

The Effect Of Self-Care Enhancement Program On Self Management Among Patients With Epilepsy

Sara Mustafa Ahmed, Ghona Abd El-Naser Ali, Enace Mohamed Abd Elaal,
Wafaa Gameel Mohammed Ali

Assistant Lecturer Of Medical Surgical Nursing, Faculty Of Nursing, Sohag University, Egypt

Professor Of Medical Surgical Nursing, Faculty Of Nursing, Sohag University, Egypt

Lecturer Of Medical Surgical Nursing, Faculty Of Nursing, Sohag University, Egypt

Professor Of Medical-Surgical Nursing, Faculty Of Nursing, Mansoura University, Egypt

Abstract:

Background: Epilepsy is a serious brain disorder predisposing the patient to severe injuries and even death. Patient education is a crucial to effective management of chronic disorders including epilepsy stressing the importance of utilizing self-management practices to improve seizure control, medication adherence, better managing the disease and reduce mortality.

Aim: To investigate the effect of self-care enhancement program on self-management among patients with epilepsy.

Materials and Methods: A quasi-experimental non-equivalent control group design was conducted over 11 months. 60 convenient patients included (30 in study group, 30 in control group). Patient knowledge is assessed by epilepsy knowledge scale while self-management assessed by epilepsy self-management scale (ESMS).

Results: Study group revealed statistically significant differences in mean scores of knowledge before (7.0 ± 2.7) and after (18.7 ± 2.5) implementation of self-care enhancement program $P=0.000$. Similar findings regarding mean scores of self-management; 101.9 ± 19.8 (pretest), 154 ± 13.28 (posttest) and 158.6 ± 13.38 after 2 months with P -value 0.000. In addition, there were significance differences between study and control groups post program application regarding knowledge mean score 18.7 ± 2.5 and 10.43 ± 3.8 ($P=0.000$) and self-management mean score 154 ± 13.3 and 116.9 ± 20.4 ($P=0.000$) for study and control respectively.

Conclusions: Self-care enhancement program for epileptic patients had a positive effect on improving knowledge and behaviors regarding self-management post program implementation.

Keywords: Self-Care Enhancement Program (SCEP), Nursing, Self-Management (SM)

Date of submission: 26-03-2024

Date of acceptance: 06-04-2024

I. Introduction

Epilepsy is a serious brain disorder in which severe convulsions and lack of consciousness are experienced, predisposing the patient to severe injuries and even death (Faraj et al., 2023). It is a global health problem affecting almost 5 million people worldwide annually where Egypt is considered the most predominant Arab countries with epilepsy as 752,000 persons are newly diagnosed with epilepsy annually (Hosny et al., 2023). Mortality rate is up to three times higher than in the general population (Trinka, Rainer, Granbichler, Zimmermann, & Leitinger, 2023). Epilepsy results in variety of medical, social, psychological and economic impact particularly in developing countries in which its incidence and prevalence is highly increasing (Ahmed et al., 2023). Moreover, recurrent seizures can lead to frequent hospitalizations, escalated healthcare expenses, compromised quality of life, and heightened mortality risk (Smith, Plueger, & Wagner, 2019).

Seizure control requires a multi-component approach that depends not only on medications, but also on effective self-management. Self-management of epilepsy refers to a wide range of health behaviors and activities that an individual can learn and adapt in order to promote seizure control and enhance well-being (Li, Bi, Hu, & Sun, 2021). Education is imperative for individuals with epilepsy in order to maintain optimal physical, cognitive, and emotional health (Chan et al., 2020). However, many epileptic patients don't have adequate information about their disease emphasizing the need for accurate and adequate education (Lewinski et al., 2020). Nurses play a major role by developing and applying self-management programs through which seizures can be controlled (Rostad & Ghearing, 2022). Moreover, they assume a significant role in offering an inclusive education through provision of information on their condition, medication, safety and healthful lifestyle (Ridsdale et al., 2018). Hence, it is essential to assess the effect of self-care enhancement program on self-management among patients with epilepsy.

II. Significance Of The Study

Patients have regularly reported frustration with insufficient information they received to address many concerns regarding epilepsy. Hence, it is critical to assess patients' knowledge and provide ongoing teaching to improve self-management (Pandey et al., 2020). Xu and Wang (2023) stated that good self-management requires appropriate knowledge of the condition, its treatment, and the necessary skills to carry out related tasks that can be achieved through self-care enhancement program (SCEP). SCEP was designed to basically provide education to both patients with epilepsy and their relatives with the goal of enhancing self-management by helping them in acquiring self-management skills that can enrich their knowledge, enable them to cope and monitor the disease, have positive effects on general health, and medication adherence (Lewinski et al., 2020). In addition, educational program may reduce hospital admission which is a crucial element as an attempt to reduce the economic burden on healthcare systems and community (Babaei et al., 2023). Hopefully that the results of the current study will allow nurses to empower patients with necessary skills needed for adequate self-management. Furthermore, this study will add to the nursing body of knowledge as few nursing researches were conducted in Egypt to assess the effect of self-care enhancement program on self-management among patients with epilepsy.

Aim of the study

The aim of the current study is to investigate the effect of self-care enhancement program on self-management among patients with epilepsy.

