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Effect of Lifestyle Modification on Epileptic Patients Outcomes

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Abstract:
Background: *Epilepsy is a chronic condition that affects an individual irrespective of age, sex, education and occupational status.* ***Aims:*** *To assess knowledge for patients with epilepsy and to evaluate the impact of life style modification on epileptic patient's outcomes.* ***Design:*** *Aquasi-experimental (pre-posttest design) was utilized in this study.* ***Setting:*** *The study was conducted at Assuit university student's hospital.* ***Sample:*** *A consecutive sample 60 adult epileptic patients with age ranged from 18-30, years from both sex, free from any chronic illness and agree to participate in this study* ***Tools: Self-administered Questionnaire****:which includes: Socio demographic data about the patient, history of epilepsy, Epilepsy Knowledge Scale and Self-efficacy Scale.* ***Results:*** *There were statistical significant differences between the study sample post application of epilepsy teaching booklet than pre.* ***Conclusion:*** *Instructionof patient with epilepsy shows a significant improvement in their knowledge, and self-efficacy level.* ***Recommendation:*** *Explanation must be given to each patient about (phases of seizure, attitude during phases, predisposing factors for fits, diet, medication ,rest, habits must be avoiding, and exercise) .*

Key Words: Epileptic Patients, Lifestyle, Modification, outcomes.

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I. Introduction

An epileptic seizure is a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain. Epilepsy is a disorder of the brain characterized by an enduring predisposition to generate epileptic seizures and by the neurobiological, cognitive, psychological, and social consequences of this condition. **(Fisher, et al. 2005)**

Epilepsy can be caused by many different conditions that affect a person's brain. Examples of these conditions include stroke, head trauma, complications during childbirth, infections (such as meningitis, encephalitis, brain abscess), and certain genetic disorders. Often, no definite cause can be found. **(Shorvon. 2005)**

Having a seizure at certain times can lead to circumstances that are dangerous to the patient or others falling, drowning, car accidents, pregnancy complications , emotional health issues. Other life-threatening complications of epilepsy are uncommon, but may happen, such as: status epileptic ,sudden unexplained death in epilepsy . **(Smeltzer, and Bare., 2008)**

Lifestyle management is defined as the "knowledge, attitudes, skills, and behaviors required to promote general physical and mental health and a good quality of life" Self-management majorly determines the health status of patients with epilepsy because the most important strategies for controlling seizures include receiving and adhering to prescribed therapies, and making appropriate lifestyle adjustments. Patients with epilepsy have various educational needs and must adopt many self-management behaviors to control their condition. **(Birbeck. 2010)**

The following lifestyle management behaviors have been linked to seizure frequency among people with epilepsy: stress management, sleep behavior and, diet and exercise. Of these, stress management and sleep behavior are known to have the most direct relationship with seizure expression .Specifically; higher levels of stress have been associated with increases in seizure frequency. **(Birbeck. 2010)**

Significance of the study:

In Egypt, the prevalence was estimated to be 6.98/1000 **(El Tallawy et al., 2010).** According to Assuit University student's hospital reports there were about (176) student's patients in (2016) year. According to experience of the researcher, it was noted that patients with epilepsy needs to learn about the disorder and its

management to improve the epilepsy knowledge and the coping with epilepsy. This study was the first study that provided teaching booklet for epileptic patients to modify their lifestyle leads good management of seizures and lifestyle modification will improve life style of epileptic patients.

Aims of the study

The aims of this study were: Assess the knowledge's for patients with epilepsy, and evaluate the impact of epilepsy teaching booklet on life style modification for patients with epilepsy.

II. Patients and methods

Design: A quasi-experimental (pre-post research design) was utilized in this study.

Setting: The study was conducted at Assiut university student's hospital.

Patients: A consecutive sample of 60 adult epileptic patientsfrom both sex, who attended to Assiut university student's hospital and they were followed up for two months.

Inclusive criteria:

Adult epileptic conscious patients and regular follow up atAssiut University Student's Hospital.

Ethical approval:

Research proposal was approved from ethical committee in the faculty of nursing, there was no risk for study patient during application of the research,and an official permission to carry out the study was obtained from authorities in Assiut University Student's Hospital. Each patientwas informed with the purpose of the study. The researcher emphasized that the participation is voluntary and confidentiality and anonymity of was assured through coding of all data, and protection of the patient from hazard. Verbal consent was obtained from each patient.

Tools for data collection:

Tool (1) Aself-Administered Questionnaire*:* which was developed by the researcher based on extensive review of literatures which includes the following parts:

Part **1**: Socio demographic data about the patient, which included age, sex, marital stats, address, faculty, and grade.

