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Epileptic Disorders

ORIGINAL ARTICLE

Challenges and needs of epilepsy management in primary care (from the perspective of family physicians/general practitioners): A cross-sectional study

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Abstract

Objective: Family physicians are expected to have sufficient knowledge and skills in epilepsy management due to frequent encountering with epileptic patients for prescribing antiepileptics, providing preventive services such as vaccination, pre-conceptional counseling, or managing acute health problems of the patients. This study aimed to determine family physicians' challenges and needs regarding managing epilepsy in primary care.

Methods: This cross-sectional study was carried out with the family physicians working in Family Health Centers representing the four districts of Istanbul in 2020. After enrolling sociodemographic characteristics, epilepsy knowledge, and self-efficacy questionnaire were filled out by the physicians themselves, and the difficulties and needs in the follow-up of the patients with epilepsy were evaluated with open-ended questions.

Results: Two hundred and twenty-eight physicians participated in the study (48.7% F; mean age: 43.06 ± 8.82). Most of the physicians reported that they feel incompetent and hesitated while providing health reports (driving [83.3%], sport [95.5%] or work [70.2%]), and prescribing antiepileptics, especially during pregnancy (38.2%) and breastfeeding (31.2%). Despite their high awareness of psychosocial problems in epileptic patients, only 25% of physicians stated that they could make psychosocial assessments. There was no correlation between Epilepsy Knowledge and Self-efficacy scores and physicians' age, graduation period, and family medicine experience ($p > .05$). Most frequently encountered difficulties were reported as epilepsy-specific (follow-up of pregnant or pediatric patients, lack of information about epilepsy and antiepileptics). Most physicians (82.6%) wanted training in epilepsy management.

Significance: The findings of our study suggest that family physicians need knowledge and training in epilepsy management. The main limitation of the present study is its cross-sectional design, which does not allow for causal or directional inferences.

KEYWORDS

epilepsy, family physician, general practitioner, primary care, seizure

1 | INTRODUCTION

Epilepsy is among the most common chronic neurological disorders worldwide.[1] Regardless of geographic region, the prevalence of epilepsy is 4–12 per 1000.[2] Despite low incidence, epilepsy is a situation that frequently brings family physicians and patients together in primary care due to the complicated process of diagnosis and treatment and the risks and sociocultural burdens that epileptic patient carries. Family physicians follow their patients periodically and have a chance to see the diseases at an earlier stage. The fact that family physicians can see their patients even when their disease is stable, they can easily reach their patients, and they can see them in their own environment/home are among the advantages that can be used in epilepsy management.

The World Health Organization also emphasizes the importance of primary care in the detection of epilepsy cases, the implementation of basic treatment protocols, and the follow-up of their treatment. It also sees epilepsy care as a shared responsibility between primary and secondary health care providers.[3] In primary care, diseases are seen with their real prevalence in the population. The incidence of short-lived, transient, self-limiting diseases is high, and the prevalence of other diseases is low. Family medicine is a low-prevalence medicine.[4] A family physician's risk of encountering epilepsy and seizures differs from a neurologist's. Although no prevalence and incidence study represents Turkey, the prevalence of epilepsy in Turkey is considered between 7 and 10 per 1000 in regional studies,[5,6] meaning that 7–10 of 1000 people registered by each family physician have epilepsy. Since the average number of registered patients per family physician in Istanbul is 3721,[7] it can be considered that there are approximately 25 epileptic patients registered with each family physician who is expected to be managed. Although this number may seem low, intervention in seizures, suspected new epilepsy, prescribing and monitoring of antiseizure medications (ASMs), control of drug interactions, periodic follow-ups, control of intervening diseases, pregnancy, pre-conceptional and family planning counseling, genetic counseling, informing families, coordination with upper-level practices such as these show that the services should be given to patients with epilepsy by family physicians are quite diverse. It is known that approximately one-third of epilepsy deaths are caused by suicide,[8] and family physicians' responsibility is relatively high when the psychosocial burden is considered. As in some countries, family physicians are expected to provide patients with epilepsy with documents such as military service, driving (license report), and employment approval.[9] "Epilepsy management in primary care" is not included in the pre-and post-graduate education curricula of family physicians who frequently encounter the situations mentioned about epilepsy management in their daily practice. Family physicians are expected to support their patients with epilepsy adequately. There is a limited number of studies evaluating the knowledge and awareness of primary care physicians about epilepsy management. A cross-sectional study conducted in Brazil reported that family physicians and pediatricians were aware of the lack of knowledge about themselves and their colleagues about epilepsy.[10] In a study conducted in England, general practitioners in primary care reported feeling responsible for managing patients with epilepsy.[11] Our country has no information about whether family physicians working in Family Health Centers (FHCs) need information, awareness, or training in epilepsy management. Therefore, this study aimed to determine the challenges and needs of family physicians regarding epilepsy management in primary care.