Research hypotheses

1. Patients who receive self-care enhancement program exhibit higher knowledge mean score than those who do not receive it.
2. Self-management for patient with epilepsy will be enhanced after implementing self-care enhancement program.

III. Methods

Research Design

A quasi-experimental pretest posttest non-equivalent control group design was utilized in the current study.

Research Setting

The study was conducted at the Neurology department at Sohag University Hospital.

Research Sample

A convenient sample consisting of sixty patients (30 in the experimental and 30 in the control group) were included in the study. Sample size is calculated according to the following equation; $n = \frac{N Z^2 \sigma^2}{Z^2 \sigma^2 + N e^2}$

The inclusion criteria included adult conscious male and female patient from >18 to 60 yrs., accepted to participate in the study, having a diagnosis of epilepsy for at least 6 months, having experienced seizures during the previous year, receiving standard treatment for epilepsy, including antiepileptic drugs. **While, the exclusion criteria;** patients scheduled for brain surgery or those who had co-occurring medical conditions such as brain trauma, mood syndromes, and related mental impairment (mentally retarded).

Tools of Data Collection:

Tool 1: Structured interview schedule: it was developed by the researchers. This tool consists of four parts:

Part 1: Demographic data, by asking patients about age, gender, residence, education, and occupation.

Part 2: Medical data related questions such as onset of the disease, duration of fit, number of seizures per month, types of seizure, and risk factors of disease.

Part 3: Data regarding patient knowledge about epilepsy such as definition, causes, triggers, treatment of epilepsy, drug adherence, causes of non-compliance and medication side effects.

Part 4: Epilepsy Knowledge Scale (EKS): it was developed by **May and Pfafflin (2002)** adopted to assess patient knowledge about of epilepsy. It consists of 19 questions such as (work that can be done, activities, diagnostic test for epilepsy, medications, symptoms, job, sports, if epilepsy is associated with mental illness and driving related questions... etc.). **Scoring system:** The patients' answers regarding the knowledge questions were scored on 3 points scale (true, false, or I don't know) ranged from zero to two. The correct answer has a score of (2) and the wrong answer has a score (1) while don not know answer has no score (0). The total score is (38). Moreover, the scale is categorized into levels considering patients who have knowledge score below 50% as having a poor knowledge level; those who have score between $50 \leq 75\%$ were categorized as having a fair

knowledge level, while those who have $\geq 75\%$ were categorized as having a good knowledge level (May & Pfafflin, 2002).

Tool II: Epilepsy Self-Management Scale (ESMS): it was developed by Dilorio and colleagues (2008) to evaluate the frequency with which persons achieve tasks that are useful in controlling their seizures. The ESMS is a useful tool for assessing self-care behavior of patients with epilepsy. The scale is categorized into five subscales which are information (8 items), lifestyle (6 items), medication adherence (10 items), safety (8 items), and seizure management (6 items). **Scoring system:** It comprises 38 items in the form of statements. Each item is rated on a 5 point likert scale ranged from 1= never, to 5= always. The tool score ranged from 38-190 with higher scores representing more repeated use of self-care behaviors. The scale was classified as; Less than 50% = low use of self-care behaviors, 50% to less than 75 % = moderate use of self-care behaviors, and more than 75% = high use of self-care behaviors.

Validity and Reliability

Face validity of the data collection tools was reviewed by a panel of five experts in the field of Medical Surgical Nursing and Neurology Medicine. Also its reliability was statistically examined. According to reliability, the instruments were tested and demonstrated good internal reliability as Cronbach's alpha for epilepsy knowledge scale and epilepsy self-management scale were 0.89 and 0.91 respectively.

Pilot Study

A pilot study was conducted on 10% of the sample to estimate the needed time for data collection and to judge the feasibility, objectivity, also to test the appropriateness of content, wording, and order. No modification was done; therefore the participants of the pilot study were included in the actual research participants.

Ethical Consideration

Written approval was obtained from the Ethics and Research Committee of the Faculty of Nursing, Sohag University. Similarly, permission was obtained from hospital administrators to conduct the study. The purpose and nature of the study, as well as the importance, were explained to the participants who met the inclusion criteria. Signed consent was obtained from the patients or their relatives who accepted to participate in the study. Furthermore, anonymity and confidentiality were assured through coding the data. Patients were assured that their participation is voluntary and they have the right to withdraw from the study at any time.

Procedure

Data were collected over a period of 11 months from January 2023 to November 2023. The study was conducted through three phases: preparatory, implementation, and evaluation phase.

I- Preparatory phase (assessment and planning): Once official permission from the Research Ethical Committee in Faculty of Nursing Sohag University was granted, the investigator made an exploratory visit to Neurology Department in order to estimate the rate of admissions and suitable time for data collection. Patients meeting the inclusion criteria were equally divided into control and study groups. Control group received the routine care while, the study group received the self-care enhancement program along with the routine treatment. Data was collected initially from the control group followed by the study group. The investigator introduced herself to every patient who enrolled in the study, explained the purpose and nature of the current study. Informed consent of patients or their relatives who were willing to participate in the study was taken and anonymity was assured. Confidentiality and privacy were asserted. Assessment data (pretest) was collected initially from the control group along with the routine care, through tool I and tool II. Then, data (pretest) was collected from the study group using the previously mentioned tools which took from 30-45 minutes for each individual patient. The investigator designed the self-care enhancement program (SCEP) in a simple Arabic language with modest images based on reviewing current national and international literatures (Eldesoky, Habiba, & Abouelala, 2023, Mohammed, & Abou Zed, 2020, Abd Elnaser, AbdAllah, Ali, & Metwally, 2018, Moursy & Mekky, 2015).