Part2: clinical data about epilepsy(duration of illness, aura, causes of disease, attitude of patient toward the disease, how to deal with the epileptic attack and patient information about epileptic drugs.

Part 3: **Epilepsy Knowledge's Scale (EKS).** To Assess Knowledge about awareness of epilepsy ,it was developed by **May, etal (2002)** and consists of 19 questions. The questions are on work that can be done, activities, diagnostic test for epilepsy, medications, symptoms, job, and sports, if epilepsy is associated with mental illness and driving related questions.

Scoring system for part (3): Epilepsy Knowledge Scale (EKS)**:** The correct answer has a score of (1) and the wrong answer has no score (0).

Scoring: The total score is (19).

Tool (2):Epilepsy Self-efficacy Scale (ESES). To measure lifestyle management.It was developed by**Dilorio, et al(2008)**. The ESES is composed of 33 items and measures the self-efficacy that people have about managing their epilepsy. The self-efficacy for lifestyle management subscale used in this analysis was identified in two ways. Items that corresponded to the lifestyle management topics of stress management, sleep, exercise and eating behaviors.

Scoring system: The response options for each item range from 0 to 10, where 0-3 indicates "I cannot do at all", 4-7 "Moderately sure I can do" and 8-10 indicates "Sure I can do." Each question is 10 score and the total score is10×33= 330 score

Tool (3) epilepsy teaching booklet:

This booklet was developed by the researcher in a simple Arabic language based on reviewing current national and international literatures. The main objective was to provide the patient with the necessary information and instructions about essential epilepsy and modify life style for epileptic patient. It was applied by the researcher after the patient fill the Self-administered Questionnaire; this booklet covered the following items:

Definition of epilepsy, causes of epilepsy,predisposing factors (the triggers) of a seizure, signs and symptoms, complications, first aid management of a seizure by patient & the family members, how to avoid the triggers, medication, its dosage, and the common adverse effects to be reported, dietary intake to overcome some of the side effects of Anti-epileptic drugs (AED's), the activities that are to be avoided, the special considerations for women, support of the family, guidelines for lifestyle modification, activities that can be done, commandments for a seizure free life.

III. Methods

Technique for data collection:

A review of current and past, local and international related literatures in the various aspects of the problem was reviewed using books, articles, and periodicals.

Content validity:

The content validity and reliability of the tools, was established by panel of five expertise (2 teaching staff of Medical Surgical Nursing, Faculty of Nursing, Assiut University and 3 doctors in Neurology and Psychiatry Department in Assiut University Student's Hospital) who reviewed the tools for clarity, relevance, comprehensiveness, understanding, applicability and easiness for administrative minor modifications were required. The content validity of this tool was checked by expert professors in fields of medicine and nursing and correction was carried out accordingly.

Pilot study:

A Pilot study was carried out in October 2016on 10% (6 patients) of sample in the selected setting to evaluate the applicability and clarity of the tools. Those patients were added to the study later. It provided an estimate of time needed to fill out the tools. The purpose of the pilot study was to:

- Ensure the clarity of the designated study tools.
- Examine the utility of the designed tools. and
- Identify any difficulties or problems needed to handle before applying it.

Procedure:

Once permission was obtained to proceed with the proposed study, the researcher initiated data collection.

- At initial interview: the researcher introduced herself to initiate communication, explained the nature and purpose of the study for patients.
- The researcher collected the needed data from patients by applying tool (I)
- Each patient involved in the study was assessed for his or her knowledge's and epilepsy self –efficacy. The study was carried out at morning shifts.
- The researcher explained to the patient simplifiedepilepsy teaching booklet (tool 2). The session ended by a summary of its content and feedback from the patients through discussion and asking questions.
- Each patient in the study group took a copy of the epilepsy teaching booklet.
- Evaluate the effect of applying the designed nursing teaching booklet on patient's knowledge and self-efficacyafter two months using tool (1) part [3] and tool (2).

