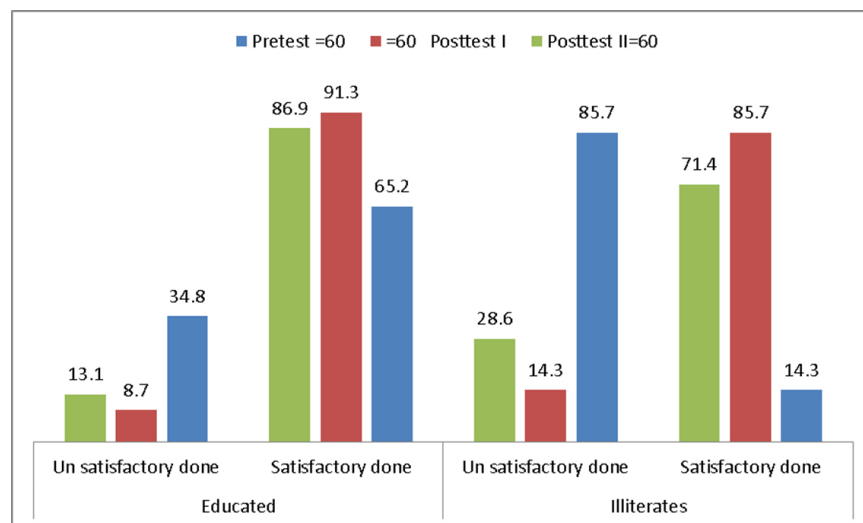
Figure 1. Comparison between total scores of knowledge of illiterates and educated study sample pre and post-test I and II from the implementation of the training protocol
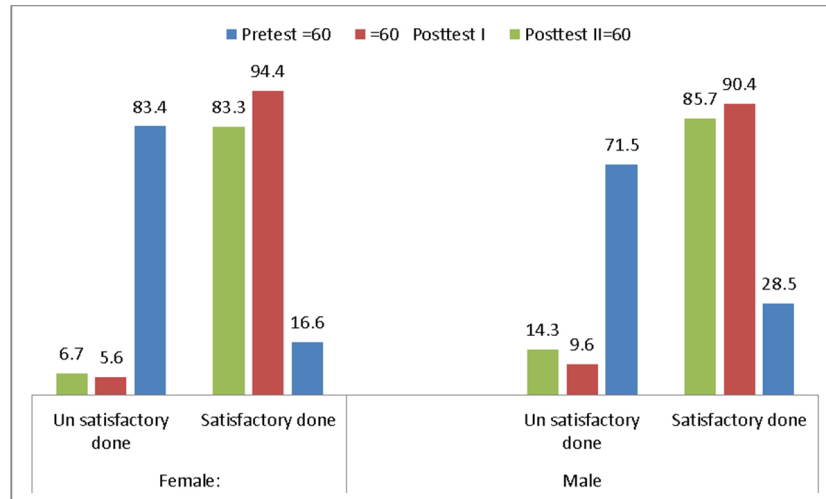
Figure 2. Comparison between total scores of knowledge of male and females study sample pre and post-test I and II from the implementation of the training protocol
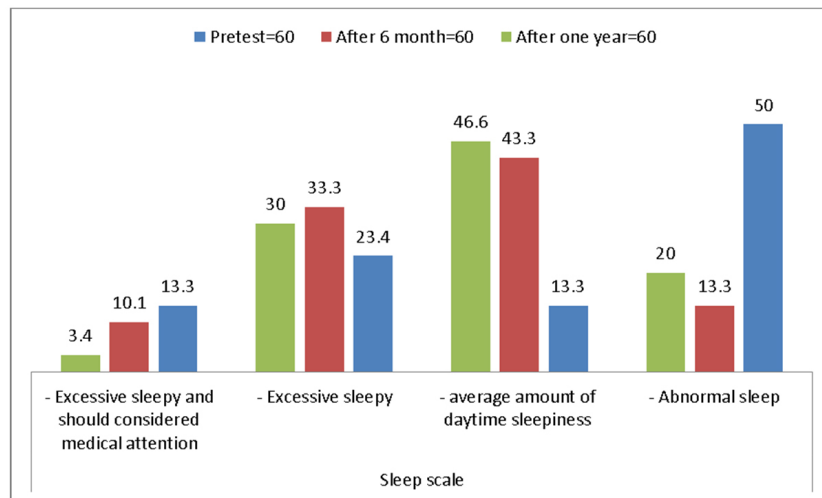
Figure 3. Distribution of the study sample according to sleep scale
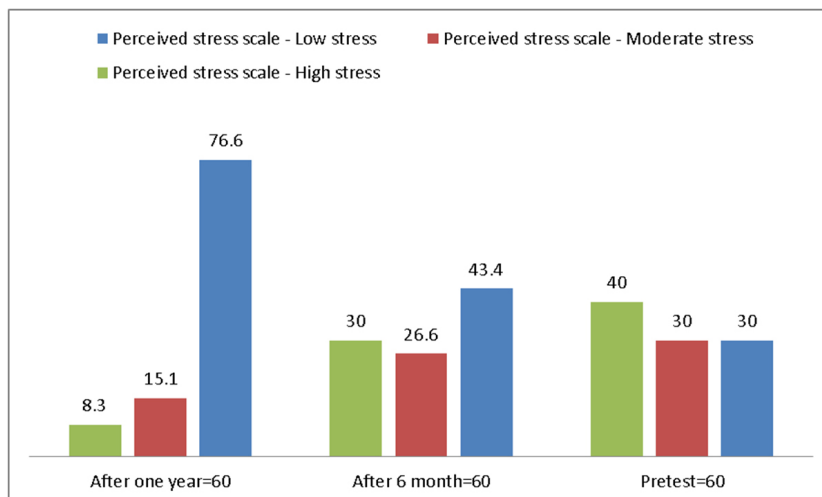
Figure 4. Distribution of the study sample according to perceived stress scale