II- Implementation phase: Patients in the study group were assembled into groups to receive 4 educational sessions. Each session took almost two hours. The educational content was delivered through face to face lectures where the handouts of self-care enhancement program were provided for each patient. The content of SCEP was delivered to the patients through 4 sessions, as follows: **The first session** consisted mainly of theoretical aspects of epilepsy, including the definition of epilepsy, causes of epilepsy, types of seizures, symptoms, complications, risks, and antiepileptic drugs, including drug actions, side effects, importance of take medication, the penalties of non-adherence and strategies to enhance medication adherence. While, **the second session** provided information about patients' seizure type, its manifestation, auras, first aid management by the

patient and family, and documentation of seizures. Patients were educated about the triggers that tend to precipitate seizure and how to avoid them.

Whereas, **the third session** offered information about lifestyle such as diet; healthy nutrients to be taken, food to be avoided, and nutritional intake to overcome some of the side effects of antiepileptic drugs (AEDs), sleep; the importance of rest and strategies to improve sleep, stress management; techniques to reduce stress, physical exercises and activities. Finally, **the fourth session** provided information about safety measures during seizure regarding work safety, protect patient from drowning, prevent falling, safe driving, participating in sports without harm, adhere to fire precautions and home safety along with special concerns for women and the role of the family.

III- Evaluation phase: after implementing self-care enhancement program, evaluation of the effect of applying the designed nursing teaching was done immediately after implementation of self-care enhancement program and then after two months for the two groups using tool I and tool II except for demographic data questions with the same order. This phase took from 30 to 45 minutes for every single patient.

Data Analysis

Data entry and analysis were done using Statistical Package for Social Science (SPSS) software version 20. Descriptive results were in the form of mean, SD, frequency, and percentage. Correlation was tested using Pearson bi-variate. Chi-Square test was used to clarify the association between qualitative variables. The Cronbach alpha test was used to assess the reliability of the developed tools. The probability level of 0.05 was adopted as the level of significance for all statistical tests done.

IV. Results

Table (1) Comparison between Study and Control Groups Regarding Demographic Data (N=60):

Variable	Study		Control		P value
	No	%	No	%	
Age					
- > 18 to 30	13	43.33%	13	43.3%	.690
- 31 to 40	7	23.33%	8	26.7%	
- 41 to 50	4	13.33%	6	20.0%	
- > 50	6	20.0%	3	10.0%	
Mean ± SD	34.56±14.52		33.1±12.12		.673
Gender					
- Male	16	53.3%	18	60.0%	.602
- Female	14	46.7%	12	40.0%	
Marital status					
- Single	13	43.33%	12	40.0%	.995
- Married	15	50.0%	16	53.33%	
- Divorced	1	3.33%	1	3.33%	
- Widow	1	3.33%	1	3.33%	
Residence					
- Rural	21	70.0%	18	60.0%	.417
- Urban	9	30.0%	12	40.0%	
Level of education					
- Illiterate	19	63.3%	8	26.7%	.106
- Read and write	1	3.3%	2	6.7%	
- Basic education	2	6.7%	2	6.7%	
- Secondary education	5	16.7%	10	33.3%	
- University	3	10.0%	7	23.3%	
- Master	0	0%	1	3.3%	
Occupation					
- Non-working	19	63.3%	21	70.0%	.297
- Farmer	3	10.0%	1	3.33%	
- Machinery	3	10.0%	4	13.33%	
- Office work	2	6.7%	4	13.33%	
- Retired	3	10.0%	0	0%	

* Basic education = primary and preparatory, *Chi-Square test*

Table (1) represents that there was no statistically significant difference between study and control groups regarding demographic data. It was observed that mean age of study group was 34.56±14.52 while control group was 33.1±12.12. 53.3%, 60.0% of the patients were male for study and control groups

respectively. Regarding marital status, 50% of study group and 53.33% of control group were married. As regard to residence, 70% of study group and 60% of control group were from rural areas. Regarding educational level and occupation; 63.3% of study group were illiterate and unemployed, while control group, 26.7% were illiterate and 70% were unemployed

Table (2) Comparison between Study and Control Groups Regarding Medical Data (N=60):

