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Research Article

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Relationship Between Demographic Characteristics and Application of Instructional Program Concerning Self-Management Strategies of Patients with Epilepsy

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Abstract

Objective(s): *The current study aims to determine the influence of demographic characteristics of patients with epilepsy on the application of instruction program for self-management strategies.*

Methodology: *The study utilized a quasi-experimental (non-randomized) design at Al-Najaf Al-Ashraf City, within the Al-Najaf Al-Ashraf Health Directorate, specifically at The Middle Euphrates Neurosciences Center, from August 13, 2023, to November 13, 2023. The purposive sample comprised 87 patients, divided into two groups: the study group, consisting of 44 patients exposed to the instructional program, and the control group, consisting of 43 patients not exposed to the program. The research tools included a demographic questionnaire and an Epilepsy Self-Management Scale (ESMS) from Dr. Colleen Dilorio, which includes 38 questions measuring 5 subscales related to epilepsy self-management for people with epilepsy. Statistical calculations were performed using SPSS software version 22.*

Results: *The study results showed no statistically significant differences between demographic characteristics and the application of instruction program for self-management strategies (P>0.05). However, there were statistically significant differences between the patient's marital status and application of instruction program for safety and information self-management strategies, with a small size effect.*

Conclusions: *The study concluded that there are no statistically significant differences between demographic characteristics and the application of instruction program for self-management strategies overall.*

Recommendations: *The study recommended that the Ministry of Health implement a self-management program for patients with epilepsy.*

Keywords: Relationship, Demographic Characteristics, Self-Management Strategies, Instructional Program, Epilepsy.

Introduction

About one-third of people worldwide suffer from several chronic illnesses [1]. In the United States, four out of ten peoples have two or more chronic diseases, and six out of ten adults have one or more. An estimated 35 million of the 58 million fatalities that occurred in 2005 were predicted to be caused by chronic illnesses [2]. The most common chronic illnesses include diabetes [3-8], cancer including breast cancer [9,10], arthritis [11], stroke (12), hypertension [13-15], asthma [16], heart diseases [17-19], and epilepsy [20].

So, approximately 50 million individuals globally suffer from epilepsy, making it one of the most prevalent and severe brain disorders. Every year, there are two million new cases of epilepsy worldwide, and the mortality rate for people who have the condition is higher than that of the general population [21]. About 75% of cases begin in childhood, when genetic factors are prevalent. It is the second most common neurological illness, affecting 1% of the population [22]. People of all ages, races, and ethnicities are impacted [23].

Its occurrence is bimodally distributed, with older age groups and children having the highest risk [24]. Almost 80 percent of people with epilepsy reside in low- and middle-income nations. Epilepsy

is stigmatized in many parts of the world, and individuals may not receive treatment for it. A significant treatment gap exists, as over 75% of people with active epilepsy are not receiving treatment; these individuals are primarily found in low- and middle-income nations [25].

The incidence of epilepsy in high-income nations is similar among geographical areas, averaging 50 cases (range: 40–70) per 100,000 people, with one in infants under a year old and one in adults over fifty. It is bimodally distributed, with the incidence rising with age in older adults (>50 years), reaching its maximum in individuals over 70 years of age. Unknown causes contribute to the incidence's greater rate in low-income nations compared to [26]. There was a step increase in the prevalence of epilepsy in Iraq. It had increased since 2008, afflicting men and women at a comparable rate, with a higher incidence in the over-45 age range. Accordingly, after 2003, the prevalence of epilepsy was 2.52 per 1000 people [27]. Comparing this to the Kingdom of Saudi Arabia (6.54/1000) and Egypt (5.1/1000), it was significantly lower [28].