Key points

- This study is the first to determine family physicians' needs regarding epilepsy management in primary care in Turkey.
- The family physicians did not have a problem with the diagnosis of epilepsy.
- The family physician does not feel competent in the management of epilepsy.
- Family physicians think that many patients have difficulties obtaining ASMs.
- Most family physicians request training in epilepsy management.

2 | MATERIALS AND METHODS

In Turkey, primary care services are provided by family medicine specialists, family medicine residency physicians, or physicians who are not family medicine specialists but have a "certificate to be able to practice family medicine." All those physicians are called family physicians/general practitioners.[12] The universe of this cross-sectional study is 545 family physicians/general practitioners serving in FHCs located in 4 districts of the Anatolian side of Istanbul. The total population of these districts (Pendik, Maltepe, Kartal, and Tuzla) is 1 989 674.[13] The research was carried out between 01.03.2020 and 30.10.2020. The sample size was calculated as 228 using unknown prevalence, 95% confidence level, and 5% margin of error. While selecting the sample, the number of physicians to be recruited from each district was determined according to the ratio of the number of family

physicians in the districts to the total number of family physicians in the sample (51 from Kartal, 61 from Maltepe, 84 from Pendik, and 32 from Tuzla). In order to reach the sample, an FHC was selected randomly from the FHC list of each district, and all physicians who met the inclusion criteria were tried to be interviewed. This process continued until the sample size was completed for each studied district. All physicians actively working in FHCs and volunteering during the visits were included in the study. Leaving 80% of the data collection tools blank was determined as the exclusion criterion of the study. A total of 309 family physicians were visited to reach the sample size, 81 physicians refused to participate, and the study was completed when the minimum sample number ($n = 228$) of family physicians was reached.

3 | COLLECTION OF RESEARCH DATA

The research data were collected with a questionnaire consisting of two parts, which the participants filled out themselves independently. The first part of the questionnaire includes questions about the participants' sociodemographic characteristics, the number of patients with epilepsy registered in their unit, the witnessing of seizures, whether epilepsy in their relatives, and whether they have received education about epilepsy before. The second part consists of questions about the knowledge, self-efficacy level, and educational needs of family physicians regarding epilepsy management, the difficulties experienced by family physicians in epilepsy management, and the difficulties experienced by patients in accessing medications. The level of knowledge and self-efficacy in epilepsy management was evaluated with the Epilepsy Knowledge and Self-efficacy (EKSE) form, which includes items created by the authors using the literature[14–16] and the Epilepsy Guide of the Turkish Neurological Society. This form consists of 29 five-point Likert-type scales arranged as 1: strongly disagree, 2: disagree, 3: undecided, 4: agree, and 5: strongly agree. Twenty-four items in the epilepsy knowledge and self-efficacy form had positive expressions, 5 items had negative expressions, and the total score of the answers to the questions was called the EKSE score. The minimum and maximum scores that can be obtained are between 29 and 145. The Cronbach's alpha internal consistency coefficient of the EKSE form was calculated, and exploratory factor analysis was performed.

Difficulties experienced during epilepsy management were evaluated with an open-ended question, and the researchers classified the answers. The difficulties experienced by the patients in accessing the drug were also evaluated with two closed and open-ended questions.

The independent variables of the research are listed below:

- Age
- Gender
- Graduation time
- Working time in primary care
- Total number of registered patients and patients with epilepsy
- Training status about epilepsy
- Specialization status in medicine

The dependent variables of the study are listed below;

- Epilepsy Knowledge and Self-efficacy Score
- Difficulties in the follow-up of patients with epilepsy
- Difficulties experienced by patients with epilepsy in accessing medication
- The intent of receiving training in epilepsy management

In order to avoid bias, the questionnaires were answered by the family physicians themselves.