Variable	Study		Control		P value
	No	%	No	%	
Type of epilepsy					
- Generalized	24	80%	20	66.7%	.243
- Focal	6	20%	10	33.3%	
Onset of the disease (in years)					
- 1 to 5	13	43.3%	15	50%	.488
- >5 to 10	8	26.7%	6	20%	
- >10 to 15	3	10%	6	20%	
- > 15 to 20	6	20%	3	10%	
Mean ± SD	8.60 ± 7.08		7.50 ± 5.83		
Duration of the attack (per minute)					
- Up to 1 min	3	10.0%	1	3.3%	.016*
- Up to 2 min	8	26.7%	2	6.7%	
- Up to 3 min	5	16.7%	8	26.7%	
- Up to 4 min	8	26.7%	4	13.3%	
- Up to 5 min and more	6	20.0%	15	50.0%	
Mean ± SD	3.2 ± 1.32		4 ± 1.17		
Frequency of seizures					
- Less than 1 time per week	7	23.3%	20	66.7%	.001**
- 1 time per week	8	26.7%	3	10%	
- 2 times per week	5	16.7%	1	3.3%	
- 3-5 times per week	0	0%	3	10%	
- 1 time or more per day	10	33.3%	3	10%	
Mean ± SD	19.76 ± 26.4		7.53 ± 12.78		
History of related risk factors					
- Meningitis	0	0%	1	3.3%	.337
- Head injuries	14	46.6%	19	63.3%	
- Fever	8	26.7%	4	13.3%	
- Stroke	8	26.7%	6	20.0%	

*Chi-Square test, *significant P<0.05, ** highly significant P<0.01*

Table (2) shows that 80% of study group and 66.7% of control group suffered from generalized epilepsy. 43.3% and 50% of the patients have been diagnosed with epilepsy since 1 to 5 years for study and control groups respectively. Regarding seizure duration and frequency, there was a statistically significant difference between study and control groups; mean duration was 3.2 ± 1.32 and 4 ± 1.17 for study and control groups respectively, mean frequency was 19.76 ± 26.4 and 7.53 ± 12.78 for study and control groups respectively. Concerning related risk factors, 46.6% of study group and 63.3% of control group had a history of head injuries.

Table (3) Total Knowledge of Study and Control Groups Pre and Post Self-Care Enhancement Program Implementation (N=60):

Cases	Pre-test Mean ± SD	Post-test1 Mean ± SD	Post-test2 Mean ± SD	P value 1	P value 2
Study	7.0 ± 2.7	18.7 ± 2.51	18.9 ± 2.468	.000**	.000**
Control	10.26 ± 3.78	10.43 ± 3.84	10.63 ± 3.57	.096	.093
P value (Independent sample t-test)	.000**	.000**	.000**		

*Paired sample t-test, ** highly significant P<0.01, P value 1= comparison between pre and post test1, P value 2= comparison between pre and post test2*

Table (3) reveals that there were statistically significant differences in mean scores of knowledge in study group before (7.0 ± 2.7) and after implementation of self-care enhancement program (18.7 ± 2.5) with P

value 0.000 and no significant differences found in control group before (10.26 ± 3.78) and after self-care enhancement program implementation (10.43 ± 3.84) with P value 0.096.

Table (4) Level of Knowledge of Study and Control Groups Pre and Post Self-Care Enhancement Program Implementation (N=60):

Level of Knowledge	Study						Control						P value
	Poor		Fair		Good		Poor		Fair		Good		
	No	%	No	%	No	%	No	%	No	%	No	%	
Pre-test	28	93.3%	2	6.7%	0	0%	14	46.7%	14	46.7%	2	6.7%	.000**
Post-test1	1	3.3%	2	6.7%	27	90%	15	50%	13	43.3%	2	6.7%	.000**
Post-test2	1	3.3%	1	3.3%	28	93.4%	15	50%	13	43.3%	2	6.7%	.000**

Chi-Square test, ** highly significant P≤0.01

Table (4) shows that there were statistically significant differences in knowledge level between study and control groups before and after implementation of self-care enhancement program with P value 0.000. 90% of study group had good level of knowledge after program application. While, there was no significant difference in level of knowledge in control group as 6.7% had good level of knowledge pre and post program implementation.

Table (5) Total Knowledge of Study and Control Groups as Measured by EKS Pre and Post Self-Care Enhancement Program Implementation (N=60):

Cases	Pre-test Mean ± SD	Post-test1 Mean ± SD	Post-test2 Mean ± SD	P value 1	P value 2
Study	16.1 ± 4.62	33.03 ± 4.33	33.47 ± 4.21	.000**	.000**
Control	19.66 ± 4.89	20.63 ± 4.66	20.7 ± 4.5	.055	.051
P value (Independent sample t-test)	.005**	.000**	.000**		

Paired sample t-test, ** highly significant P≤0.01

P value 1= comparison between pre and post test1, P value 2= comparison between pre and post test2
EKS= Epilepsy Knowledge Scale.

Table (5) pointed out that there were statistically significant differences in mean scores of knowledge in study group before (16.1±4.62) and after implementation of self-care enhancement program (33.03 ±4.33) with P value 0.00 and no significant differences found in control group before (19.66 ±4.89) and after self-care enhancement program implementation (20.63 ±4.66) with P value 0.055.

Table (6) Level of Knowledge of Study and Control Groups as Measured by EKS Pre and Post Self-Care Enhancement Program Implementation (N=60):

Level of Knowledge	Study						Control						P value
	Poor		Fair		Good		Poor		Fair		Good		
	No	%	No	%	No	%	No	%	No	%	No	%	
Pre-test	24	80%	6	20%	0	0%	12	40%	17	56.7%	1	3.3%	.006**
Post-test1	1	3.3%	1	3.3%	28	93.4%	11	36.7%	18	60%	1	3.3%	.000**
Post-test2	1	3.3%	0	0%	29	96.7%	11	36.7%	19	63.3%	0	0%	.000**

Chi-Square test, ** highly significant P≤0.01

EKS= Epilepsy Knowledge Scale.