Patients with epilepsy still experience repeated seizures. Many individuals with epilepsy lack sufficient understanding of their condition and how to treat it. Since epilepsy is a chronic condition, individuals must receive adequate information at various points in their lives [29]. Additionally, patients with epilepsy require a variety of educational interventions in addition to adopting numerous self-management strategies to manage their condition, and can be helpful in increasing patients' understanding of their illness [30,31]. Therefore, the current study aims to determine the influence of demographic characteristics of patients with epilepsy on the application of instruction program for self-management strategies.

Methodology

Design of the study: To achieve the study goals A quasi-experimental design was employed.

Ethical Consideration: The ethical considerations are one of the fundamental concepts for respecting the participant's beliefs and dignity prior to data collection. The Ethical Committee of the Nursing College, University of Baghdad, gave its official clearance.

The researcher promises to keep the personal information of the study volunteers private and to utilize the data in a manner that is not harmful to them. The study instrument was designed to ensure that the subjects' right to privacy and data confidentiality were respected. The subjects' participation was entirely voluntary. They were given the opportunity to review the study questionnaire and study steps to ensure that they were aware of all pertinent information.

The Setting of the Study: The study was conducted at the Middle Euphrates Neurosciences Center. The researcher chose this center because it is the only specialized center for neurological diseases in Al-Najaf Al Ashraf that receives patients with neurological diseases referred by clinic directors, health centers, and hospitals after confirming their diagnosis of epilepsy. A large number of epilepsy patients visit this center, facilitating the completion of data collection within a limited time period. Additionally, the availability of physical requirements such as classrooms, chairs, and tables during the implementation of the Instruction Program was ensured.

Population, Sample, and Sampling: A non-probability (purposive) sample was selected to obtain representative and accurate data. Out of the 97 epileptic patients at Middle Euphrates Neurosciences Center according to sample size calculation, 10 patients were excluded for the pilot study. Therefore, the total number of patients participating in the study was 87 in order to obtain accurate data and a representative sample. The sample was divided into two groups, with 43 patients assigned to the control group and 44 patients to the study group.

Inclusion Criteria: All Patients Diagnosed with generalized epilepsy for at least 1 year who come to the Middle Euphrates Neurosciences Center and who have agreed to Participate in the study. Patients who experienced seizures during the previous year, patients who receiving antiepileptic drugs, patients who can read and write at least.

Exclusion Criteria: Patients with partial seizures and refractory epilepsy, as well as patients with status epilepticus, will be included in the study population. Patients who cannot read or write, as well as those who are unable to communicate, will be excluded from the study. Patients who refuse to participate in the study will also be excluded.

Instrument: The study instrument consists of two parts.
Part One: Demographic Data Form, which includes eleven items: age, sex, educational level, Employment status, marital status, monthly income residencey.
Part Two: The Epilepsy Self-Management Scale (ESMS), comprising questions developed by Dr. Colleen Dilorio [32], was used for data collection to evaluate the instruction program for patients with epilepsy.

The questionnaire of patients with epilepsy consisted of [38] items, was administered to both study and control groups. The test was adapted to evaluate the instruction program of patients with epilepsy and contained the following domains.
First domain: medication management (10 items).
Second domain: seizure management (6 items).
Third domain: safety management (8 items).
Fourth domain: information management (8 items).
Fifth domain: lifestyle management (6 items).

The patient is asked to rate how often do these items on the basis of 1-5 points ("never", "rarely ", "sometimes", "most of the time" and "always").

Data Collection: The data collection started on August 13th, 2023, and concluded on November 13th, 2023.

1. A pre-test for both groups (study and control group) regarding the self-management strategies of patients with epilepsy was conducted. The test required approximately 35-45 minutes to complete.
2. All patients in the study group were exposed to the instruction program.
3. A post-test was administered to both groups (study and control group) after the instruction program was implemented for the study group.
4. To prevent the spread of information about the program from the study group to the control group, the researcher conducted the post-test for the control group two weeks before presenting the instructional program."

