ORIGINAL ARTICLE

Determination of self-efficacy of patients diagnosed with epilepsy

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Abstract

This study was conducted to determine the self-efficacy of patients diagnosed with epilepsy. This descriptive-correlational study was conducted between November-December 2020 with individuals diagnosed with epilepsy and living in the eastern province of Turkey. The sample of the study consisted of individuals diagnosed with epilepsy (101 persons) who were living in this province and agreed to participate in the study. According to the findings obtained from the study, the Epilepsy Self-efficacy Scale Total Mean Score of the individuals was found to be 226.38 ± 45.23. The scale does not have a cut-off point, and the total score that can be obtained from the scale varies between 0 and 310. An increase in the score obtained indicates high self-efficacy. It can be said that the self-efficacy levels of the sampled individuals are also high. It was found that there was a negative correlation between the first diagnosis age and the seizure management sub-dimension, and a positive statistically significant correlation between the age of the individuals and the age of the first seizure. The Epilepsy Self-efficacy Scale Total Mean Score of the individuals was found to be statistically high in those who received information regarding the disorder and used their drug/drugs regularly. It is suggested to conduct the study in larger groups. It is recommended to carry out studies to increase epilepsy self-efficacy.

Keywords Epilepsy · Patient · Self-efficacy

Introduction

Epilepsy is the most common chronic disorder among neurological system disorders. It affects approximately 50 million people worldwide and can be seen at all ages [1]. Epilepsy is a disorder that is characterized by recurrent seizures, adversely affects the quality of life, and requires regular use of medications, regular doctor check-ups, and patients' preparedness for medical emergencies [2]. Patients with epilepsy experience difficulties in finding a job, decrease in self-esteem, social isolation, stigma, and problems related to their married lives [3]. In addition, epileptic seizures affect the physical, psychological, and social well-being of patients by causing physical trauma, asphyxia, and burning [4]. These situations force individuals to make important lifestyle changes to reduce the possibility and frequency of seizures. Patients with epilepsy should take their medications regularly, avoid situations that trigger seizures, adequately and regularly eat, rest, and control stress. These duties that need to be fulfilled are called self-management behaviors [5].

The key to exhibiting self-management behaviors and achieving desired objectives is the concept of self-efficacy. Self-efficacy is an important component of health-promoting behaviors in chronic patients and an important determinant in the initiation and maintenance of positive health behaviors. Increasing the self-efficacy perception of individuals helps them exhibit positive health behaviors [6].

Self-efficacy beliefs of individuals, who have to live with a health problem that requires constant care and treatment, play a key role in adapting to the disorder, coping with the problems caused by the disorder more easily, determining the activities that they can do and avoid during the disorder process, and learning new skills for the management of the disorder [7, 8].

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Self-efficacy beliefs affect individuals' goals and expectations they determine health behaviors and shape the results. The perceived self-efficacy becomes stronger, when individuals set higher goals for themselves, and this strengthens their commitment to them. Individuals with high self-efficacy expect their efforts to be positive, while individuals with low self-efficacy expect negative results. Individuals with high self-efficacy make more efforts to change their health-related behaviors and struggle for a long time when they encounter obstacles [9]. Individuals with high self-efficacy perception exhibit more healthy lifestyle behaviors [10]. Individuals with low self-efficacy do not want to or make an effort to change their behaviors related to their health. When they make an attempt, if it does not result quickly, they easily give up and feel vulnerable to disorders [9, 11]. In a study by Gramstad et al., it was reported that adult patients with epilepsy with strong self-efficacy are more effective in seizure management, healthier mentally, and more successful in their social relationships. [12].

Measurement of self-efficacy can help to identify patients with low perceived self-efficacy. Self-efficacy measurements can be highly effective in health-supporting interventions [13]. Although there are studies conducted to determine the self-efficacy levels of individuals with chronic disorders in the literature, this study was conducted because of the limited number of studies conducted to determine the self-efficacy levels of individuals diagnosed with epilepsy and to shed light on the literature.

Methods

Study design

This descriptive study was conducted between November and December 2020 with individuals diagnosed with epilepsy in a regional training and research hospital located in an eastern province of Turkey. The individuals included in the study were selected with the random sampling method. Among the epilepsy patients who applied to the hospital between the dates of our research, those who did not have time (*n*: 13), who did not feel well (*n*: 12), and did not want to volunteer (*n*: 9) were not included in the study.