4 | STATISTICAL ANALYSIS

Data analysis was done with the JASP version 0.14.1 program. The conformity of the data to the normal distribution was examined by histogram graphics and the Shapiro–Wilk test. Chi-Square test in the comparative analysis of categorical variables; Mann Whitney *U* and Kruskal-Wallis tests for comparison of continuous data; Spearman test was used for the relationship between two quantitative variables. The Cronbach's alpha internal consistency coefficient was calculated to evaluate the consistency of the data collection form in which the physicians' EKSE levels were questioned. The Kaiser-Mayer-Olkin coefficient and Bartlett's Test of Sphericity were used to test the suitability of the data for factor analysis, and exploratory factor analysis was performed. Varimax rotation was applied, and the Eigen limit value was 1. The number of factors was determined by taking the items with a factor load above 0.30. A p-value $<.05$ was considered statistically significant.

5 | ETHICS COMMITTEE AND OTHER PERMISSIONS

Approval for the study was obtained from the Ethics Committee of Marmara University Faculty of Medicine with the protocol code 09.2020.266. The Istanbul Provincial Health Directorate Health Services Presidency

was informed so that the research could be carried out in FHCs, and the necessary permission was obtained by the letter numbered 15916306–604.01.01 from the Provincial Health Directorate. Participants who met the inclusion criteria read and signed the informed consent form after they were informed about the study.

6 | RESULTS

The study included 228 family physicians; 48.7% were women ($n = 111$), and 51.3% were male ($n = 117$). Information about the participants' sociodemographic characteristics, specialization status, medical experience, and the number of registered patients are shown in Table 1.

The frequency of those who received training on epilepsy after graduation is 10.9%. 10.0% of general practitioners and 19.4% of family medicine specialist physicians stated that they had received training in epilepsy management. None of the family medicine residents stated that they had not received any training yet (0%). The type of training was asked to the physicians who stated that they had received training in epilepsy management, but any of the physicians did not answer the question.

The Cronbach's alpha internal consistency coefficient of the 29-item EKSE form, in which epilepsy knowledge and self-efficacy perceptions were evaluated, was 0.848. According to the factor analysis results, 7 sub-dimensions were determined (Table 2). It was found to be more appropriate that the items of the 5th sub-dimension replace to 1st and 2nd sub-dimension by the authors. Therefore, the total number of sub-dimensions was reduced to six. These sub-dimensions are named as the perception of knowledge and self-efficacy within the scope of "Primary care management," "Person-centered care," "Holistic approach," "Comprehensive approach," "Community orientation," and "Specific problems solving skills."

The mean EKSE score of physicians was 90.54 ± 12.7 (median 91; min: 57–max: 128). The factors related to the score obtained from the scale are shown in Table 3. The EKSE score was statistically higher in those who received training on epilepsy before than in those who did not ($p < .001$). No correlation was found between EKSE scores and physicians' age, graduation period, time in family medicine practice, specialization status, and the number of patients registered to FHC units ($p > .05$).

The knowledge and self-efficacy perceptions of family physicians about epilepsy management are shown in Table 4. Most physicians reported that they did not feel competent and hesitated while providing health reports to their patients about driving, sport, or work (Table 4). In terms of person-centered care, it is seen that they feel incompetent about the use of ASMs, especially during pregnancy and breastfeeding. Regarding the holistic approach, most of the physicians reported that they were aware of the psychosocial problems of the patients, but only 25.9% could make a psychosocial evaluation (Table 4). The answers regarding the comprehensive approach, specific problem-solving skills, and community orientation are shown in Table 4.

The open-ended question "What are the difficulties you experience as a family physician in the follow-up of patients with epilepsy?" was answered by 63.1% of the physicians. The answers given were grouped as shown in Table 5. It was observed that the most frequently encountered difficulties were epilepsy-specific difficulties related to diagnosis, follow-up, and treatment (patient follow-up in general, follow-up of pregnant or pediatric patients, lack of knowledge, providing health report issues, drug dosage, side effects, interactions, and drug changes), difficulties related to the health system (lack of time, not being able to get an appointment with the neurologist, not being able to analyze the blood level of medications, coordination, consultation problems), difficulties related to the patient (treatment non-compliance, concealment of the diagnosis of epilepsy, abuse of drugs) and difficulties related to the access of patients to medications (problems in

TABLE 1 Information on the sociodemographic characteristics, specialization status, medical experience, and the number of registered patients of the participants.