- **Statistical design:**

Data entry was done using compatible personal computer by researcher. The statistical analysis was done using computer program SPSS (Version, 22). Statistical software package Excel for figures. The content of each tool was analyzed, categorized and then coded by the researcher. The collected data were tabulated and analyzed by using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. P-value considered statistically significant when $p<0.05$

IV. Results

Table (1): Frequency distribution of studied patients according to socio-demographic characteristics

Items		patients	
		(n=60)	%
Age:	18-25	59	98.3
26-30		1	1.7
Gender:	Male	29	48.3
	Female	31	51.7
Marital status:	Single	60	100
Address:	Rural	33	55
	Urban	27	45
Faculty: Social work		5	8.3
	Pharmacy	6	10
	Computing	2	3.3
	Law	8	13.3
	Literature	8	13.3
	Medicine	1	1.7
Engineering		4	6.7
	Education	16	26.7
Commerce		6	10
	Science	4	6.7
Grade:	Preparatory	3	5
	First	14	23.3
	Second	18	30
	Third	16	26.7
	Fourth	9	15.5

Table (2): Descriptive of clinical data for epileptic patients

Items	N (n=60)	%
Method of diagnosis: Clinical	4	6.7
Clinical and EEG	38	63.3
Clinical EEG and CT	18	30
Have you following causes: Head injury	23	38
Infection	3	5
Fever	10	16.7
Psychological	5	3
Idiopathic	19	31.7
Duration of illness (years): M ± SD	3.17 ±2.3	
Aura: Autonomic	6	10
Auditory	3	5
Disoriented	26	43.3
No aura	5	8.3
Sensory	11	18.3
Visual	9	15

*Data described as number and percent or M±SD according to need.

Table (3): Comparison between studied group knowledge pre and post instruction of the teaching booklet.

Items	Pre teaching (n=60)				Post teaching (n=60)				P- value
	Correct answer		Un correct answer		Correct answer		Un correct answer		
	No	%	No	%	No	%	No	%	
1. People with epilepsy should avoid strenuous work because this can provoke seizures.	39	61.9	21	33.3	60	100	0	0	0.0001
2. An EEG can always prove the diagnosis of epilepsy.	3	4.8	57	90.5	60	100	0	0	0.0001
3 People with epilepsy are as capable as other people.	31	49.2	29	46.0	60	100	0	0	0.0001
4. All the people with seizure should avoid working with open machinery.	24	38.1	36	57.1	60	100	0	0	0.0001

5. Every seizure destroys a number of nerve cells in the brain.	53	84.1	7	11.1	60	100	0	0	0.0001
6. People with seizures should not swim without an accompanying person.	25	39.7	35	55.6	60	100	0	0	0.0001
7. All people with epilepsy should avoid flashing or strobing lights.	39	61.9	21	33.3	60	100	0	0	0.0001
8. In most cases doctors can control epileptic seizures with medication.	25	39.7	35	55.5	60	100	0	0	0.0001
9. If your seizures are controlled for some months, you can reduce the dose of antiepileptic medication.	10	15.9	50	79.0	60	100	0	0	0.0001
10. All people with epilepsy have similar symptoms.	14	22	46	73	60	100	0	0	0.0001
11. If a patient expects a seizure, he/she should take an additional dose of antiepileptic medication.	13	20.6	47	74.6	60	100	0	0	0.0001
12. On job application, a patient should always disclose his or her epilepsy condition.	17	27	43	68.3	60	100	0	0	0.0001
13. People with epilepsy can take an active part in sports.	14	22.2	46	73	60	100	0	0	0.0001
14. An epileptic seizure always results in loss of consciousness.	10	15.9	50	79.4	60	100	0	0	0.0001
15. People whose seizures only happen during sleep may hold a driver's license.	14	22.2	46	73	60	100	0	0	0.0001
16. Everyone can have a seizure, given the appropriate circumstances.	12	19	48	76.2	60	100	0	0	0.0001
17. Blood samples can be used to measure the concentration of antiepileptic medication in the body.	28	44.4	32	50.8	60	100	0	0	0.0001
18. Epilepsy is a symptom of mental illness.	19	30.2	41	65.1	60	100	0	0	0.0001
19. If persons with epilepsy drive, they must inform the driving authorities about their condition.	17	27	43	68.3	60	100	0	0	0.0001

* Statistically significant at $p<0.05$

Due to the length of the scale (33 items), it was divided into two tables (table4-a questions about ofanti-epileptic drugs, and table 4-b questions about different situation)

Table (4-a): Comparison between epilepsy self-efficacy scale pre and post instruction of the teaching booklet as regard questions about of anti-epileptic drugs .

