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RESEARCH ARTICLE

FEAR OF COVID-19 AND COVID-19 ANXIETY AS PREDICTORS OF ADHERENCE TO TREATMENT IN PATIENTS WITH EPILEPSY

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Abstract

Background: The study aimed to examine fear of COVID-19 and Coronavirus Anxiety as predictors of adherence to treatment in individuals diagnosed with epilepsy during the COVID-19 pandemic.

Method and Material: The study was carried out in a university hospital. The research sample consisted of 154 epilepsy patients. The patient identification form, Coronavirus (Covid-19) Fear Scale, Coronavirus Anxiety Scale, and the Medication Adherence Report Scale (MARS) were used as data collection tools. The data were shown as percentages and mean ± standard deviation (SD), and Pearson/Spearmen correlation and linear regression analyses were used to examine the relationship between the variables.

Results: The results of the analysis demonstrated that the model established for medication adherence in epilepsy patients was significant (F: 12,892, $p < 0.001$). In addition, for medication adherence, COVID-19 anxiety ($\beta = -0.312$), regular drug use ($\beta = 0.242$), seizure frequency ($\beta = -0.234$), and accommodation in the city center ($\beta = -0.173$) were found to be statistically significant predictors ($p < 0.001$). It was found that the variables explained 24% of the total variance.

Conclusions: It should be remembered that infectious diseases such as COVID-19 can reoccur and that it is necessary to be prepared for new contagious diseases likely to occur. In case of the recurrence of infectious diseases such as COVID-19, it is important to conduct interventional/experimental studies on how to increase medication adherence of patients and how to reduce COVID-19 anxiety.

Keywords: Epilepsy, coronavirus, fear, anxiety, medication adherence.

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INTRODUCTION

Epilepsy is a neurological disease characterized by two or more epileptic seizures, manifested by disturbances in consciousness, behavior, affection, motor activity, perception, and sensations due to abnormal bioelectric discharges originating from the cortex.[1] It is predicted that the prevalence of epilepsy is 49 per 100,000 people in high-income countries, and this figure may rise to 139 per 100,000 people in low- and middle-income countries.[2] In studies conducted in various regions of Turkey, epilepsy was reported to be between 5.7-12.2 per 1000 individuals.[3]

For the majority of people with epilepsy, the only treatment option available is antiepileptic drug therapy. They need to take daily antiepileptic drugs for years or throughout their lives.[4] The obvious benefits of antiepileptic drugs and the consequences of non-adherence to treatment may not be apparent immediately. Therefore, patients who skip doses or stop taking antiepileptic drugs without experiencing side effects may erroneously lead to the conclusion that adherence is not essential.[5] Adherence with treatment in the literature is defined as "the behavior of an individual to use drugs at the appropriate dose and time, to comply with the recommendations of health care staff and the diet they suggest and to maintain more positive lifestyle changes".[6] Studies revealed that changing or skipping doses of antiepileptic drugs may cause adverse reactions such as an increase in the likelihood of seizure recurrence.[7,8] In addition to the physical effects of epileptic seizures, epilepsy has important neurobiological, cognitive, and psychosocial consequences.[9] It was confirmed that patients with epilepsy are more likely to have mental health problems such as depression and anxiety than healthy people and even than patients with certain other chronic diseases.[10] Good adherence to treatment and appropriate health education are the basis for the successful management of epilepsy.[3]