Statistical Analysis

Before statistical analysis, the pre-test means of Self-Management Strategies and its sub-domains for both the study and control groups are tested for statistically normal distribution using the Kolmogorov-Smirnov Test. This step is essential before analyzing data to determine which statistical methods will be used. The normality results indicate that the data are not normally distributed, thus requiring non-parametric statistics. After preparing the data for statistical analysis, descriptive and inferential statistics are employed using the Statistical Package for the Social Sciences (SPSS), version IBM 22 (See Table1)

Null Hypothesis	Test	Sig.	Decision
The distribution of self-management strategies is normal with the mean 1.71 and standard deviation 0.25	One-Sample Kolmogorov-Smirnov	0.009	Reject the null hypothesis
The distribution of medication management strategies is normal with the mean 1.72 and standard deviation 0.46	One-Sample Kolmogorov-Smirnov	0.002	Reject the null hypothesis
The distribution of seizure management strategies is normal with the mean 1.42 and standard deviation 0.60	One-Sample Kolmogorov-Smirnov	0.001	Reject the null hypothesis
The distribution of safety management strategies is normal with the mean 2.836 and standard deviation 0.63	One-Sample Kolmogorov-Smirnov	0.001	Reject the null hypothesis
The distribution of information management strategies is normal with the mean 1.036 and standard deviation 0.09	One-Sample Kolmogorov-Smirnov	0.001	Reject the null hypothesis
The distribution of lifestyle management strategies is normal with the mean 1.408 and standard deviation 0.37	One-Sample Kolmogorov-Smirnov	0.001	Reject the null hypothesis

Table 1: Show Hypothesis testing Summary for the Studied Domains.

Based on the significant value presented in Table (1), the study results indicate that the null hypothesis is retained in the studied domain. Based on these results the study data are abnormally distributed at a confidence interval (95%). Therefore, non-parametric statistics are the appropriate statistics used in data analysis in the present study.

Result

Demographic Data	Rating and Intervals	Statistics	Groups	
			Study	Control
Sex	Male	Freq	22	26
		%	50 %	60.5%
	Female	Freq	22	17
		%	50.0%	39.5%
Age	18-24	Freq	9	13
		%	20.5%	30.2%
	25-29	Freq	7	5
		%	15.9%	11.8%

	30-34	Freq	7	4
		%	15.9%	9.3%
	35-39	Freq	5	3
		%	11.4%	7.0%
	40-44	Freq	5	7
		%	11.4%	16.3%
	45-49	Freq	7	5
		%	15.9%	11.6
	+50	Freq	4	6
		%	9.1%	14.0%
Level of Education	Read and Write	Freq	12	6
		%	27.30%	14.00%
	Primary School	Freq	7	10
		%	15.90%	23.30%
	Intermediate School	Freq	9	9
		%	20.50%	20.90%
	Secondary School	Freq	11	10
		%	25.00%	23.30%
	Diploma	Freq	2	5
		%	4.50%	11.60%
	Bachelor	Freq	3	3
		%	6.80%	7.20%
Employment status	Yes	Freq	7	7
		%	15.9%	16.3%
	No	Freq	37	36
		%	84.1%	83.7%
If yes	Governmental Employee	Freq	1	6
		%	14.3%	85.7%
	Private Sectors Employee	Freq	1	1
		%	14.3%	14.3%
	Health Sectors Employee	Freq	5	0
		%	71.4%	0.0%
If no	Free Business	Freq	9	10
		%	24.3%	27.8%
	Un Employee	Freq	10	7
		%	27.0%	19.4%
	Student	Freq	3	7
		%	8.1%	19.4%
	Retired	Freq	0	1
		%	0.0%	2.8%
	Housewife	Freq	15	11
		%	40.5%	30.6%
Marital Status	Single	Freq	22	25
		%	50.0%	58.1%