Table (6) displays that there were statistically significant differences in knowledge level between study and control groups before and after implementation of self-care enhancement program with P value 0.00. 96.7% of study group had good level of knowledge after program application. While, there was no significant difference in level of knowledge in control group as 3.3% had good level of knowledge pre and post program implementation.

Table (7) Total Self-Management of Study and Control Groups as Measured by ESMS Pre and Post Self-Care Enhancement Program Implementation (N=60):

Elements of ESMS	Cases	Pre-test Mean ± SD	Post-test1 Mean ± SD	Post-test2 Mean ± SD	P value 1
Information Management Score (0-40)	Study	9.3±1.62	22.63±5.12	23.63±4.82	.000**
	Control	11.96±4.09	12.23±4.05	12.53±4.26	.103
	P value	.002**	.000**	.000**	
Lifestyle Management	Study	14.13±4.41	21.93±3.27	22.96±3.17	.000**

Score (0-30)	Control	15.2±3.75	15.9±3.75	15.93±3.79	.06
	P value	.318	.000**	.000**	
Medication Management Score (0-50)	Study	40.7±9.09	49.13±2.08	49.77±0.51	.000**
	Control	43±8.46	43.6±8.53	43.8±8.58	.095
	P value	.315	.001**	.000**	
Safety Management Score (0-40)	Study	22.33±6.71	35.93±3.58	37.2±3.31	.000**
	Control	27.86±6.78	27.47±6.58	27.53±6.58	.195
	P value	.002**	.000**	.000**	
Seizure Management Score (0-30)	Study	15.5±6.46	24.5±3.39	25.23±3.3	.000**
	Control	17±5.6	17.63±5.55	17.66±5.55	.08
	P value	.331	.000**	.000**	
Total score of ESMS Score (0-190)	Study	101.9 ± 19.8	154 ± 13.28	158.6 ± 13.38	.000**
	Control	115.1 ± 20.9	116.9 ± 20.44	117.5 ± 20.43	.09
	P value	.016*	.000**	.000**	

Independent sample t-test, ** highly significant $P \leq 0.01$, ESMS= Epilepsy Self-Management Scale.
P value= comparison between study and control groups, *P value 1*= comparison between pre and post-test1 for each group.

Table (7) reveals that there were no statistically significant differences in mean scores of self-management between study and control groups before program implementation except for information and safety management which were 9.3 ± 1.62 , 11.96 ± 4.09 (P-value 0.002) and 22.33 ± 6.71 , 27.86 ± 6.78 (P-value 0.002) for study and control groups respectively. there were significant differences in mean scores of self-management in study group after implementation of self-care enhancement program; mean information management 9.3 ± 1.62 , 22.63 ± 5.12 , (P=0.000) while, mean lifestyle management 14.13 ± 4.41 , 21.93 ± 3.27 , where, mean medication management 40.7 ± 9.09 , 49.13 ± 2.08 , whereas, mean safety management 22.33 ± 6.71 , 35.93 ± 3.58 , and mean seizure management 15.5 ± 6.46 , 24.5 ± 3.39 pre and post-test respectively. Regarding control group, no significant differences were found before and after self-care enhancement program implementation; mean scores of information management 11.96 ± 4.09 , 12.23 ± 4.05 , lifestyle management 15.2 ± 3.75 , 15.9 ± 3.75 , medication management 43 ± 8.46 , 43.6 ± 8.53 , safety management 27.86 ± 6.78 , 27.47 ± 6.58 and seizure management 17 ± 5.6 , 17.63 ± 5.55 pre and post-test respectively

Figure (1) Total Self-Management of Study and Control Groups Pre and Post Self-Care Enhancement Program Implementation (N=60):