The COVID-19 pandemic caused by SARS-CoV2, which affected the whole world, caused inevitable gaps in the care of patients with chronic diseases, including epilepsy, and shook the health systems of all countries. [11,12] Due to the COVID-19 pandemic, activities related to epilepsy care have been reduced to below 10%, and the related priorities were removed. The duration of discharges was shortened, and elective epilepsy surgeries, including vagal nerve stimulator implantations, were canceled. Hospitalizations and electroencephalography (EEG) examinations were limited to emergencies. Outpatient visits for new patients were delayed, and follow-up visits were managed mainly by telehealth. Plans for discontinuing antiepileptic drugs and changes in vagal nerve stimulator settings were ceased. [13,14] In addition, it was seen that depression, anxiety, and stress levels increased as a result of decreased physical activity due to the restrictions of the COVID-19 pandemic.[15] In addition, the COVID-19 crisis causes feelings of loneliness, boredom, anger, and anxiety and poses a threat to the community's mental health.[16] In a study conducted in Malaysia, it was reported that 13.0% of epilepsy patients experienced worsening seizure control, 27.6% experienced anxiety, and 18.8% experienced depression during the COVID-19 process.[17] In another study, it was found that adherence to treatment became difficult, causing seizures or behavioral deterioration due to the cancellation of compulsory medical appointments, difficulty in finding antiepileptic drugs in pharmacies, failure to reach neurologists using telemedicine resources, living in houses without a terrace or a courtyard, experiencing economic problems, loss of regular warning and physical therapy, and seeking medical help in the emergency room only for serious health problems due to fear of COVID-19.[18] The main reasons for this deterioration in seizure control due to the effect of the COVID-19 pandemic were reported to included uncontrolled seizure control before the COVID-19 pandemic, the number of antiepileptic drugs, difficult access to the hospital in emergencies, delayed clinical appointments, insufficient antiepileptic drug supply, self-adjustment of antiepileptic drugs, insufficient sleep, and anxiety.[19-21]

During an infectious disease outbreak, a significant proportion of people tend to experience clinically significant levels of fear and anxiety.[22] The fear of Covid-19 is known as coronaphobia. It is a type of anxiety disorder characterized by excessive fear, worry, and stress related to the COVID-19 pandemic. People with this fear may also avoid situations or activities that they perceive as risky or dangerous, such as going to public places, socializing with others, or traveling.[23, 24] The Fear of COVID-19 Scale has robust psychometric properties. It is reliable and valid in assessing fear of COVID-19 among the general population.[23,

[24] It has been reported that psychological reactions such as anxiety negatively affect the health and well-being of individuals during an infectious disease outbreak.[25] The anxiety of Covid-19 is often related to the potential health consequences of contracting the virus, as well as the economic and social consequences of measures like lockdowns, travel restrictions, and social distancing. People may also be anxious about the rapid spread of the virus and misinformation about the disease. The anxiety of Covid-19 can lead to stress, depression, and other mental health issues.[25, 26, 27] Therefore, the Coronavirus Anxiety Scale was created to help identify those particularly affected by the fear and uncertainty of this pandemic crisis.[26, 27]

In the literature, no study examined how COVID-19 anxiety and fear directly affected adherence to treatment in epilepsy patients. The purpose of this study was to examine fear of COVID-19 and Coronavirus Anxiety as predictors of adherence to treatment in individuals diagnosed with epilepsy during the COVID-19 pandemic. It is thought that this study will make an important contribution to the literature by determining the extent to which fear and anxiety of COVID-19 affect adherence to treatment in epilepsy patients and by guiding future studies to better understand the reasons affecting adherence to treatment.

METHODOLOGY

Study design

This study was conducted using the cross-sectional descriptive research method.

Sample and setting

The study was carried out in the neurology outpatient clinic and neurology service of a university hospital between 1.10.2021 and 1.2.2022. The neurology service consisted of 22 beds. Individuals with neurological diseases such as epilepsy, multiple sclerosis, myasthenia gravis, and cerebrovascular accident receive treatment in the clinic. Five lecturers, two assistant physicians, ten nurses, and a physiotherapist serve in the neurology service. There is also an infusion room in the service, and cortisol, Intravenous Immunoglobulin (IVIG), and Ocrelizumab treatments are provided as outpatient services. In the neurology outpatient clinic, patient follow-up, diagnosis, and treatment services are provided as well. In this study, G*power software, version 3_1, was used for the calculation of the sample size.[19] At the end of the study, according to the post hoc linear regression analysis, the number of predictor variables was eight (Table 3); the effect size was 0.15; the sample size was 154; and the power of the study was .94 when p=0.05. The research population included epilepsy patients followed in the neurology outpatient clinic and neurology service of a university hospital.