	Married	Freq	13	13
		%	29.5%	30.2%
	Divorced	Freq	4	3
		%	9.1%	7.0%
	Widowed	Freq	1	1
		%	2.3%	2.3%
	Separated	Freq	4	1
		%	9.1%	2.3%
Financial Status / IQD	Less than 300,000	Freq	25	10
		%	56.8%	23.3%
	300,000-600,000	Freq	11	15
		%	25.0%	34.9%
	601,000-900,000	Freq	7	11
		%	15.9%	25.6%
	901,000-1,200,000	Freq	1	7
		%	2.3%	16.3%
Residency	Rural	Freq	20	15
		%	45.5%	34.9%
	Urban	Freq	24	28
		%	54.5%	65.1%

Freq.: Frequency; %: Percentage.

Table 2: Distribution of the Study and Control Groups according to Demographic Data. n (44 for the Study Group) and (43 for the Control Group).

Table 2 reveals that there is an equal percentage of participants in study groups (50%) for both males and females, but the highest percentage is males (60.5%) in the control group. Regarding their age, the majority of both study and control groups fall within the age group of 18-24 years old. According to the level of education, a high proportion of the study sample indicated the ability to read and write in the study group (27.30%), whereas in the control group, the highest percentage of samples had graduated from primary and secondary school (23.30%).

Concerning employment status, the highest percentage of the sample in the study group (84%) and the control group (83%) answered 'no'. Additionally, the highest percentage of those who answered 'yes' (71.4%) were health sector employees in the study group, while the highest percentage (85%) were government employees in the control group. Moreover, the highest percentage of participants who answered 'no' were housewives in both the study group (40.5%) and the control group (30.6%)."

In regard to marital status, the table shows that 50% of the sample in the study group and 58% of the sample in the control group were single. Concerning financial status, the results show that the majority of the study group (56%) earned less than 300,000, while 34% of the sample in the control group earned between 300,000 and 600,000. Furthermore, the residency of 54.5% of the study group and 65.1% of the control group was urban.

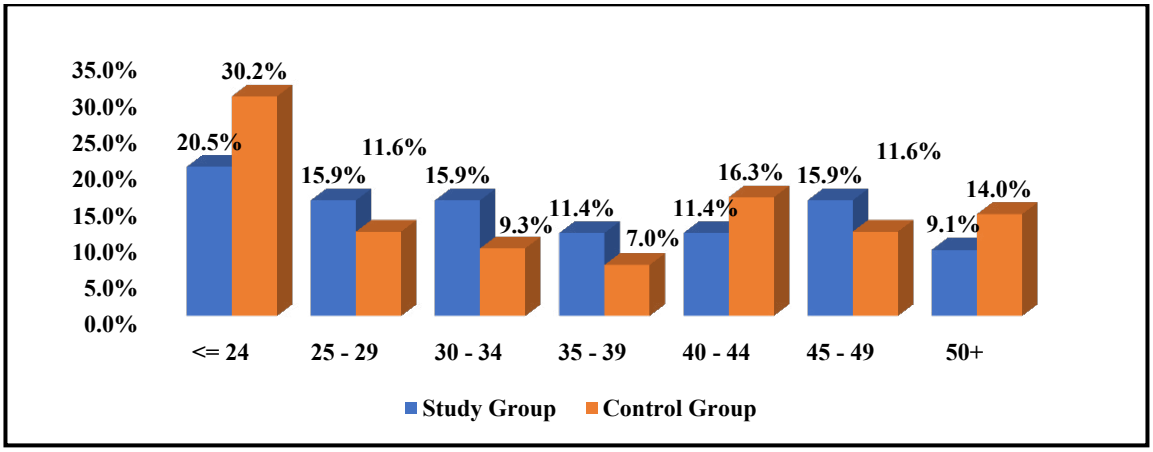

Figure 1: Distribution of the Study Participants According to their Age Groups with a Statistical Mean (35.43) for the Study Group Participants and (35.23) for the Control Group Participants.