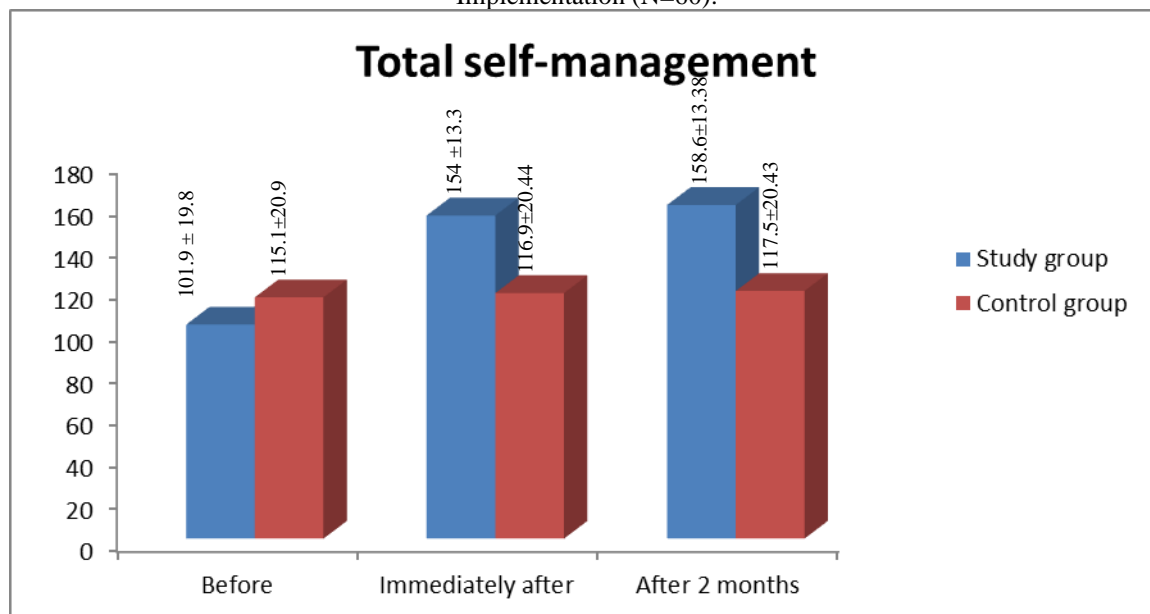


Figure (1) represents that self-management for patient with epilepsy was enhanced after implementing self-care enhancement program as there were significant differences in mean scores of self-management in study group; 101.9 ± 19.8 (pretest), 154 ± 13.28 (posttest) and 158.6 ± 13.38 after 2 months with P-value 0.000. While, no significant differences found in control group before and after self-care enhancement program

implementation as mean scores were 115.1 ± 20.9 (pretest), 116.9 ± 20.44 (posttest), and 117.5 ± 20.43 after 2 months (P-value .09).

Table (8) Level of Practicing Self-Management of Study and Control Groups as Measured by ESMS Pre and Post Self-Care Enhancement Program Implementation (N=60):

Level of Selfmanagement	Study						Control						P value
	Low		Moderate		High		Low		Moderate		High		
	No	%	No	%	No	%	No	%	No	%	No	%	
Pre-test	21	70%	9	30%	0	0%	13	43.3%	16	53.3%	1	3.3%	.089
Post-test1	1	3.3%	0	0%	29	96.7%	11	36.7%	18	60%	1	3.3%	.000**
Post-test2	1	3.3%	0	0%	29	96.7%	11	36.7%	18	60%	1	3.3%	.000**

*Chi-Square test, ** highly significant $P \leq 0.01$*

ESMS= Epilepsy Self-Management Scale.

Table (8) displays that there were statistically significant differences in level of self-management between study and control groups before and after implementation of self-care enhancement program ($P = .000$). 96.7% of study group had high level of self-management after program application. While, there was no significant difference in level of in control group as 3.3% had good level of self-management post program implementation.

V. Discussion

The aim of the current study was to investigate the effect of self-care enhancement program on self management among patients with epilepsy. In order to support the current research hypotheses; the following discussion presented in the subsequent manner: the first part discussed patient knowledge and EKS related data which verify the first hypothesis, while second part focused on self-management among patient with epilepsy which support the second hypothesis of the study.

First part discussed patient knowledge and EKS related data:

As regards patient knowledge, the majority of the patients in the study group had a poor level of knowledge before self-care enhancement program implementation with mean knowledge score 7.0 ± 2.7 . The investigator believed that unawareness of general information about epilepsy might return to their educational level, being discharged without appropriate education, absence of medical follow-up, living in rural areas where poverty and lack of care are predominant, could hamper epileptic patients from having sufficient knowledge. The present study matched the results of Mohammed and Abou Zed (2020) who found that there was a lack of knowledge about epilepsy in the majority of patients. However, after the implementation of the program, the majority of study group had good level of knowledge. Furthermore, patients within study group exhibited higher knowledge mean score (18.7 ± 2.5) than those who do not receive it (10.43 ± 3.84) which indicated that self-care enhancement program led to improvement in patient knowledge.

Assessment of patient knowledge as measured by the epilepsy knowledge scale (EKS) showed that before program implementation, the majority of the study group had a poor level of knowledge with mean score 16.1 ± 4.62 . Though, after the implementation of the program, the majority of study group had good level of knowledge. While, control group did not show significant differences before and after program application as a small percentage had good level of knowledge. Furthermore, the findings of the current study not only revealed significant differences between pre and post epilepsy knowledge scores within study group but also presented significant differences between the study and control groups, signifying that patients significantly improved in their knowledge about epilepsy disease following the program. Patients within study group exhibited higher knowledge mean score (33.03 ± 4.33) than control group (20.63 ± 4.66). This was in accordance with Eshiet, Okontab, and Ukwe (2019) who found that educational intervention improved patients' knowledge and perception of epilepsy.

Second part focused on self-management data:

Information management revealed significant difference before and after program application; mean score 9.3 ± 1.62 (pre) which improved into 22.63 ± 5.12 (post). The investigator highlights the remarkable improvement regarding information management subscale scores as it might return to the effectiveness of the educational program which led to enrichment in the patient daily experience after implementation of self-care enhancement program. Control group presented no significant difference in information mean score 11.96 ± 4.09 (pre) 12.23 ± 4.05 (post) which stressed the impact of the program. The results of the current study were in agreement with the results of a study done by Moursy and Mekky (2015) revealing significant differences between study and control groups immediately after and 2 months post guidelines.