Patients were included consecutively from the Outpatient Clinic of the neurology or the neurology service if they were admitted. The patients who met the inclusion criteria for the study were selected using a convenience sampling approach. During the visit, the inclusion and exclusion criteria were verified, and the patient was informed about the study through the patient-information sheet. If the patient agreed to participate, he or she signed the informed consent document. Among 232 screened, 170 met the inclusion criteria, 154 were recruited. The study was carried out with individuals diagnosed with epilepsy who over the age of 18, independence in daily living activities, and absence of major cognitive impairment or active psychiatric disorders, did have hearing, understanding and who wanted to participate in the study voluntarily. These inclusion criteria were chosen to ensure that patients would be able to understand and respond to questions from the study instruments, which were read to the patient. Individuals who did not meet these conditions were considered those who met the exclusion criterion of the study. Exclusion criteria were: presence of a rapidly progressing neurological or medical disorder, history of psychiatric syndromes that could limit participation, and patients not receiving antiepileptic drugs. The purpose of the study was explained to the participants, and their consent for participation was obtained. If the patients agreed to participate in the study, with data collection tool of the questionnaire form was given to the patients, and they were asked to fill it out themselves. For the illiterate patients, the questionnaires were read by the research interviewers or by the relatives of the patients, and the patient was asked to mark the closest answer.

Measurements

The research data were collected using the patient information form developed by the researchers in line with the literature, the Coronavirus Anxiety Scale, the Medication Adherence Report

Scale (MARS), and the Coronavirus (COVID-19) Fear Scale, for which validity-reliability permission was obtained.

Patient Characteristics Form

This form consisted of 28 questions in total about the socio-demographic characteristics of the patients with epilepsy, the characteristics of their diseases, and their adherence to the treatment of their diseases. The form was prepared by the researchers by examining the relevant literature.[5,18,28]

Fear of Coronavirus (COVID-19) Scale (FCV-19S)

The Turkish reliability and validity study of the scale, which was developed by Ahorsu et al. (2020), was conducted by Bakioğlu, Korkmaz, and Ercan (2020). [23, 24] The scale has a single dimension with 7 items. The total score obtained from all the items on the scale reflects the level of fear of Coronavirus (Covid-19) experienced by the individual. The scores that can be obtained from the scale vary between 7 and 35. A high score on the scale means experiencing a high level of fear of the Coronavirus. [23, 24] In the Turkish adaptation study, the Cronbach-Alpha internal consistency coefficient was 0.88. [23]

Coronavirus Anxiety Scale

The Coronavirus Anxiety Scale (CAS), developed by Lee. (2020), is used as a brief mental health screening to identify possible cases of dysfunctional anxiety associated with the COVID-19 crisis. It was brought into Turkish by Evren et al. [26, 27] CAS was rated for each item on a 5-point scale from 0 (never) to 4 (almost every day) based on experience in the past two weeks. A total CAS score of ≥ 9 indicates coronavirus-related dysfunctional anxiety. [26] In the Turkish adaptation study, the Cronbach-Alpha internal consistency coefficient was 0.80. [27]

Medication Adherence Report Scale (MARS)

The scale was developed by Horne and Hankins (2001) to assess medication adherence.[29] It was adapted into Turkish by Temeloglu et al.[30] The participants were asked to indicate the frequency of occurrence of each of the five expressions. The scale was evaluated with a 5-point Likert-type with 5=never, 4=rarely, 3=sometimes, 2=often, and 1=always. The total test score was obtained by summing the scores obtained from the items. Scores on the scale ranged from 5 to 25. An increase in the scores obtained indicated adherence, and a decrease in the scores indicated a lack of adherence.[29, 30] In the Turkish adaptation study, the Cronbach-Alpha internal consistency coefficient was found to be 0.78. [30]

Ethical considerations

In order to carry out the study, ethics approval (2021, Ethics Decision No 19) and written consent (dated 06/08/2021 and numbered 115566) were obtained from the institution where the questionnaires would be applied. In addition, the research permission was also obtained from the Turkish Republic Ministry of Health. Verbal and written consent were obtained from the patients who met the inclusion criteria and agreed to participate in the study. The written consents were obtained with an "Informed Consent Form", which contained information that participation in the study was voluntary, that they would be able to leave the research process at any time, and that their names would be kept confidential.

Statistical analysis

The research data were evaluated using the statistical software SPSS 21 (Statistical Package for the Social Sciences). The data were presented as descriptive statistics, percentages, and mean ± standard deviation (SD). Before the model of the regression analysis was created, Pearson/Spearmen correlation analysis was applied to examine the relationship between medication adherence, which is the dependent variable, and all the independent variables. At the end of the analysis, Stepwise linear regression analysis was applied to the independent variables that were found to have a relationship with the dependent variable. The statistical significance level of the variables in the study was accepted as $p<0.05$.