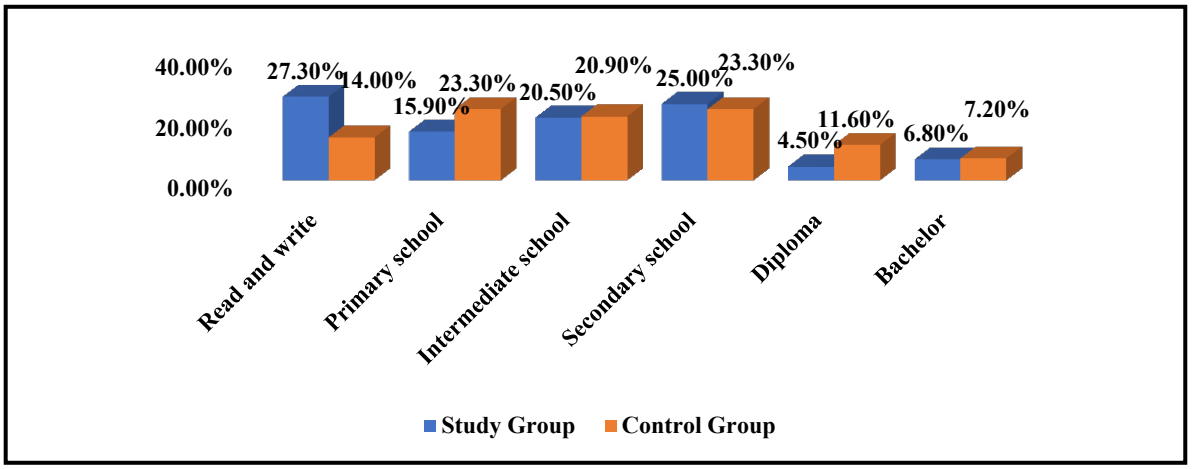

Figure 2: Distribution of the Study Participants According to their Educational Levels.

Demographic Data	Statistics	Medication Management Strategies	Seizure Management Strategies	Safety Management Strategies	Information Management Strategies	Lifestyle Management Strategies	Overall Patients' Self-Management Strategies
Sex	Mann-Whitney U	203.5	188.0	231.0	231.0	196.0	233.0
	Wilcoxon W	456.5	441.0	484.0	484.0	449.0	486.0
	Z	-1.0	-1.7	-1.0	-1.0	-1.1	-0.2
	Asymp. Sig. (2-tailed)	0.3	0.1	0.3	0.3	0.3	0.8
Occupation/ employee	Mann-Whitney U	125.5	120	126	126	117	126
	Wilcoxon W	153.5	148	829	829	145	154
	Z	-.137	-.402	-.435	-.435	-.418	-.114
	Asymp. Sig. (2-tailed)	.891	.688	.664	.664	.676	.909
Residency	Mann-Whitney U	177.5	202.0	230.0	228.0	183.0	237.5

	Wilcoxon W	387.5	412.0	530.0	438.0	483.0	447.5
	Z	-1.6	-1.2	-0.9	-1.1	-1.4	-0.1
	Asymp. Sig. (2-tailed)	0.1	0.2	0.4	0.3	0.2	1.0

Asymp. Sig. (2-tailed): Significant between two independent groups.

Table 3: Statistical Difference (Mann-Whitney U Test) in the Study Group Participants' Self-Management Strategies According to Some Demographic Data.

This table indicates that there are no statistically differences between self-management strategies and certain demographic data (p-value greater than 0.05).