Age (mean ± SD) ($n = 227$)	43.06 ± 8.82
Sex ($n = 228$)	*n* (%)
Female	111 (48.7)
Male	117 (51.3)
Specialization status ($n = 220$)	*n* (%)
Family Medicine Specialist	31 (13.6)
Certified to practice family medicine (no specialization training)	189 (82.9)
Family Medicine Resident	8 (3.5)
Graduation time from medical school (year) (Mean ± SD) ($n = 191$)	18.63 ± 8.84 Median 19 min: 3 – max: 43
Working time in primary care (year) (Mean ± SD) ($n = 224$)	8.5 ± 3.7
Total number of patients registered with each family physician (Mean ± SD)	3686.7 ± 572.7
Number of patients with epilepsy registered with each family physician (Mean ± SD)	19.9 ± 16.4 (median 15)
Receiving any training in epilepsy management (*n*, %)	
Yes	25 (10.9)
No	203 (89.1)

TABLE 2 Factor loadings of epilepsy information and EKSE form items.

Item numbers in the EKSE form	Sub-dimensions						
	1	2	3	4	5	6	7
22	0.733						
23	0.715						
20	0.682						
17	0.668					0.316	
14	0.668						
28	0.642						
18	0.639	−0.321				0.305	
16	0.627				−0.384		
2	0.626						
5	0.625						0.378
21	0.615				0.341		
15	0.601						
12	0.579				0.362		
29	0.579			−0.403			
27	0.556			−0.458			
13	0.539						
3	0.460	0.418		0.312			
11	0.448					−0.300	
10		0.701					
6		−0.663	0.514				
8		−0.661	0.392				
9		−0.620	0.420				
25		0.553		−0.319		0.328	
1	0.438	0.441		0.350			−0.304
4			0.394			0.389	
26		0.435	0.376	−0.493			
19		0.394			−0.395		0.373

medication accessing, problems in issuing and prescribing for continuous drug use). Few physicians ($n=4$) reported that patients' relatives did not have sufficient knowledge about epilepsy.

When the difficulties the patients experienced in obtaining an ASM report for continuous use were evaluated by the physicians, 60.1% ($n=137$) reported no difficulties, 25% ($n=57$) reported that the patients had difficulties, and 14.9% ($n=34$) stated that they had no any knowledge about the difficulties in obtaining an ASM report. The most common reason for the difficulties in obtaining medication reported by the physicians was reported as difficulty in getting an appointment (70.4%). The other reasons were the difficulty of reaching the hospital of immobile patients, the elderly patients do not want to go to the hospital, lengthy hospital procedures, the inability of patients to find the drug in pharmacies, lengthy social security institution procedures, difficulties in supplying medication, not enough time to follow-up patients in hospitals, referral of other centers to the family physician for a prescription of unreported medications, and the drug dose used in the report being inconsistent. Most physicians (82.6%) stated they intend to receive training in epilepsy management.

7 | DISCUSSION

Our study is the first research to determine the needs of family physicians regarding epilepsy management in primary care in Turkey. The study's most striking findings were that although most physicians did not have a problem diagnosing epilepsy, they did not feel competent in most parameters of primary care management, for example, holistic and comprehensive evaluation and person-centered and community-oriented approach to the patient. Other critical study findings were that physicians stated that

TABLE 3 The relationship of the participants' EKSE scores with gender, specialization status, education about epilepsy, and the place where they worked the longest.

	EKSE scores (mean ± SD)	*p*-Value
Receive training on epilepsy		
Yes	98.2 ± 13.3	**<.001**[a]
No	89.6 ± 12.3	
Sex		
Female	89.6 ± 12.6	.301
Male	91.4 ± 12.7	
Specialization status		
Family Medicine	92.5 ± 12.7	.626
Family Medicine Resident	89.0 ± 8.05	
No specialist training (Practitioner)	90.2 ± 12.8	
Longest working place		
Primary Care Center	89.8 ± 12.4	.153
Hospital	93.7 ± 13.3	
Other	95.4 ± 14.1	

[a]Mann–Whitney *U* test.