RESULTS

The introductory characteristics of epilepsy patients are given in Table 1. The mean age of the epilepsy patients was 32.42(±12.34); 55.2% were female, 50.6% were married; 66.9% were living in the city center; 96.8% were living with a family member; 33.1% were literate; 73.4 had an income less than their expenses; and 32.5% of them had chronic diseases other than epilepsy. In addition, the diagnosis period of epilepsy was 8.52 (±7.26); 76.0% went to regular check-up examinations for epilepsy; 92.2% used drugs regularly; 67.5% had seizures; and 42%

had more than one seizure per month. It was revealed that they had seizures and that 46.8% of them used more than two drugs daily for epilepsy. Moreover, the patients' mean medication adherence scale score was 21.62 (±3.64); the mean of COVID 19 anxiety was 1.60 (±3.32); and the mean of fear of coronavirus was 17.97 (±8.05) (Table 1).

The characteristics of the COVID-19 pandemic process in epilepsy patients are given in Table 2. During the COVID-19 process, 58.4% of the patients did not go to regular check-ups for epilepsy; 42.9% had an increased seizure frequency; 71.4% feared having seizures outside; 77.9% feared worsening in their epilepsy disease; 87.7% did not have problems in the supply of medication; 66.2 of them were vaccinated against COVID 19; and 43.5% of them had less fear of coronavirus after being vaccinated (Table 2).

The relationship between the variables associated with the epilepsy patients' adherence to treatment during the COVID-19 period is given in Table 3. In the epilepsy patients, adherence to medication, COVID-19 anxiety score (r= -.344), fear of coronavirus score (r= -.158), disruption to health checks (r=-.234), frequency of seizures (r=-.219), fear of having a seizure outside (r=-.167) and living in the city center (r= -.228) were found to have a negative relationship. On the other hand, a significant positive relationship was found between the mean score of medication adherence and regular drug use (r=.244) in epilepsy patients during the COVID-19 process (p<.05) (Table 3). In addition, the other variables that were not found to have a relationship with the mean score of medication adherence in the epilepsy patients were not included due to lack of space in the table. There was no multicollinearity between the variables.

The variables of COVID-19 anxiety, regular drug use, having health check-ups, seizure frequency, fear of having a seizure outside, and accommodation in the city center or in the district center (table 3), were found to have a relationship with medication adherence in the epilepsy patients during the COVID 19 process, were included in the stepwise regression model. As a result of the analysis, it was found that the model established for medication adherence in epilepsy patients was significant (F: 12,892, p < .001). In addition, for medication adherence, COVID-19 anxiety (β = -.312), regular drug use (β = .242), seizure frequency (β = -.234), and accommodation in the city center (β = -.173) were found to be statistically significant predictors (p < .001). It was seen that the variables explained 24% of the total variance (Table 4).

DISCUSSION

Due to the limitations of the COVID-19 pandemic, the treatment and care process of patients with epilepsy has been adversely affected.[11, 12] Adherence to treatment, which is one of the most important factors determining the success of treatment, especially in chronic diseases such as epilepsy, is a factor which both reduces the cost of treatment and affects the course of the disease. [5, 7, 8] Overall, the study suggests that several factors may influence medication adherence in epilepsy patients during the COVID-19 pandemic, including psychological distress, seizure frequency, and environmental factors. Healthcare providers should take these factors into account when developing treatment plans and providing support to patients with epilepsy during the pandemic.[7, 8, 11, 12] For these reasons, the study aimed to examine fear of COVID-19 and Coronavirus Anxiety as predictors of adherence to treatment in individuals diagnosed with epilepsy during the COVID-19 pandemic.

This study is the patients' mean medication adherence scale score was 21.62 (±3.64). This suggests that, on average, patients had a relatively middle level of adherence to their medication regimen. In the studies carried out; It was stated that 48-64% of epilepsy patients showed non-compliance with treatment.[3] In another study, drug non-adherence in epilepsy patients was found to be 66.7%.[31] Given this information, it seems that the patients in this study had a slightly higher level of adherence than in previous studies, but still fell within the general range of non-compliance rates for epilepsy patients. However, it is important to note that medication adherence can vary among individuals and may be influenced by various factors such as age, education, medication side effects, anxiety and patient-provider communication.[3, 31] A study of hypertensive patients found a low-level positive correlation between drug adherence and the level of fear of COVID-19.[32] Therefore, it is thought that the rea-

son why we got better results in our study compared to the literature is the fear of contagion with COVID-19.