Table 5. Correlation between total knowledge and frequency of attacks of the study patients before, six months and one year after implementation of the protocol

Items	r-value	p-value
Knowledge	0.099	.603
Frequency of attack		
After six month		
Knowledge	0.361	.05*
Frequency of attack		
After one year		
Knowledge	0.694	.000**
Frequency of attack		

*$p \leq .05$； **$p \leq .01$

Table 6. Correlation between sleep scale, and frequency of attacks of the study patients before implementation of the protocol, after six months and after one year

Items	r-value	p-value
Sleep scale	0. 39	.02*
Frequency of attack		
After six month		
Sleep scale	0.45	.04*
Frequency of attack		
After one year		
Sleep scale	0.48	.03*
Frequency of attack		

*$p \leq .05$

Table 7 shows that there was no significant correlation between perceived stress scale and frequency of attacks among the study patients before implementation of the protocol. Compared to posttest I there was a high positive significant correlation between perceived stress scale and frequency of attacks among the study subjects. Also in post-test II, there was a positive significant correlation between perceived stress scale and frequency of attacks among studied patients.

Table 7. Correlation between perceived stress scale, and frequency of attacks of the study patients before implementation of the protocol, after six months and after one year

Items	r-value	p-value
Perceived stress scale	0. 118	.53
Frequency of attack		
After six month		
Perceived stress scale	0.478	.008**
Frequency of attack		
After one year		
Perceived stress scale	0.218	.03*
Frequency of attack		

*$p \leq .05$； **$p \leq .01$

4. DISCUSSION

In our study results, the majority of the studied patients were males and living in a rural area. Also, about one-third of the studied sample their age was between twenty-one to thirty years and about half of them were single. There was an agreement regarding the demographic characteristics of the present study with the results of the study which was conducted by Intisar et al.[10] where the age of the patients was less than 30 and the majority of them were male and single this could be related to the similarity of the Arabic culture. An unsatisfactory knowledge about seizures and its decrease frequency attract were observed in this study by the majority of patients before implementation of the protocol especially female illiterate patients. This may be attributed to that female illiterate patients have lacked the capacity for reading and know information from social media about epilepsy. While there was an improvement in the level of knowledge immediately after implementation of the protocol as it was noticed that the majority of the sample have a satisfactory level of knowledge about seizures. In addition, the majority have satisfactory knowledge about prevention of seizures, while in posttest II it was noticed that the majority have satisfactory knowledge about seizures and majority of the study subjects have satisfactory knowledge about treatment of seizures. Regarding methods of prevention, the most of the sample have satisfactory knowledge about prevention of seizures. Furthermore, there was a strong correlation between total knowledge and frequency of attacks among the study subjects after implementation of the protocol compared with it before the protocol. This is inconsistent with the finding of Lekhjung et al. (2017)[11] who found that level of education did not appear to influence the level of knowledge and female scored higher than males in knowledge about epilepsy this may be due to culture difference.

These study findings were consistent with the study findings of Goldstein et al. (1997)[12] which was conducted on epilepsy patients in an English tertiary care center and found that patients were unaware of knowledge regarding seizure type and indications for anticonvulsant drug (AED) therapy as more than 25% of patients in their study reported incorrect information about their AED regimen. Similar study which was conducted by[13] in India on the evaluation of knowledge, attitudes, and practice of epileptic patients at a rural health service center, reported that; about 25% of patients had no understanding of the causes of epilepsy, and 9% of patients thought it is caused by an evil spirit. More than half of these patients tried different treatments, especially indigenous medicines and spiritual interventions. In a Tanzanian study which was carried out by,[14] 40.6% of patients thought that epilepsy was infectious. Although there are cultural

differences between our patients and patients in other studies, all findings support a lack of understanding of epilepsy and its prevention.