Bold indicates $p < 0.001$ are significant.

many patients had difficulty obtaining ASMs, and most physicians did not train in epilepsy management before and after graduation and stated that they would like to be trained. While the majority of the physicians participating in the study stated that they knew what to do when faced with an epileptic seizure, they stated that they had difficulties in the follow-up of epileptic patients and that these difficulties were due to the nature of epilepsy (Table 5). Similar to our findings, in a study conducted in Australia, most family physicians stated that they could conduct evaluation and research after the first seizure.[17] One of the most significant needs we encountered regarding follow-up was that physicians felt incompetent regarding the follow-up of ASMs use. Family physicians are expected to evaluate each drug's efficacy and side effects while prescribing and associate symptoms with ASMs when they apply with complaints. In a study conducted with physicians from different specialties related to epilepsy in Australia, it was found that most physicians were not aware of the side effects of ASMs or were undecided about this issue.[18] Similarly, in a study conducted in Brazil in which family physicians and pediatricians were included, physicians stated that they did not know the drug-specific use of ASMs.[10] The fact that most of the participants in our study (80.3%) did not know which drugs interact with ASMs reveals the need to train family physicians on this issue.

It is possible for patients who become pregnant or planning pregnancy during drug use to discontinue their ASMs, exposing the mother and baby to many risks. Family physicians should be informed about which ASMs should be used during pregnancy, when medication changes can be made, especially in planning pregnancy, when medication changes should be made, and what should be considered in the pregnancy follow-up of epileptic patients. In our study, only one-fourth of the physicians reported that they could provide counseling to patients with epilepsy before and after pregnancy and that they had sufficient knowledge about the use of ASMs during pregnancy. An article published by Ohio University in the USA stated that family physicians had difficulties stopping and starting ASM treatment, changing ASMs, and managing patients throughout pregnancy.[19] This situation makes us think that family physicians responsible for maintaining the health of patients with epilepsy and their babies as part of a person-centered and comprehensive approach need information and training on using ASMs before and during pregnancy.

In addition to the need for information and training on pregnancy and pre-pregnancy ASM use, it has been revealed that most family physicians do not have sufficient knowledge or hesitate about breastfeeding during ASM use. In the literature, a similar result to our finding was found, and it was stated that more than half of the family physicians did not know breastfeeding was safe while using ASMs.[19] Some patients with epilepsy may stop breastfeeding their babies while using ASMs, or they may stop using ASMs to be able to breastfeed their babies. Since the advantages of breastfeeding in women with epilepsy outweigh the disadvantages that may be seen rarely in the infant due to ASMs (such as sedation, hypotonia, feeding difficulties, etc.), it is recommended that the patient breastfeed their baby.[20] Family physicians should also encourage their patients in this direction. In a study conducted with general practitioners in Bolivia, while most physicians stated that they did not have sufficient knowledge about epilepsy, they reported that they were more confident in giving antiepileptic treatment after training.[21] Our study's data similarly revealed a need for education in epilepsy management in primary care. Even though the number of those who received training in our study was low, the EKSE scores of the physicians who reported that they had received training on epilepsy before were significantly higher than those who did not receive any training, and the fact that they had received family medicine specialty training did not make a difference in proficiency (Table 3). This suggests the necessity of placing training on the subject in the curriculum before and after graduation. Although a question was asked about the type of education received in the study and its content, most participants did not answer it, so it cannot be commented