This study is the mean of COVID-19 anxiety was 1.60 (±3.32). This suggests that, on average, patients had a relatively low level of anxiety related to COVID-19. In one study, according to the COVID-19 anxiety scale scores, 18 (38.3%) patients had minimal anxiety, and only 4 (8.5%) patients had severe anxiety during isolation.[15] In another study, 50.4% of epilepsy patients participating in the study scored positive in terms of anxiety related to COVID-19.[9] Overall, it appears that anxiety related to COVID-19 varies among patients, with some experiencing minimal anxiety and others having more severe anxiety. The mean score suggests that patients, on average, have a relatively low level of anxiety related to COVID-19, but there is significant variation among individuals.[9, 15] In our study, it is thought that the reason why the COVID-19 anxiety scale average score was lower than the literature was the development of vaccines against COVID-19.

This study is the mean of fear of coronavirus was 17.97 (±8.05). This suggests that, on average, patients had a moderate level of fear related to COVID-19. In a study, the mean score of fear of COVID-19 in epilepsy patients was determined as 19.2 ± 6.89.[33] In another study, the mean score of the COVID-19 Fear scale was 19.1 ± 6.3.[34] These findings indicate that epilepsy patients and the general population have a similar level of fear related to COVID-19. Overall, the mean scores suggest that the fear of coronavirus is moderate among the population, which may be linked to the ongoing uncertainty and rapid spread of the virus. It highlights the need for effective communication and emotional support to alleviate the fears and anxiety related to COVID-19.[33, 34] The reason why the mean score of the COVID-19 fear scale in our study was lower than the literature is thought to be due to the fact that the period in which we collected data was the third phase of the relaxation of COVID-19 measures and vaccines against COVID-19 were developed.

In our study, it was revealed that the patients who regularly used epilepsy drugs during the COVID-19 process had higher medication adherence than those who did not use their drugs regularly. Studies revealed that epilepsy patients showed high adherence to treatment during the quarantine period. [20, 21, 35] Due to the pandemic, it was thought that the patients might have had problems accessing health institutions and drugs. However, in Turkey, the duration of drug reports has been extended so that patients with chronic diseases such as epilepsy will not have access to drugs, and access to drugs from pharmacies has been facilitated for individuals with epilepsy.[28] In addition, the Home Care service provided medication for the elderly patients in the risk group who were unable to obtain their medication from the pharmacy due to the risk of COVID-19. Studies also found that the reason for lack of medication adherence was not a problem with access to drugs.[20, 21, 35] In a study, it was seen that epilepsy patients took precautions against the possibility of seizures during the COVID-19 epidemic.[36] In the study, it was found that 38.8% of the patients preferred to continue drug treatment with the original prescription and that 20.2% of the patients preferred to consult their physician online about the treatment process.[36] It is thought that the patients continued to take their medications regularly because they know the complications that may develop as a result of not using the drugs regularly and they may experience difficulties in hospital admission due to the complications that develop as a result of quarantine. In addition, this situation could be considered a positive result of the practices for patients in Turkey regarding access to drugs (extension of reports and provision of drugs by home care services).

Lack of adherence to antiepileptic drug use is a well-known trigger of seizure relapse. [21, 37, 38] In our study, it was found that the patients who stated that the frequency of seizures increased during the COVID-19 process had lower medication adherence. Alkhotani et al found in their study that the frequency of seizures increased in individuals with epilepsy who experienced a lack of medication adherence.[21] Zeng et al. showed that drug reduction/discontinuation during the COVID-19 outbreak and seizure activity before the COVID-19 outbreak independently had a relationship with increased seizures.[36] The COVID-19 pandemic is not the first public health emergency to adversely affect seizure control. For a retrospective single-center study carried out in Taiwan, alternating epileptic seizures were seen in epilepsy patients before, during, and after the severe acute respiratory syndrome (SARS) outbreak in 2003. As a result of this study, it was

revealed that 21.6% of epilepsy patients stopped taking medication during the epidemic and that discontinuation of antiepileptic drugs caused a significant increase in seizure frequency.[39] In a study conducted in Italy, 32 people who reported inadequate treatment adherence during the COVID-19 period were found to attribute this primarily to forgetfulness, loss of motivation, and negative events.[40] In another study, the reasons for discontinuing antiepileptic drugs were reported to include fear of contagion of COVID-19, quarantine and traffic restrictions and suspension of clinical services, and psychological disorders such as anxiety and fear due to the COVID-19 pandemic were found to have relationship with poor management of the disease.[41] In this respect, the low medication adherence of patients with high anxiety in our study is thought to prove this.