Regards to lifestyle management, there were no significant differences between study and control group before program implementation while, there was a significant difference in the study group 14.13 ± 4.41 (pre), 21.93 ± 3.27 (post) after program implementation. Control group showed no significant difference in lifestyle mean score. These results were in harmony with the results of Rabiei, Lotfizadeh, Karimi, and Masoudi (2022) who found that lifestyle mean scores were improved after the application of self-management educational program.

Medication management showed that there were no significant differences between study and control group before program implementation signifying good medication adherence. The results of the current study were in congruence with the results of Bautista (2017) which found that patients scored higher on questions of medication rather than on questions of lifestyle and information management. The investigator highlighted patients being complied with AEDs might be because they received counseling about medication adherence rather than other aspects of epilepsy management but do not have healthy lifestyle behaviors. However, after program implementation, there was a significant difference in the study group 40.7 ± 9.09 (pre), 49.13 ± 2.08 (post). Similar findings were demonstrated by Hu, et al., (2020) who found that medication adherence mean score was improved in the study group after participating in an epilepsy education program.

Low use of self-management practices regarding safety management was noticed before program application which may be because patients were not familiarized or educated about the importance of safety precautions. Nevertheless, after program application, the findings revealed high use of safety practices. In addition, there was significant difference in safety mean score within the study group 22.33 ± 6.71 (pre), 35.93 ± 3.58 (post) while there was no significant difference in the control group 27.86 ± 6.78 (pre), 27.47 ± 6.58 (post). These results were supported by Rabiei et al. (2022) who reported that safety mean scores were improved post self-management educational program implementation. Concerning seizure management, there was significant difference in seizure mean score within the study group 15.5 ± 6.46 (pre), 24.5 ± 3.39 (post) while there was no significant difference in the control group 17 ± 5.6 (pre), 17.63 ± 5.55 (post).

Regarding level of using self-management, above two-thirds of the patients in the study group had a low level of utilizing self-management practices before applying the program which improved to high level in the majority of patient post implementation. Further, self-management for patient with epilepsy was enhanced after implementing self-care enhancement program as mean ESMS 101.9 ± 19.8 (pre) and 154 ± 13.28 (post) while in the control group, small percentage had good level showing no significant difference as the mean score was almost the same with no improvement pre and post; 115.1 ± 20.9 (pre), and 116.9 ± 20.44 (post)

The results of the current study indicated that self-care enhancement program led to improvement in self-management behaviors of patients with epilepsy. These findings were supported by Li et al. (2021) who found significant differences between pre and post self-management scores in the study group. Similar results were found by Lewinski et al. (2020) who reported that education based-approaches positively impact self-management. Additionally, the results of a study done by Xu and Wang (2023) revealed that health education can effectively improve the self-management behaviors of PWE.

VI. Conclusion

The majority of the patients had insufficient knowledge and low level of self-management practices before joining self-care enhancement program. This underscored the significance of educating on information, lifestyle and safety management. In addition, the program positively influenced enhancing self-management behaviors and knowledge in epileptic patients right after and 2 months post implementation.

VII. Recommendations

1. Integrate educational components into patient care plans and distribute informative materials on epilepsy and self-care practices.
2. Establish public education campaigns to promote healthier self-management practices among epileptic patients.
3. Enhance educational initiatives focusing on aspects like seizure documentation, stress coping, identifying triggers, and safety precautions.
4. Further studies using random sample are needed to validate the existing findings for broader applicability.

References

- [1]. Abd Elnaser, M.G., Abdallah, E.S., Ali, H.H., & Metwally, S.M. (2018). The Effect Of Nursing Intervention Program On Self-Management And Social Support Of Adult Epileptic Patients. *Zagazig Nursing Journal*. 14(2).
- [2]. Ahmed, I., Abera, A., Demeke, T., Terefe, G., Shemsi, S., & Awol, A. (2023). Self-Care Practice And Associated Factors Among Epileptic Patients: A Cross-Sectional Study, Ethiopia. *Pan African Medical Journal*. 44(36).
- [3]. Babaei, K., Khatiban, M., Khazaei, M., Tapak, L., & Shamsaei, F. (2023). Self-Management And Its Predictors In Adult Patients With Epilepsy: A Cross-Sectional Study. *Ethiop J Health Sci*. 33(3):507.
- [4]. Bautista, R.E.D. (2017). Understanding Self-Management Skills Of Persons With Epilepsy. *Epilepsy & Behavior*, 69, 7-11