In the power analysis, the required sample size was calculated as 15 people at a 95% confidence level and 5% confidence interval. One hundred one people with epilepsy who applied to the hospital between the specified dates and agreed to participate in our study were included.

Data collection

An Introductory Information and Epilepsy Self-efficacy Scale (ESES) were used in the collection of study data. This data of the study was collected November-December 2020 with individuals diagnosed with epilepsy and living in the eastern province of Turkey in the neurology service of Agri Regional Training and Research Hospital and collected after a sufficient period of time.

The researcher explained the purpose of the research to the respondents and obtained written consent from the respondents. The researchers prepared form and administered to those individuals who agreed to participate in the research. The objective of the study was explained and questionnaires were distributed to those, who voluntarily accepted to participate in the study

Data collection tools

Introductory Information Form It consisted of the questions created by the researchers and included the introductory characteristics of the individuals.

Epilepsy Self-efficacy Scale (ESES) Epilepsy Self-efficacy Scale is a 33-item scale that measures the different aspects of efficacy in the self-management of epilepsy. Items are rated on an 11-point Likert rating scale, ranging from 0, I cannot do at all, to 10, sure I can do. Items for the scale were developed based on the construct of self-efficacy as defined by Bandura (1986) [14]. The original set of items was reviewed by a group of physicians, nurses, and people with epilepsy to assess face validity, and reviewed by experts in self-efficacy, including Bandura, to assess content validity [5]. Cronbach's alpha for samples from two studies ranged from 0.91 to 0.93, and test-retest reliability was 0.81. The self-efficacy scale correlated in the predicted direction with self-management and social support, providing evidence of construct validity [15].

In 2000, eight items were added to the 25-item Epilepsy Self-efficacy Scale to further assess self-efficacy associated with lifestyle issues. In the ESES 2000 Version, the new items are item numbers 3, 6, 10, 14, 17, 22, 27, and 31. The total possible scores for the ESES range from 0 to 330. Higher scores correspond to higher levels of confidence in the ability to manage epilepsy. Cronbach's alpha for a group of 314 participants with the expanded 33-item scale was 0.90 [16].

The validity and reliability study of the scale was conducted by Adadioglu in 2019. [17]. As a result of the factor analysis conducted by Adadioglu [17], items with a factor load below .30 were removed from the scale. These items, 4 (I always know the name of my seizure medications) and item 31 (I always carry my ID with me in case I have a seizure) were removed from the questionnaire [18]. The scale consists of 4 sub-dimensions and is an 11-point Likert scale with 31 items [17]. The highest score to be obtained from the Medical Management Sub-Dimension (12 items) is 120,

the highest score to be obtained from the General Management Sub-Dimension (10 items) is 100, the highest score to be obtained from the Disorder and Medication Management Sub-Dimension (5 items) is 50, and the highest score to be obtained from the Seizure Management Sub-Dimension (4 items) is 40. The total score that can be obtained from the scale varies between 0 and 310 [17]. One of the alternative approaches that can be used due to the wide total score range is to obtain a mean item score. When the mean score is obtained, the total score range is 0–10 [17]. Higher scores in both scoring methods indicate higher self-efficacy in epilepsy self-management [17]. The Cronbach alpha value of the scale was found to be 0.91. [17]. In our study, Cronbach's alpha value was found to be 0.93.

Analysis of the data

The analysis of the data was performed on the computer by using the Statistical Package for the Social Sciences (SPSS-22) statistical software. Frequency, descriptives, percentage, mean, standard deviation, median, explore, and normality plots with tests were used as descriptive statistical methods. The Kolmogorov-Smirnov test was used to test normality distribution with analytical tests. Independent samples t test was used for binary groups. The one-way ANOVA test was used for groups of more than two. Pearson correlation test was used to determine whether there is a linear relationship between the two numerical measurements, the direction and severity of this relationship, if any. In our study ($p < 0.05$), it was accepted as a statistically significant difference.

Ethical principles

Consent was obtained from Agri Ibrahim Cecen University Scientific Research Ethics Committee (Date: 30/11/2020 and Number: 161) and written permission was obtained from the institutions where the study would be conducted. Written permission was obtained from those who wanted to participate in the research by making necessary explanations to the individuals included in the research. The research conforms to the provisions of the Declaration of Helsinki in 1995 (as revised in Brazil 2013). All participants gave informed consent for the research and that their anonymity was preserved and any financial or personal matters that may pose a conflict of interest.