TABLE 4 Knowledge and self-efficacy perceptions of family physicians in epilepsy management.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Primary care management					
Having a single seizure is not sufficient for the diagnosis of epilepsy	9 (3.9)	25 (11)	58 (25.4)	82 (36)	54 (23.7)
I hesitate to give a driver's license to a patient with epilepsy	11 (4.85)	16 (7.0)	11 (4.85)	53 (23.2)	137 (60.1)
I hesitate to give a health report to patients with epilepsy so that they can do sports	9 (3.9)	18 (7.9)	29 (12.7)	66 (29.0)	106 (46.5)
I have difficulty giving a health report for employment in individuals with epilepsy	9 (3.9)	29 (12.7)	30 (13.2)	67 (29.4)	93 (40.8)
Person-centered care					
I know when to refer patients with epilepsy or to seek consultation	8 (3.5)	12 (32.4)	74 (5.3)	88 (38.6)	46 (20.2)
I have sufficient knowledge about breastfeeding while using antiseizure medications	25 (11.0)	46 (20.2)	101 (44.3)	48 (21.0)	8 (3.5)
I have sufficient knowledge about the use of ASMs during pregnancy	30 (13.2)	57 (25)	84 (36.8)	45 (19.7)	12 (5.3)
Holistic approach					
I know psychological problems are more common in patients with epilepsy than in other segments of society	4 (1.8)	18 (7.9)	55 (24.1)	97 (42.5)	54 (23.7)
I know that children with epilepsy face academic difficulties more often	5 (2.2)	18 (7.9)	59 (25.9)	98 (42.9)	48 (21.1)
I can do a psychosocial assessment for patients with epilepsy	14 (6.1)	37 (16.2)	118 (51.8)	50 (22.0)	9 (3.9)
Comprehensive approach					
I can follow patients for side effects of antiepileptics.	16 (7.0)	56 (24.6)	86 (37.7)	55 (24.1)	15 (6.6)
I have sufficient knowledge about the factors that facilitate and trigger epileptic seizures.	8 (3.5)	23 (10.1)	88 (38.5)	95 (41.7)	14 (6.2)
I can inform the family members of patients with epilepsy about epilepsy	4 (1.8)	25 (11.0)	68 (29.8)	107 (46.9)	24 (10.5)
I can distinguish between a pseudoseizure, a psychogenic seizure, and a true seizure.	20 (8.8)	29 (12.7)	85 (37.3)	70 (30.7)	24 (10.5)
I can follow the treatment of patients with epilepsy	22 (9.7)	37 (16.2)	107 (46.9)	54 (23.7)	8 (3.5)
I know when antiseizure medications should be discontinued in patients with epilepsy	44 (19.3)	76 (33.3)	85 (37.3)	21 (9.2)	2 (0.9)
I have information about which antiseizure medications interact with which medicine(s)	25 (11.0)	61 (26.8)	97 (42.5)	41 (18.0)	4 (1.7)
I know how often I should follow up with my patient with epilepsy	7 (3.1)	28 (12.3)	100 (43.9)	71 (31.1)	22 (9.6)
I use national or international guidelines in epilepsy management	43 (18.9)	56 (24.6)	71 (31.1)	47 (20.6)	11 (4.8)
I know when blood levels of antiseizure medications should be checked	32 (14.0)	65 (28.5)	92 (40.3)	27 (11.9)	12 (5.3)
I can provide pre-pregnancy counseling to patients with epilepsy	34 (14.9)	63 (27.6)	81 (35.5)	42 (18.5)	8 (3.5)
I can advise patients with epilepsy on selecting the appropriate contraceptive method	27 (11.8)	55 (24.1)	80 (35.1)	48 (21.1)	18 (7.9)
I know that I need to counsel people with epilepsy about smoking cessation	8 (3.5)	16 (7.0)	116 (50.9)	77 (33.8)	11 (4.8)

(Continues)

TABLE 4 (Continued)

Specific problems solving skills					
I know what to do when faced with an epileptic seizure	1 (0.5)	8 (3.5)	52 (22.8)	120 (52.6)	47 (20.6)
I know how to manage a febrile convulsion	5 (2.2)	14 (6.1)	58 (25.4)	100 (43.9)	51 (22.4)
I know that a normal EEG does not exclude the diagnosis of epilepsy	4 (1.8)	8 (3.5)	53 (23.2)	101 (44.3)	62 (27.2)
Patients with epilepsy can do all kinds of sports	49 (21.5)	76 (33.3)	63 (27.6)	27 (11.9)	13 (5.7)
Patients with epilepsy should be followed in coordination with neurologists	7 (3.1)	4 (1.8)	9 (3.9)	66 (28.9)	142 (62.3)
Community orientation					
I am hesitant when recommending a vaccine to a patient with epilepsy	27 (11.9)	56 (24.6)	67 (29.3)	51 (22.4)	27 (1.8)

Note: Data are presented as *n* (%).

TABLE 5 Difficulties experienced by physicians in the follow-up of patients with epilepsy.