In our study, it was revealed that the patients living in the city center during the COVID-19 process had lower medication adherence than those living in rural areas. It was determined that we obtained a different result from the literature with these results. A study of individuals with chronic diseases during the COVID-19 Pandemic found that those living in urban areas were more likely to adhere to medications.[42] A study of Vietnamese patients with chronic cardiovascular diseases found that rural life was significantly associated with poor drug adherence.[43] This may be due to the different population characteristics between the two studies, in which the location factor (rural or urban) was shown as an association with medication adherence.[18,42, 43] In a study, it was seen that stress due to living in houses without terraces or courtyards during the COVID-19 pandemic was likely to cause seizures and behavioral deterioration.[18] In a study, it was found that the leading causes of high stress experienced by epilepsy patients were social problems, fear of infection, and financial issues. It was found that social problems mostly included isolation related to the curfew and the inability to visit family members and friends.[21] The main reason for this is that rural patients do not have strict restrictions, and it is thought that rural medication adherence is better as they cope better with the stress and fear of COVID-19, with less contact outside, spending time outside, and maintaining social relations.

In order to reduce mental disorders in individuals with epilepsy, it is of great importance to prevent epileptic seizures with appropriate drug management.[10] In our study, it was found that as the level of corona anxiety increased, medication adherence of epilepsy patients decreased. No data could be found in the literature on medication adherence directly related to corona anxiety, but exposure to information about COVID-19 and fear of quarantine and social isolation make the patient more susceptible to depression and anxiety.[41] In a study conducted with Korean patients with ınflammatory bowel disease during the COVİD-19 outbreak, anxiety and depression were found to be negatively associated with medication adherence.[44] It was confirmed that factors that affect/might affect seizure therapy, including seizures experienced, seizure exacerbation and changes in drug regimen, and poor adherence to medication, all have a relationship with epileptic psychiatric comorbidities. [45, 46] It was seen that anxiety developed as a result of frightening information and uncertainties about COVID-19, stress, anxiety, depression, and fear among the public. As a result, it was revealed that a lack of medication adherence was likely to develop.[36] As a result of the anxiety experienced, it could be stated that the priority of the individuals caused them to focus not on the treatment of their existing disease but on what level the corona would affect their disease. It is thought that this situation makes it difficult for individuals to adapt to treatment, causing them to delay or even forget their treatment.

In our study, no significant difference was found between fear of COVID-19 and epilepsy medication adherence during the COVID-19 process. There are no data on this subject in the literature. However, the majority of the patients in our study were found to be vaccinated against COVID-19. In a study, it was reported that individuals' fear of COVID-19 affected their positive attitudes toward vaccination.[47] It is thought that it is a normal process for people to try to protect themselves from something they fear. The COVID-19 vaccine developed is a solution for individuals afraid of COVID-19. Therefore, no relationship is thought to exist between fear of COVID-19 and epilepsy medication adherence.

This study has some limitations. In this study, data were collected from patients undergoing treatment in a university hos-

pital in Turkey. Therefore, its generalizability is limited. In addition, since the process in which the study was conducted covers the covid-19 pandemic, a generalization specific to this process can be made. This study used a cross-sectional design. It is also possible that the data may contain some bias since they are based on the personal statements of participants. Self-reports may yield limitations due to biases such as social desirability and short-term recall. In addition, patients who agreed to participate in the study may have been more compliant with the treatment than those who did not. We recommend that future studies should be conducted on different samples using different methods.

In our study, during the COVID-19 pandemic, the patients living in the city center had lower medication adherence than those living in rural areas, and the epilepsy patients' medication adherence decreased as the coronavirus anxiety level increased. It was found that the patients who stated that the frequency of seizures increased had lower medication adherence. In addition, it was revealed that the patients who used epilepsy drugs regularly had higher medication adherence than those who did not use them regularly. In addition, no significant difference was found between fear of COVID-19 and epilepsy medication adherence.