Results

50.5% of the participants were women, 52.5% were single, 32.7% had a bachelor's degree, 28.7% were employed, 52.5% had a moderate economic status, 73.3% lived with their family, 87.1% obtained information regarding the disorder, 64.4% obtained disorder-related information from a physician, 54.5% had a seizure only once a year, 74.3% used their medications regularly, 38.6% used one medication and 38.6% used two medications, 75.2% had a doctor check related to the disorder, 76.2% visited a doctor when they encountered a problem related to their medications, 76.2% did not have an epileptic patient in the family, and 77.2% had a family member supporting them.

In addition, the mean age of the group was detected as 31.20 ± 10.22, first diagnosis age 17.94 ± 10.14, and first seizure age 17.18 ± 9.69 (Table 1).

According to the findings obtained from the study, it was determined that the individuals' Epilepsy Self-efficacy Scale Total Mean Score was 226.38 ± 45.23 while the lowest score was 120.00 and the highest score was 310.00. When the Epilepsy Self-efficacy Scale sub-dimension mean scores were examined, medical management was determined as 96.48 ± 19.08, general management 66.33 ± 16.37, disorder and medication management 34.08 ± 9.32, and seizure management sub-dimension mean score 29.47 ± 8.05 (Table 2).

Epilepsy Self-efficacy Scale Total Mean Score was found to be statistically and significantly higher in singles, those who obtained information about the disorder and regularly used their medication/s ($p < 0.05$) (Table 3).

In the post hoc (Bonferroni) analysis performed to determine which group caused the difference between the Epilepsy Self-efficacy Scale total score mean and marital status, it was determined that the mean score of the widowed was lower than the mean score of both groups (Table 3).

A statistically significant and positive relationship was found between the Epilepsy Self-efficacy Scale Total Mean Score and its sub-dimensions ($p < 0.05$). A negative and statistically significant relationship was found between the first age of diagnosis and seizure management sub-dimension ($p < 0.05$). A positive and statistically significant relationship was detected among the first age of diagnosis, age, and first age of seizure ($p < 0.05$) (Table 4).

Discussion

Self-efficacy beliefs play an important role for individuals with chronic health problems such as epilepsy in terms of gaining new skills to cope with the disorder process and adapting to lifestyle changes [19]. In the literature, although there are studies aimed at determining the self-efficacy levels of individuals with chronic disorders such as acquired immune deficiency syndrome (AIDS) [20], diabetes [21], and fibromyalgia [22], the number of studies conducted to determine the self-efficacy levels of individuals diagnosed with epilepsy is limited. In this section, the findings are discussed in light of the literature.

Table 1 The demographic characteristics of the respondents ($n = 101$)

Variables		n	%
Gender	Female	51	50.5
	Male	50	49.5
Marital status	Single	53	52.5
	Married	40	39.6
	Widow	8	7.9
Educational background	Illiterate	10	9.9
	Primary education	27	26.7
	Secondary education	31	30.7
	Bachelor's degree	33	32.7
Occupation	Employed	29	28.7
	Unemployed	23	22.8
	Housewife	21	20.8
	Student	24	23.8
	Retiree	4	4.0
Economic status	Good	28	27.7
	Moderate	53	52.5
	Poor	20	19.8
Who do you live with?	Alone	27	26.7
	Family	74	73.3
Have you received any information about your disorder so far?	Yes	88	87.1
	No	13	12.9
From whom did you obtain information about the disorder?	Nurse	10	9.9
	Book, magazine, brochure	13	12.9
	Physician	65	64.4
Seizure frequency in the last year	Once a year	55	54.5
	Once or twice a month	24	23.7
	Once or twice every 3 months	22	21.8
Regular use of medication/s	Yes	75	74.3
	No	26	25.7
Number of Medications	1	39	38.6
	2	39	38.6
	3+	23	22.8
Having a doctor check about the disorder	Yes	76	75.2
	No	25	24.8
What do you do if you have a problem with your medication?	I go to doctor	77	76.2
	I stop using the medication	6	5.9
	I continue to use the medication	18	17.8
Is there anyone in your family with epilepsy?	Yes	24	23.8
	No	77	76.2
Is there any member in your family who supports you about your disorder?	Yes	78	77.2
	No	23	22.8
	$\overline{X} \pm$ SD		
Age (year)	31.20 ± 10.22 (min. 12, max. 60)		
First diagnosis age (year)	17.94 ± 10.14 (min. 1, max. 48)		
First seizure age (year)	17.18 ± 9.69 (min. 1, max. 48)		