- [5]. Chan, H.Y., Leenen, L.A., Wijnen, B.F., Van Der Putten, I.M., Evers, S.M., Majoie, M.H., & Van Heugten, C.M. (2020). Zmile, A Multicomponent Selfmanagement Intervention For Adults With Epilepsy: Rationale And Description Of The Intervention. *Clinical Rehabilitation*, 35(5), 629–638. Doi: 10.1177/0269215520975327.
- [6]. Diiorio, C., Escoffery, C., Mccarty, F., Yeager, K., Henry T, Koganti A, Reisinger, E., & Wexler, B. (2008). Evaluation Of Web Ease: An Epilepsy Self-Management Web Site. *Health Education Research*, 24, 185-197. Doi:10.1093/Her/Cyn012
- [7]. Eldesoky, H.A.M., Habiba, A.I.A., & Abouelala, F.M. (2023). Effect Of Structured Educational Package On Self Efficacy And Drug Adherence Among Epileptic Patients. *Ejnsr*. 3(2), 704-725.
- [8]. Eshieta, U., Okontab, J., & Ukwe, C. (2019). The Efficacy Of A Pharmacist Implemented Educational Treatment Programme For People With Epilepsy: A Report Of A Randomised Controlled Trial. *Seizure: European Journal Of Epilepsy* 69, 147–153
- [9]. Faraj, N.K.K., Aljohani, K.M.A., Albalawi, Y.A., Albalawi, A.M., & Hariri, Iam. (2023). The Misconceptions About Epilepsy Disease Within Health Sector Workers In The City Of Tabuk, Saudi Arabia. *Ijmrhs*, 12(8): 1-11.
- [10]. Hosny, H., Al Kattan, M.M, Zaki, M.A., Ramzy, G.M., Abo Al-Azayem, S., & Magdy, R. (2023). Seizure Control During Pregnancy And Postpartum Period In Women With Epilepsy: An Egyptian Prospective Study. *Bmc Neurology*, 23:54.
- [11]. Hu, M., Zhang, C., Xiao, X., Guo, J., & Sun, H. (2020). Effect Of Intensive Self-Management Education On Seizure Frequency And Quality Of Life In Epilepsy Patients With Prodromes Or Precipitating Factors. *Seizure: European Journal Of Epilepsy*, (78), 38–42. Doi: <https://doi.org/10.1016/j.seizure.2020.03.003>
- [12]. Lewinski, A.A., Shapiro, A., Gierisch, J.M., Goldstein, K.M., Blalock, D.V., Luedke, M.W., Gordon, A.M., Bosworth, H.B., Drake, C., Lewis, J.D., Sinha, S.R., Husain, A.M., Tran, T.T., Van Noord, M.G., & Williams, J.W. (2020). Barriers And Facilitators To Implementation Of Epilepsy Self-Management Programs: A Systematic Review Using Qualitative Evidence Synthesis Methods. *Systematic Reviews*, 9(1). Doi: 10.1186/S13643-020-01322-9.
- [13]. Li, C., Bi, O., Hu, B., & Sun, L. (2021). Effect Of Self-Management Interventions For Adults With Epilepsy: A Systematic Review And Meta-Analysis. *Rved. Ann Palliat Med*, 10(12), 12086-12094. <https://dx.doi.org/10.21037>
- [14]. May, T.W. & Pfäfflin, M. (2002). The Efficacy Of An Educational Treatment Program For Patients With Epilepsy (Moses): Results Of A Controlled, Randomized Study. *Epilepsia*, 43(5), 539–549. Doi: 10.1046/J.1528-1157.2002.23801.X.
- [15]. Mohammed, A.A., & Abou Zed, S.A.F. (2020). Effect Of Educational Program On Frequency Of Epileptic Attacks And Self-Efficacy For Adolescents. *Egyptian Journal Of Health Care*, 11(2).
- [16]. Moursy, A.M.E., & Mekky, G.F. (2015). Effect Of Self Management Guidelines For Adult Patients With Epilepsy On Their Health Practices. *Life Sci J*, 12(4), 64-77.
- [17]. Pandey, D.K., Dasgupta, R., Levy, J., Wang, H., Serafini, A, Habibi, M.,...Loeb, J.A. (2020). Enhancing Epilepsy Self-Management And Quality Of Life For Adults With Epilepsy With Varying Social And Educational Backgrounds Using Pause To Learn Your Epilepsy. *Epilepsy & Behavior*, V(111), Doi:<https://doi.org/10.1016/j.yebeh.2020.107228>
- [18]. Rabiei, L., Lotfizadeh, M., Karimi, Z., & Masoudi, R. (2022). The Effects Of Self-Management Education And Support On Self-Efficacy, Self-Esteem, And Quality Of Life Among Patients With Epilepsy. *Seizure: European Journal Of Epilepsy*. 102.
- [19]. Ridsdale, L., Mckinlay, A., Wojewodka, G., Robinson, E.J., Mosweu, I., Feehan, S.J.,...Goldstein, L.H. (2018). Self-Management Education For Adults With Poorly Controlled Epilepsy [Smile (Uk)]: A Randomised Controlled Trial. *Health Technol Assess*, 22(21). <https://doi.org/10.3310/Hta22210>
- [20]. Rostad, S.E., & Ghearing, G.R. (2022). Self-Care And Epilepsy. *Curr Treat Options Neuro*, 24(1):641-654, Doi 10.1007/S11940-022-00743-2
- [21]. Smith, G., Plueger, M., & Wagner, J.L. (2019). Evidence-Based Epilepsy Care Assessment, Treatment, And Self-Management. *American Nurse Today*, 14(7).
- [22]. Trinkka, E., Rainer, L.J., Granbichler, C.A., Zimmermann, G., & Leitinger, M. (2023). Mortality, And Life Expectancy In Epilepsy And Status Epilepticus—Current Trends And Future Aspects. *Front. Epidemiol*, Volume 3, <https://doi.org/10.3389/Fepid.2023.1081757>
- [23]. Xu, H., Wang, J. (2023). An Information-Motivation-Behavioral Skills Model-Based Intervention For Patients With Epilepsy. *Epilepsy Behav*.147:109408. Doi: 10.1016/J.Yebeh.2023.109408