Demographic Data	Kruskal Wallis Test	Medication Management Strategies	Seizure Management Strategies	Safety Management Strategies	Information Management Strategies	Lifestyle Management Strategies	Overall Patients' Self-Management Strategies
Age / years	Chi-Square	5.428	6.761	7.800	7.800	4.343	3.932
	d.f.	6	6	6	6	6	6
	Asymp. Sig.	.490	.343	.253	.253	.630	.686
Educational levels	Chi-Square	9.598	3.134	3.889	3.000	3.917	6.576
	d.f.	5	5	5	5	5	5
	Asymp. Sig.	.087	.679	.566	.700	.561	.254
Occupation / employee	Chi-Square	2.472	2.640	.000	.000	2.333	2.541
	d.f.	2	2	2	2	2	2
	Asymp. Sig.	.291	.267	1.000	1.000	.311	.281
Occupation / not employee	Chi-Square	5.928	6.884	1.467	2.700	.805	2.380
	d.f.	3	3	3	3	3	3
	Asymp. Sig.	.115	.076	.690	.440	.848	.497
Marital Status	Chi-Square	6.066	.554	10.000	10.000	7.020	5.912
	d.f.	4	4	4	4	4	4
	Asymp. Sig.	.194	.968'	.040	.040	.135	.206
Financial Status	Chi-Square	6.928	1.075	5.286	.760	.153	1.377
	d.f.	3	3	3	3	3	3
	Asymp. Sig.	.074	.783	.152	.859	.985	.711

Asymp. Sig.: Significant among three or more independent groups.

Table 4: Statistical Difference (Kruskal Wallis Test) in the Study Group Participants' Self-Management Strategies According to some Demographic and Clinical Data.

Table 4 indicates that there are no statistically differences between all subdomains of self-management strategies and certain demographic and clinical data (p-value greater than 0.05), except for marital status, where there is a statistically differences between safety and information management strategies (p-value less than 0.05).

Analysis Methods	Medication Management Strategies	Seizure Management Strategies	Safety Management Strategies	Information Management Strategies	Lifestyle Management Strategies	Overall Patients' Self-Management Strategies
Eta	.413	.113	.482	.482	.408	.366
Eta square	.171	.013	.233	.233	.166	.134

Eta and Eta Square to investigate the size of effect (ranging from 0 to 1 and its associated positively with the size of effect).

Table 5: Statistical Difference in the Study Group Participants' Self-Management Strategies According to their Marital Status Using the Eta and Eta Square Analysis.

Table 5 presents the effect size in the self-management strategies of study group participants based on their marital status, indicating a small effect between self-management strategies and marital status (Eta and Eta squared values ranging from 0.1 to 0.4).

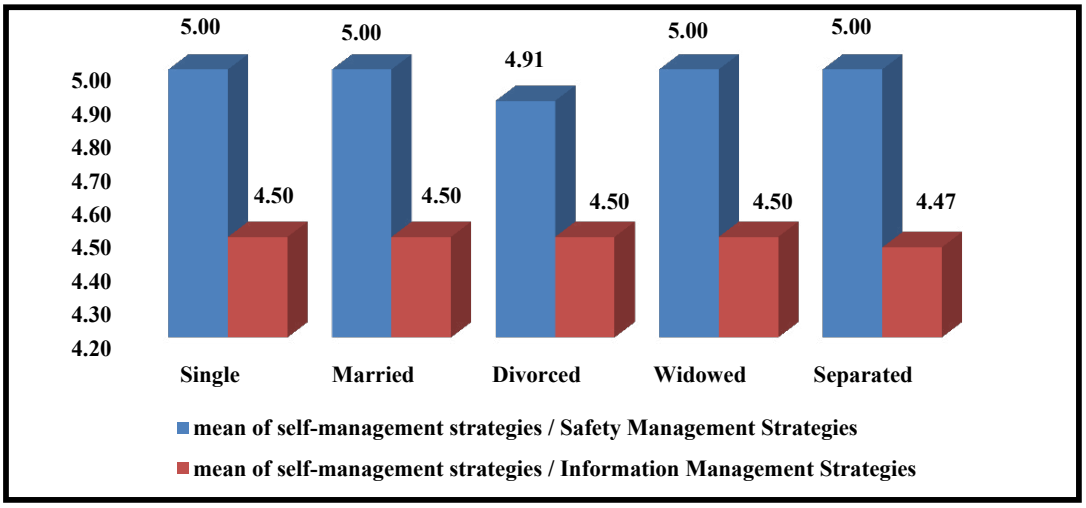

Figure 3: Distribution of the Self-Management Strategies (Safety Management and Information Management Strategies) of the Study Group Participants according to their Marital Status.