Difficulties in the follow-up of patients	*n*	%
Epilepsy-specific difficulties (diagnosis, treatment, follow-up, etc.)	46	31.9
Associated with the health system	39	27.2
Associated with the patient	19	13.2
Associated with drug access	9	6.2
Associated with patients' relatives	4	2.8
Physicians without difficulty	27	18.7
Total	144	100

on whether this finding is related only to education or another confounding factor. In the report, the current version of the ILAE primary health care epilepsy educational curriculum's six domains were provided: (1) ability to diagnose epilepsy and its broad subtypes; (2) ability to provide counseling to people with epilepsy over a range of issues; (3) ability to introduce treatment and follow-up to people with epilepsy; (4) competency to refer people to higher centers of care appropriately; (5) ability to manage epilepsy emergencies including status epilepticus; and (6) ability to recognize and provide primary care for psychiatric and somatic comorbidities and suggest to facilitate future primary health care epilepsy education packages.[22] Comparing the curriculum domains provided by ILAE, it can be seen that training needs domains including the family medicine/general practitioner approach in the present study. The curriculum provided by ILAE overlaps in many ways with the training needs identified by the present study. In addition to that curriculum, since most of the physicians reported feeling incompetent and hesitant while providing health reports (driving, sport, or work) in the present study, these issues can be added to the curriculum in our country.

It has been stated that patients with epilepsy have difficulties obtaining medication reports for continuous use because patients have difficulty getting a doctor's appointment. The pandemic may have made it difficult to make an appointment to obtain ASMs reports, but the validity period of the drug reports has been extended so that people with chronic diseases can obtain medications without going to a doctor during the pandemic period in our country.[23] In our country, medication reports for ASMs can be issued by neurologists. According to Nomenclature of Territorial Units for Statistics, although the number of annual applications to the 2nd and 3rd level centers per person in Turkey has increased gradually over the years (in 2018, an increase of 215%

compared to 2012), there is only a 95.3% increase in the number of specialists.[7] Necessary interventions should be made so patients can get an appointment easily with their neurologists in our country. The difficulties in obtaining medication reports that the physicians stated were not directly related to the pandemic. An important secondary finding of the study is that the mean number of patients diagnosed with epilepsy registered to each family physician reported by the participants was 19.9 ± 16.4 (median 15; min: 0-max: 89). When compared to the registered population, the prevalence of epilepsy in the research group was 5.3 per 1000 according to the self-reports of the physicians. Although there is no epilepsy prevalence and incidence study representing Turkey, this frequency is close to the data in the population-based study conducted by Balat et al. in the Adana city center (7 per 1000).[6] The fact that this frequency is based on statements, not records, can be considered one of the study's limitations. The other limitation of the study is its cross-sectional design which does not allow for causal or directional inferences.

Some physicians participating in the study stated that they did not know how to check the number of patients diagnosed with epilepsy through the system, or they gave the numbers in their memories due to lack of time. Family physicians, who can reach the correct number of patients with epilepsy registered in the system, reported that there are more patients diagnosed with epilepsy registered than there were. In some diseases (migraine, bipolar disorder, etc.) other than epilepsy requiring ASM use, the patients could have been registered as if having a diagnosis of epilepsy. Because in our country, these drugs can be paid by the Social Security Institution SSI when epilepsy is diagnosed. This frequency can be evaluated not as the frequency of epilepsy but as the frequency of ASM use, and it should only be considered indicative. There is a need to plan research on the prevalence and incidence of epilepsy.

8 | CONCLUSION AND RECOMMENDATIONS

As a result, it has been revealed that family physicians, who may encounter patients with epilepsy frequently due to health problems, prescription and follow-up of regularly used medications, periodic health checks, immunization, home health services, etc., have training needs related to epilepsy management. This study can form the basis for further work.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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Test yourself

1. What are the areas where family physicians hesitate about epilepsy?
   A. While providing health reports for driving license
   B. While providing health reports for work
   C. While prescribing antiepileptics, especially during pregnancy
   D. While prescribing antiepileptics, especially during breastfeeding
   E. All of the above
2. What was the least experienced difficulty by family physicians in the follow-up of patients with epilepsy?
   A. Epilepsy-specific difficulties (diagnosis, treatment, follow-up, etc.)
   B. Associated with the health system
   C. Associated with the patient
   D. Associated with drug access
   E. Associated with patients' relatives
3. What percentage of family physician needs training in epilepsy management?
   A. 15.0
   B. 38.3
   C. 47.1
   D. 66.2
   E. 82.6

Answers may be found in the supporting information