Table 2 Epilepsy Self-efficacy Scale Total and sub-dimension mean scores

	$\overline{X} \pm$ SD	Min-max
Epilepsy Self-efficacy Scale Total Mean Score	226.38 ± 45.23	120.00–310.00
Medical management sub-dimension	96.48 ± 19.08	55.00–120.00
General management sub-dimension	66.33 ± 16.37	33.00–100.00
Disorder and medication management sub-dimension	34.08 ± 9.32	16.00–50.00
Seizure management sub-dimension	29.47 ± 8.05	11.00–40.00

Table 3 Comparison of individuals' demographic characteristics and Epilepsy Self-efficacy Scale Total Mean Score

Variables		n	$\overline{X} \pm$ SD	Statistics
Gender	Female	51	221.09 ± 43.28	$t = -1.189$
	Male	50	231.78 ± 46.95	$p = 0.237$
Marital status	Single	53	234.58 ± 43.74	**$F = 5.257$**
	Married	40	224.50 ± 45.09	**$p = 0.007$**
	Widow	8	181.50 ± 29.12	
Educational background	Illiterate	10	227.70 ± 58.09	$F = 0.224$
	Primary education	27	230.44 ± 40.41	$p = 0.880$
	Secondary education	31	221.03 ± 45.69	
	Bachelor's degree	33	227.69 ± 45.99	
Occupation	Employed	29	223.68 ± 54.87	$F = 0.526$
	Unemployed	23	233.47 ± 36.15	$p = 0.717$
	Housewife	21	216.66 ± 44.10	
	Student	24	228.87 ± 43.75	
	Retiree	4	241.25 ± 37.48	
Economic Status	Good	28	223.28 ± 39.20	$F = 0.194$
	Moderate	53	229.07 ± 47.19	$p = 0.824$
	Poor	20	223.60 ± 49.45	
Who do you live with?	Alone	27	215.25 ± 41.57	$t = -1.503$
	Family	74	230.44 ± 46.09	$p = 0.136$
Have you received any information about your disorder so far?	Yes	88	230.05 ± 45.37	**$t = 2.161$**
	No	13	201.53 ± 36.80	**$p = 0.033$**
From whom did you obtain information about the disorder?	Nurse	10	212.10 ± 40.18	$F = 1.239$
	Book, magazine, brochure	13	222.76 ± 45.89	$p = 0.295$
	Physician	65	234.27 ± 45.79	
Seizure frequency in the last year	Once a year	55	230.60 ± 45.66	$F = 1.474$
	Once or twice a month	24	230.08 ± 43.31	$p = 0.234$
	Once or twice every 3 months	22	211.81 ± 45.16	
Regular use of medication/s	Yes	75	232.37 ± 44.08	**$t = 2.308$**
	No	26	209.11 ± 44.85	**$p = 0.023$**
Number of medications	1	39	235.46 ± 45.22	$F = 2.280$
	2	39	214.61 ± 45.85	$p = 0.108$
	3+	23	230.95 ± 41.49	
Having a doctor check about the disorder	Yes	76	230.15 ± 42.94	$t = 1.470$
	No	25	214.92 ± 50.78	$p = 0.145$
What do you do if you have a problem with your medication?	I go to doctor	77	231.87 ± 46.66	$F = 2.627$
	I stop using the medication	6	199.66 ± 45.35	$p = 0.077$
	I continue to use the medication	18	211.83 ± 32.89	
Is there anyone in your family with epilepsy?	Yes	24	214.54 ± 40.42	$t = -1.478$
	No	77	230.07 ± 46.25	$p = 0.143$
Is there any member in your family who supports you about your disorder?	Yes	78	228.34 ± 47.83	$t = 0.801$
	No	23	219.73 ± 35.08	$p = 0.425$

According to the findings obtained from the study, the Epilepsy Self-efficacy Scale Total Mean Score was found as 226.38 ± 45.23, the lowest score as 120.00, and the highest score as 310.00, and the highest mean score among the sub-dimensions of the scale was in the medical management dimension (96.48 ± 19.08). The findings are consistent with the literature [19, 23, 24].