Items	**Pre teaching (n=60)**	**Post teaching (n=60)**	**P- value**
	Mean ± SD	**Mean ± SD**	
1. I can always take my seizure medication when I am away from home.	3.4 + 3.3	9.4 + 0.9	0.0001
2. I can stay on my seizure medication most of the time.	3.8 + 3.2	9.3 +1.1	0.0001
3. I can always name my seizure medication.	7.6 +1.8	9.9 +0 .5	0.0001
4. I can always plan ahead so that I do not run out of my seizure medication.	6.97 + 2.9	11.2 + 11.7	0.007
5. I can always take my seizure medication on holidays, birthdays, vacations, and other special occasions.	4.1 + 3.6	9.8 + 0.7	0.0001
6. I can always take my seizure medication around people who do not know that I have seizures.	2.4 + 3.5	9.5 + 0.9	0.0001
7. I can always tell when I am having side effects from my seizure medication.	5.3 + 2.9	9.7 + 0.8	0.0001
8. I can always deal with any side effects from my seizure medication.	2.1 + 2.4	9.3 + 1	0.0001

9. I can always fit my seizure medication schedule around my daily activities.	3.5 + 2.9	9.4 + 1	0.0001
10. I can always do what needs to be done if I miss dose of my seizure medication.	5.1 +3.1	9.8 +0 .6	0.0001
11. I can always follow my seizure medication schedule.	5.7 + 2.5	9.8 + 0.6	0.0001
12. I can always find ways to remember to take my seizure medication.	4.4 + 2.5	9.8 + 0.6	0.0001
13. I can always find a way to get seizure medication if I go out of town and forget mine.	5.3 + 2.7	9.9 +0 .5	0.0001
14. I can always get my seizure medication refilled when I need to.	6.5 + 2.3	9.9 + 0 .4	0.0001
Total efficacy level	66.2± 34.3	136.7± 21.3	0.0001

* Statistically significant at p<0.05 * Comparison by used paired sample T-test

Table (4 -b): Comparison between epilepsy self-efficacy scale pre and post instruction of the teaching booklet as regard questions about different situation of epilepsy .

	Mean ± SD	Mean ± SD	
1. I can always practice relaxation exercises to help me manage stress.	1.3 + 1.9	7.6 + 1.8	0.0001
2. I can always get enough exercise.	1.3 + 2.3	7.5 + 1.9	0.0001
3. I can have fun with other people and still manage my epilepsy.	3.6 + 3.7	9.7 + 0.7	0.0001
4. I can always use stress management techniques to stop seizures.	1.3 + 2.3	8.4 + 1.97	0.0001
5. I can always take care of day-to-day changes in my epilepsy.	4.4 + 2.8	9.5 + 1.3	0.0001
6. I can always manage my epilepsy in new situations.	2 + 2.6	9.5 + 1.1	0.0001
7. I can always eat healthy meals.	4.7 + 2.3	9.3 + 1.2	0.0001
8. I can always manage my epilepsy.	2.8 + 2.9	9.5 + 1	0.0001
9. I can always recognize situations or activities that may make my seizures worse.	2.2 + 2.9	9.6 +0 .8	0.0001
10. I can always find ways to get enough sleep.	5.5 + 2.3	9.1 +1.1	0.0001
11. I can always handle situations that upset me.	2.5 + 2.6	9.1 + 1.1	0.0001
12. I can always find ways to do things that I enjoy to help me manage stress.	1.8 + 2.3	8.9 + 1.5	0.0001
13. I can always call my doctor or nurse when I need to ask a question or report a seizure.	5.6 +2.2	9.5 + 1	0.0001
14. I can always keep my epilepsy under control.	1.9 + 2.2	9.2 + 1.2	0.0001
15. I can always take time out from my daily activities to go to the doctor for an epilepsy check-up.	4.9 + 2.3	9.5 + 0.8	0.0001
16. I can always avoid situations or activities that make my seizures worse.	1.9 + 2.8	9.3 + 1.2	0.0001
17. I can always drive or get a ride to the doctor's office when I need to see him or her.	5.7 + 2.3	9.7 + 0.7	0.0001
18. I can always get medical help when needed for my seizures.	5.6 + 2.2	9.5 + 0.9	0.0001
19. I always carry personal identification in case I have a seizure.	0.5 + 1.7	9.9 + 0.4	0.0001
Total efficacy level	59.5± 46.6	174.3± 21.7	0.0001

* Statistically significant at p<0.05 * Comparison by used paired sample T-test

Table (1) shows that, more than half of the patients were females. Regarding age the majority their age range between 18-25 years old. As regard residence; more than half were living in rural area. As regard faculty the highest number were in educational colleges.

Table (2): shows thatmethod of diagnosis by clinical and EEG was the main presenting. Regarding symptoms head injury was the main symptom. Regarding duration of illness M±SD = 3.72 ± 3.059. Aura symptoms disorientation represented the highest percent.