Discussion

According to the study findings in Table 2, and Figure 1, and 2 regarding the sex of the study subjects, an equal percentage of participants were observed in the study group for both males and females. However, a higher percentage of participants in the control group were males, which is consistent with studies indicating that both females and males are equally represented in study groups, while males are dominant in control groups [33]. These results disagree with studies showing that the majority of the study sample was male in both groups [34, 35].

The researcher confirms that the results can be interpreted based on the nature of the patients, with males comprising the majority of patients with epilepsy. Regarding their age, the majority of both study and control groups fall within the age group of 18-24 years old. This finding aligns with a study indicating that the majority of study subjects were between 18-25 years old [33]. Additionally, another study stated that the majority of the sample in both study and control groups were between 18-27 years old [36].

According to the level of education, a high proportion of the study sample indicated the ability to read and write in the study group, whereas in the control group, the highest percentage of samples had graduated from primary and secondary school. Many previous studies have concurred with these findings, indicating that the majority of study subjects in the study group possess reading and writing skills, while those in the control group have completed primary and secondary education [33,34,37].

Concerning employment status, the results of the present study revealed that the majority of patients in both study and control groups are unemployed. This finding is supported by previous studies, which indicated a higher percentage of unemployment [38,39].

Regarding the unemployed subgroup, the results of the present study revealed that the majority of patients in both study and control groups are housewives. This result is supported by a study indicating a higher percentage of housewives [38]. Regarding marital status, the present study shows that both study and control groups consist mostly of single individuals. This result agrees with another study indicating that the majority of patients in both study and control groups were single [40].

Regarding financial status, the majority of the sample in the study group earns less than 300,000 IQD, while in the control group, the majority earns between 300,000 and 600,000 IQD. This result is supported by a study indicating a higher percentage of low and moderate incomes [38]. Another study found that epilepsy increases with decreased patient income [41].

Regarding residency, the present study shows that both study and control groups reside in urban areas. This result is supported by a study that found the majority of patients in both study and control groups lived in urban areas [34]. However, other studies disagree with this result, showing that the majority of epileptic patients resided in rural areas [31,42].

The results revealed in Tables 3 and 4 indicate that there are no statistically differences between self-management strategies and demographic data (age, sex, level of education, employment status, financial status, residency).

This result supported with the findings of study that shown no statistically significant correlation between the participants' demographic data and their self-management strategies [31]. while other study indicated that the only factors associated with greater information management, seizure control, and lifestyle management were age [43].

Furthermore, the results in table 5 demonstrated a statistically differences between safety and information management strategies and marital status. This finding is supported by studies that have found a substantial correlation between self-management and marital status [37,44].

To confirm the size of the effect between safety and information management strategies and marital status, the researcher conducted an Eta and Eta squared test to investigate the actual effect, as a small effect was found between self-management strategies and marital status showed in Table 8.

Also, in Figure 3, this study found that the mean of safety and information management strategies was approximately equal across all items of marital status [45, 46].

Conclusion

From the study results and discussion, we can conclude that there is no significant relationship between demographic characteristics and application of instruction program for self-management strategies as overall at a p-value greater than 0.05. However, a significant relationship was found between patients' marital status and safety and information management strategies, albeit with a small effect.

Recommendations

The study recommends that larger sample sizes be utilized in future studies to enhance the robustness of findings. Additionally, there should be efforts to motivate and inspire epilepsy patients to actively engage in health education programs focusing on self-management strategies. Lastly, recommendations are made to the Ministry of Health to implement self-management programs tailored for patients with epilepsy.

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