Also, there is an agreement between this study results and the results of[15] in that most patients were poorly informed on epilepsy and seizure prevention. Patients who are aware of seizure prevention issues utilize this knowledge to change their lifestyle and to improve control over their epilepsy. Dinka et al.[1] support these findings when they stated that; the good therapeutic relationship between patient and health professionals, in the form of providing patients with complete instructions regarding treatment, and to motivate patients to incorporate drug adherence into their lifestyles and providing them with a regular, uninterrupted supply of medicines. Seizure-triggering factors should be assessed by the health professional and inform the patients so that they can avoid these triggering factors in order to improve their quality of life by reducing/eliminating seizures.

In relation to knowledge regarding control of seizures, we were found that there is an improvement in patients' knowledge post application of protocol than before. Also the mean scores of knowledge were 40 ± 10.3, in post-test I and decline in knowledge retention in posttest II 34 ± 12.6 with statistical significance p-value = .05.

These findings were supported by the findings of Wadhagen (2013)[16] which stated that the enhancement in control over seizures from admission to following-up was more greatly associated with the improvement in patient education about seizures thus, decreasing seizures frequency. Factors related to the educational protocol as the modifications of medication regimen or the other therapeutic interventions can change seizure control. Patients' improved knowledge about their epilepsy and the basic principles of treatment can improve compliance with the treatment in addition to facilitating the communication between the patient and the prescribing physician.

These findings were in congruence with the study of Polak et al. (2012)[17] which used the deep breathing and progressive muscle relaxation (PMR) as a stress management approach. In all, 67 patients who completed the study; the median seizure frequency was reduced by 29% at (p = .006). Furthermore, Christian et al.[18] reported that in relation to respondents' first aids management of epilepsy there was significant improvement in responses to about half of the items after the application of an educational protocol of knowledge on seizures such as knowing what to do if a patient develops a seizure (32.9% pre versus 49.5% post; p = .001).

Concerning the nutrition that has to be averted Nabbout et al.[19] cited that carbohydrate-restricted diets are an increasing number of users as a remedy for acute and chronic epilepsy. About 50% of kids will respond to those diets according to proof from randomized, managed trials and meta-analyses with as a minimum a 50% discount in seizures.[20] Person reputation epilepticus and person epilepsy may additionally get gain from Ketogenic diets.[21] These diets are being used internationally in many new facilities and as a primary-line remedy of seizures associated with glucose transporter 1 deficiency.[22]

On the study sample of sleep, half of the patients have been having abnormal sleep. Even as much less than half of them have a mean amount of daytime sleepiness after six months from implementation of the protocol, this improves in sleep sample will decrease the frequency of epileptic attack because as all of us recognize that disturbance of sleep is taken into consideration as one of the maximum epilepsy triggers. also, there was a significant correlation among sleep scale, and the frequency of seizure attacks many of them have a look at pattern earlier than the implementation of the protocol, compared to posttest I and II as there has been a tremendous significant correlation among sleep scale and frequency of attacks.

This study locating is constant with the study of Carl and Bazil (2004)[23] which discovered that seventeen patients have been deprived of sleep, and thirteen obtained eight hours of sleep each night time, they also mentioned that sleep deprivation increases the risk of seizures in the majority of patients specifically while seizures are not managed. in the identical respect, sleep abnormality turned into regularly suggested triggering issue most of the sufferers (19.75%) as reported by Gourie et al. (2010).[24] In addition, the results of Yazdi et al. (2013),[25] showed that sleep quality was poor among epileptic patients than the control group. Also, daytime dysfunction was more prevalent in epileptic patients than in the control group.

Emotional stress is another triggering element for epilepsy. The effects of the present study confirmed that more than 1/3 of study subjects suffer from excessive stress even as after six months of the educational protocol it was noticed that multiple 0.33 of the study topics have low pressure and more than 3 quarters have low strain after one year publish-intervention, this improvement after implementation of the protocol has its positive impact on reducing the frequency of epileptic assaults. Moreover, there has been no considerable correlation among perceived stress scale, and frequency of assaults among the study subjects. Also in post-test II after one year; there was a positive significant correlation between perceived stress scale and frequency of attacks among the

study subjects.