Table (3) shows that, there's a statistically significant differences as regard epilepsy knowledge level for patientpre and post instruction of the epilepsy teaching booklet. The patient's experiences are better after application of teaching booklet than pre.

Table (4-a) shows that, there were statistically significant differences between epilepsy self-efficacy scale pre and post instruction of the epilepsy teaching booklet as regard questions about antiepileptic drugs

Table (4-b) shows that, there were statistically significant differences between self-efficacy pre and post instruction of the epilepsy teaching booklet as regarddifferent situations about epilepsy.

V. Discussion

The Discussion will cover the main results finding as follow:

The first section will be devotedtoSocio demographic characteristics of epileptic patients:

The present study revealed that, more than half of study group were females and this may be caused by exposure of female to stress and hormonal disturbances.

Regarding residence more than half of study group were rural. And this agrees with **(Shawki, 1996);** who reported that the highest prevalence rate of epilepsy in rural areas was observed among the group who had no work. Living in urban area was accompanied by more hospital and medical services

Our results revealed that regarding the causes of epilepsy head injury was the main causes and this in line with **(Wirrel, 2006)** and Similarly, a study conducted in Nigeria mentioned trauma and as the main causes of epilepsy **(Ekeh&Ekrikpo, 2015).** Although, idiopathic epilepsy is common etiology ,but our students revealed head trauma .That could be explained as many students think that even minor trauma were the causes of epilepsy.

Aura symptoms disoriented was the main percent and this in line with **(Smeltzer,2008)** , Our results revealed that regarding study group the diagnosed by doctor and EEG was the main presenting and this in line with **(Shehataa and Mahran, 2011)** who reported that 60,7% of study group diagnosed by clinical and EEG

2-Patients knowledge about epilepsy:

The current study revealed a great improvement in knowledge after instruction of epilepsy teaching booklet with statistical significant difference regarding awareness knowledge about epilepsy among patients' pre and post instruction of epilepsy teaching booklet that was in agreement with **(Buck et al., 1999),** who reported that lack of knowledge about epilepsy has been found to be an important determinant of negative attitudes towards people with this condition.

In this respect **(Abd-Alla, 2000);** documented the service training program has a beneficial effect in improving patients' knowledge and skills. As well as, (**Ookalkar, 2009);** recommended that educational programs should be organized according to the needs of patients with continuous evaluation to enhance patient and awareness. That will lead reduced process errors, mitigating overall risks, eventually resulting in effective patient care.

Also this results was matched with **(Adavi., etal 2003)** reported that determined the patient's perspective on epilepsy: self-knowledge among Omanis; although correctly endorsing issues related to their medication, the cross cultural sample had limited knowledge about their condition. Most patients were unable to give accurate indications of epilepsy and were not able to give correct responses to the questions pertaining to safety and compliance. The researchers suggested the need for improving patient's knowledge as with other chronic disorders, people with epilepsy should receive a systematic health education about how to manage the condition most effectively.

It is widely recognized that knowledge alone is not sufficient to change health behavior. There is evidence that chronic disease self-management is influenced by an individual's beliefs about health, including self-efficacy). **(Lorig ,and Holman .2003)** Self-efficacy is a person's belief in his/her ability to successfully organize, control his/her health habit, and achieve valuable health outcomes. It is one aspect of individual motivation **(Wong ,and Hockenberry,2007)**

The results of the studies on chronic disorders have shown that the individuals with high self-efficacy are more successful in management of self-care responsibilities, drug use, avoidance of stimuli, symptoms of disease, and control of health status so, self-efficacy is an effective factor on patients' ability to control the disease, coping with illness and drug control of epilepsy. **(Landover,2004)**

This study don't find a patient carrying an epilepsy identity card Present results are consistent with the study done by**(Amin, 2014)** who found that only (4%)of the participant were carrying an epilepsy identity card (ID) with personal information, and keeping a calendar with seizure description. This could be attributed to the lack of knowledge of the patients about the importance of these items, but after applying teaching booklet have known its importance and use.

VI. Conclusion

Based on the results of the present study we can be concluded thatthe epilepsy teaching booklet was found to be effective in enhancing Knowledge, Self-efficacy among patients with epilepsy.

VII. Recommendations

1. Increase patient awareness about the important of periodic cheek up to prevent developing any complication which can effect of life.
2. Reapply this research on a larger probability sample acquired from different geographical areas in Egypt for generalization.
3. Establishment of continuous health education program at Neurology department at Assuit University student's hospital.

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