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ANNEX

TABLE 1. Introductory characteristics of the epilepsy patients.

Variable	Number/Percentage (%)/ Mean
Age	32.42±12.34(min-max=18.00-75.00)
Gender Female Male	 85 (55.2) 69 (44.8)
Marital Status Married Single	 78 (50.6) 76 (49.4)
Place of accommodation City center Town Village	 103 (66.9) 38 (24.7) 13 (8.4)
Who do you live with? Alone Living with someone (spouse, children, relatives)	 5 (3.2) 149 (96.8)
Educational background Illiterate Literate High school Associate degree or higher	 28 (18. 2) 51 (33.1) 49 (31.8) 26 (16.9)
Family income Income higher than expenses Income equal to or higher than expenses	 113 (73.4) 41 (26.6)
Do you have a chronic disease other than epilepsy? Yes No	 50 (32.5) 104 (67.5)
How long have you had epilepsy?	**8.52±7.26** (min-max=1-37 years)
Do you regularly go to your checkups for epilepsy? Yes No	 117 (76.0) 37 (24.0)
Do you use your epilepsy medications regularly? Yes No	 142 (92.2) 12 (7.8)
Do you have a seizure? Yes No	 104 (67.5) 50 (32.5)
If you have seizures, how often do you have seizures? Less than once a month More than once a month Rarely (more than one month)	 25 (24.04) 44 (42.30) 35 (33.66)
How many medications do you take per day for epilepsy? Once a day Twice a day Three times a day More than three times a day	 14 (9.1) 72 (46.8) 13 (8.4) 55 (35.7)
Medication Adherence Report Scale total score (MARS)	21.62±3.64 (min-max= 10.00-25.00)
COVID 19 Anxiety Scale total score (CAS)	1.60±3.32 (min-max=0.00-19.00)
Fear of Coronavirus Scale total score (FCV-19S)	17.97±8.05 (min-max= 7.00-35.00)

TABLE 2. Characteristics of epilepsy patients during the COVID-19 pandemic.

Variable	Number Percentage (%)/ Mean
Have you delayed your checks due to the COVID-19 pandemic?	
Yes	64 (41.6)
No	90 (58.4)
Has your seizure frequency increased during the COVID-19 pandemic?	
Yes	66 (42.9)
No	88 (57.1)
Are you afraid of having a seizure outside during the COVID-19 process?	
Yes	110 (71.4)
No	44 (28.6)
Are you afraid of your illness getting worse during the COVID-19 process?	
Yes	120 (77.9)
No	34 (22.1)
Did you have any problems in providing your regular medicines due to the pandemic?	
Yes	19 (12.3)
No	135 (87.7)
Have you had the coronavirus vaccine?	
Yes	102 (66.2)
No	52 (33.8)
Have your fear and anxiety decreased after getting the coronavirus vaccine?	
Yes	67 (43.5)
No	35 (22.7)
No answer	102 (66.2)

TABLE 3. The relationship between the variables with a relationship with adherence to treatment in the epilepsy patients.

Variables	1	2	3	4	5	6	7	8
1.MARS total	1							
2.CAS total	-0.344**	1						
3.FVS total	-0.158	0.444**	1					
4.Regular use of epilepsy drugs	0.244**	-0.027	-0.001	1				
5.Disruption of Health Checks during the Covid 19 process	-0.234**	0.013	-0.022	-0.050	1			
6.Seizure frequency in the Covid 19 process	-0.219**	0.036	0.049	0.105	0.308**	1		
7.Fear of having a seizure outside during the COVID-19 process	-0.167*	0.180*	0.216**	0.138	0.183*	0.315**	1	
8.Living in city center	-0.228**	0.099	0.092	-0.102	0.257**	-0.004	0.105	1

TABLE 4. Predictors of medication adherence in epilepsy patients during COVID 19.

	Medication Adherence			
Variables	**Beta**	**SE**	**t**	**p**
CAS total	-0.312	0.078	-4.391	p<.001
Regular use of epilepsy drugs	0.242	0.966	3.396	0.001
Seizure frequency in the Covid 19 process	-0.234	0.521	-3.291	0.001
Living in city center	-0.173	0.550	-2.427	0.016
	Model R^2: 0.257, Adjusted R^2: 0.237, F:12.892, p<.001			