According to the findings obtained from the study, Epilepsy Self-efficacy Scale Mean Score was found to be statistically high in singles ($p < 0.05$). There is no study in the literature with a significant difference between marital status and epilepsy self-efficacy. In further analysis, it was determined that the average score of those who were widowed was lower. This result suggests that the individual's self-efficacy decreases due to the deprivation of physical and psychological support from his spouse in the past.

Epilepsy Self-efficacy Scale Mean Score was found to be statistically significantly higher in those who obtained information about the disorder ($p < 0.05$). Individuals with epilepsy need to be informed in order that they can manage seizures, control complications, and cope with the problems brought about by the disorder [25]. The fact that patients with epilepsy have information about epilepsy enables regular intake of medications, increases compliance with

Table 4 Relationship among age, first diagnosis age, first seizure age, total, and sub-dimension mean scores of the Epilepsy Self-efficacy Scale

		(1) Epilepsy Self-efficacy Scale Total Mean Score	(2) Medical management sub-dimension	(3) General management sub-dimension	(4) Disorder and medication management sub-dimension	(5) Seizure management sub-dimension	(6) Age	(7) First diagnosis age	(8) First seizure age
Epilepsy Self-efficacy Scale Total Mean Score (1)	*r*	-							
	p	-							
Medical management sub-dimension (2)	*r*	.871*							
	p	**.000**							
General management sub-dimension (3)	*r*	.872*	.573*						
	p	**.000**	**.000**						
Disorder and medication management sub-dimension (4)	*r*	.756*	.456*	.697*					
	p	**.000**	**.000**	**.000**					
Seizure management sub-dimension (5)	*r*	.902*	.827*	.700*	.589*				
	p	**.000**	**.000**	**.000**	**.000**				
Age (6)	*r*	− .023	− .005	− .020	− .056	− .012			
	p	.821	.961	.846	.580	.907			
First diagnosis age (7)	*r*	− .151	− .151	− .113	− .057	− .198*	.638*		
	p	.131	.133	.261	.570	**.047**	**.000**		
First seizure age (8)	*r*	− .116	− .116	− .070	− .086	− .137	.551*	.917*	
	p	.247	.248	.489	.393	.172	**.000**	**.000**	

the disorder, and reduces the negative effects of stigma and epilepsy [26, 27]. In the literature, there are different studies that have similar findings to our findings [19, 28].

Epilepsy Self-efficacy Scale Mean Score was found to be statistically significantly higher in those using their medications regularly ($p < 0.05$). Regular use of medications reduces the risk of recurrent seizures and prevents hospitalization [29]. Regular use of medications reduces the frequency of seizures in epilepsy, provides better disorder management, and allows individuals to feel confident about themselves. It is an expected situation that their self-efficacy is high thanks to these factors. In the literature, there are studies supporting our findings [4, 19].

A statistically significant negative relationship was found between the first diagnosis age and seizure management sub-dimension ($p < 0.05$). Such a finding has not been encountered in the literature; this situation suggests that, with increasing age, the self-efficacy regarding seizure management decreases depending on the number of seizures, medications, and burnout caused by the struggle with an incurable disorder. On the other hand, it should not be forgotten that individuals who suffer from epilepsy for a longer period of time may be one step ahead in recognizing the disease and seizure attacks and learning to cope with the disease.

A statistically significant positive relationship was found between the first diagnosis age, age, and first seizure age ($p < 0.05$). In the literature, no such finding has been found, and it is thought that this situation increases and decreases due to the fact that the first diagnosis and first seizure age are related with each other. In addition, due to the socio-economic status of the center where the study was conducted, individuals do not participate in regular health screenings, a serious illness such as epilepsy can only be diagnosed after the individual has a seizure and after the need to apply to a health institution arises.

Conclusions

Epilepsy Self-efficacy Scale Total Mean Score of the individuals was found to be statistically high in those who received information regarding the disorder and used their drug/drugs regularly. It is suggested to conduct the study in larger groups. It is recommended to carry out studies to increase epilepsy self-efficacy.

Declarations

Ethical approval This study was approved by the Ethics Committee of Agri Ibrahim Cecen University and conformed to the Helsinki Declaration.

Informed consent All patients signed informed consent forms

Conflict of interest The authors declare no competing interests.

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