This result is consistent with what has been found by Allendorfer et al. (2014)[26] who mentioned that in the control group (n = 23 each group) who have left-sided temporal lobe epilepsy, there was a significant relationship between seizure control and both the hypothalamic pituitary adrenal axis and functional MRI signal reactivity to acute psychosocial stress. Other researchers have shown a high correlation between stress, sleep deprivation and fatigue.[27]

According to the study results of Sorour et al. (2014),[28] the application of the progressive relaxation technique was associated with a significant decrement in the level of stress among epileptic adolescents. The intervention was successful in reducing seizures triggering factors, the results revealed statistically significant changes in stress scale, with a median post-pre total difference of -0.3 ($p < .001$). The frequency of seizures decreased from a median of 3 per week to one seizure in the last four weeks of follow-up ($p < .001$).

Additionally, Elsas et al.[29] demonstrated that reduction or even elimination of emotional-triggered seizures was achieved through the use of an epilepsy-specific behavioral approach comprising counseling and relaxation. A similar report of the effectiveness of behavioral therapy in epilepsy as an additional modality to pharmacotherapy has been shown by Polak et al. (2012)[17] who discussed the challenges of research in this respect.

In the current study revealed that more than one-quarter of the study subjects were suffering from daily seizure attack. While after six months post-test; more than one-quarter of the study subjects did not suffer from attacks compared with post-test II after one year; in which it was noticed that less than three-quarters of study subjects were not suffering from attacks. This result indicated that there was an improvement in patient's condition post implementation of the protocol in the form of decreased frequency of attacks. These findings are consistent with the findings of Al-aqeel et al. (2011)[30] who evaluated the combined use of relaxation and behavior therapy in 150 adults with uncontrolled epilepsy who were randomly assigned into a treatment group which received muscle relaxation and behavioral therapy and a control group in a 2:1 ratio and found an improvement in seizure frequency as well as psychological measures.

In the same respect, in a study about the efficacy of educational treatment protocol MOSES (Modular Service Package Epilepsy), significant improvements were found in seizure outcome after patients have completed the educational protocol.

As regarding the relation between total knowledge and frequency of attacks among the studied subjects the present study results illustrated that there was no significant correlation between total knowledge and frequency of attacks among the study subjects before implementation of the protocol. While posttest I after six months and posttest II after one year showed a positive significant correlation between total knowledge and frequency of attacks among the study subjects.

Inconsistency with the current study findings of the knowledge about epilepsy, WHO[31] reported an association between the duration of epilepsy and months of follow-up to the level of knowledge about epilepsy. This may be related to the lack of adequate education by the health professionals about the disease before the start of therapy. People living in different parts over the world and even those suffering from epilepsy have poor knowledge regarding the etiology, nature, and its treatment as shown by the studies which were done to determine knowledge, attitude, and practice about epilepsy.[32]

In a contradictory study, more than one quarter and sixty percent of the patients have knowledge about the cause and treatment of epilepsy respectively out from a total of one hundred and eighty epileptic patients who were interviewed in follow-up clinic. And, seventy percent of the participants have a positive attitude regarding their treatment. More than half of participants gave the suggestion that correct positioning of the patients during a seizure can prevent aspiration.[33]

One educational protocol was developed by Hall-Patch et al. (2010)[34] and found that, around half of the study sample had a greater than fifty percent reduction in seizure-like events approximately 3 months post-implementation, and 14 percent of them were event-free. Cognitive-behavioural therapy plus educational interventions are effective approaches for reducing the frequency of seizure-like events and improving psychosocial outcomes for those who have seizure-like events on a psychological basis.[35]

Precise information needs related to diagnosis and treatment alternatives, medications and their negative effects, seizures and seizure management, safety and harm prevention, and common social and psychological issues have been recognized in a review of the literature on health records for adults with epilepsy by Couldridge et al. (2001).[36] Patients with epilepsy also are in need to be knowledgeable about the entire variety of comorbid conditions associated with their disease, as intellectual fitness, cognitive, neurological, and somatic disorders.

5. CONCLUSION

- Lack in patient's knowledge regarding seizure and ways to control and minimize the frequency of these attacks before the application of the educational protocol was observed.

- An improvement in patients' knowledge was observed after application of an educational protocol for patients with a seizure that had its positive effect on minimizing and controlling the frequency of seizure attacks.

- Improvement of patient sleep after application of the educational protocol had a positive effect on minimizing and controlling the frequency of seizure attacks.

5.1 Recommendations

5.1.1 *For patients*

- An educational and training protocol planned in a continuous manner and offered on regular basis for epileptic patients to minimize their seizure attacks.

- Simple booklet, brochure, pamphlets about the seizure and its management should be provided & be available for patients and their relatives.

5.1.2 *For future study and research*

- Replication of the current study on samples is more likely to achieve universalization and wider use of the design protocol.

- Establish an effective training protocol for nursing instructions to reduce frequency shifts, and must be well organized and equipped with the necessary educational facilities for nurses.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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