ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

DOI: 10.5336/healthsci.2025-113480

The Effect of a Modular Epilepsy Education Program for Teachers on Their Knowledge of Epilepsy, Seizure First Aid, and Attitudes Toward Epilepsy: Quasi-Experimental Study

Öğretmenlere Yönelik Epilepsi Modüler Eğitim Programının Öğretmenlerin Epilepsi Bilgi, Nöbete İlk Yardım ve Epilepsiye Yönelik Tutum Düzeylerine Etkisi: Yarı Deneysel Çalışma

Fatma Dilek TURAN[a]

[a]Akdeniz University Faculty of Kumluca Health Sciences, Department of Pediatric Nursing, Antalya, Türkiye

ABSTRACT Objective: Epilepsy is a common neurological disorder in children, and since teachers spend as much time with these children as their parents do, it is crucial for them to be able to recognize the condition. This study aimed to assess the impact of a Modular-Epilepsy-Education-Program-for-Teachers (MEEP-T) on teachers' knowledge of epilepsy and seizure first aid as well as their attitudes toward children with epilepsy. **Material and Methods:** This was a quasi-experimental study consisting of education and control groups and using pre-test, post-test, follow-up measurements. Data collection tools "Teacher Identification Form", "Epilepsy Questionnaire for Teachers", "Seizure First Aid Questionnaire for Teachers" and "Public Attitudes Toward Epilepsy (PATE)" were used in the research. **Results**: For all measurement tools, there were no differences in pre-test scores across the groups. Post-tests conducted after education revealed that the education group had significantly higher scores of epilepsy (18.8±1.8) and seizure first-aid knowledge (18.0±1.3) than the control group (18.0±1.3; 12.0±0.6, respectively) ($p<0.05$). Furthermore, the education group's PATE scale scores were significantly lower than the control group (education group: 2.6±0.3; control group: 3.8±0.8). Additionally, tests conducted after MEEP-T revealed a significant difference between the groups as well as a significant difference among measurements taken at various time periods within the education group ($p<0.05$). **Conclusion:** The MEEP-T helped teachers increase their knowledge of epilepsy and seizure first aid and transform their negative attitude toward epilepsy into a positive one. MEEP-T can be used for teachers to gain valuable knowledge about epilepsy and seizure first aid management.

Keywords: Attitude; children; epilepsy education; first aid; teacher

ÖZET Amaç: Epilepsi, çocuklarda sık görülen bir nörolojik bozukluktur. Öğretmenler çocuklarla ebeveynleri kadar zaman geçirdiğinden, epilepsiyi tanıyabilmeleri büyük önem taşımaktadır. Çalışma, Öğretmenler için Modüler Epilepsi Eğitim Programı'nın [Modular-Epilepsy-Education-Program-for-Teachers (MEEP-T)] öğretmenlerin epilepsi ve nöbet ilk yardımı konusundaki bilgi düzeyleri ile epilepsili çocuklara yönelik tutumları üzerindeki etkisini değerlendirmeyi amaçlamaktadır. **Gereç ve Yöntemler:** Çalışma, eğitim ve kontrol gruplarından oluşan yarı deneysel bir araştırmadır. Ön-test, son-test ve izlem ölçümleri yapılmıştır. Veri toplama araçları olarak "Öğretmen Tanıtım Formu", "Öğretmenler İçin Epilepsi Bilgi Anketi", "Öğretmenler İçin Nöbet İlk Yardım Anketi" ve "Epilepsiye Yönelik Toplumsal Tutum Ölçeği [Public Attitudes Toward Epilepsy (PATE)]" kullanılmıştır. **Bulgular:** Tüm ölçüm araçlarında, gruplar arasında ön-test puanları açısından anlamlı bir fark bulunmamıştır. Eğitim sonrasında yapılan son testlerde, eğitim grubunun epilepsi bilgisi (18,8±1,8) ve nöbet ilk yardım bilgisi (18,0±1,3) puanları, kontrol grubuna göre (sırasıyla 18,0±1,3; 12,0±0,6) anlamlı derecede yüksek bulunmuştur ($p<0,05$). Ayrıca eğitim grubunun PATE ölçeği puanları kontrol grubuna göre anlamlı derecede daha düşük bulunmuştur (eğitim grubu: 2,6±0,3; kontrol grubu: 3,8±0,8). Eğitim sonrasında yapılan testlerde, hem gruplar arasında hem de eğitim grubunda farklı zamanlardaki ölçümler arasında anlamlı fark bulunmuştur ($p<0,05$). **Sonuç:** MEEP-T, öğretmenlerin epilepsi ve nöbet ilk yardımı konusundaki bilgi düzeylerini artırmış ve epilepsiye yönelik olumsuz tutumlarını olumluya dönüştürmüştür. MEEP-T, öğretmenlerin epilepsi ve nöbet ilk yardımı yönetimi hakkında değerli bilgiler edinmeleri için etkili bir eğitim programı olarak kullanılabilir.

Anahtar Kelimeler: Tutum; çocuk; epilepsi eğitimi; ilk yardım; öğretmen

TO CITE THIS ARTICLE:
Turan FD. The effect of a modular epilepsy education program for teachers on their knowledge of epilepsy, seizure first aid, and attitudes toward epilepsy: Quasi-experimental study. Turkiye Klinikleri J Health Sci. 2026;11(2):612-22.

Correspondence: Fatma Dilek TURAN
Akdeniz University Faculty of Kumluca Health Sciences, Department of Pediatric Nursing, Antalya, Türkiye
E-mail: fatmadilek_32@hotmail.com

Peer review under responsibility of Turkiye Klinikleri Journal of Health Sciences.

Received: 15 Jul 2025 ***Received in revised form:*** 02 Dec 2025 ***Accepted:*** 22 Dec 2025 ***Available online:*** 06 May 2026

2536-4391 / Copyright © 2026 by Türkiye Klinikleri. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Epilepsy is one of the most common neurological disorders in children, characterized by unpredictable seizures.[1-3] Globally, it affects 65 million individuals, including 10.5 million children under the age of 15.[4] In Türkiye, approximately 50,000 individuals have epilepsy, and over 40,000 of them are children.[5] Seizure management is a critical aspect of epilepsy care, as seizures represent the most alarming experience for both children and parents.[6,7]

Teachers spend considerable time with children, often comparable to parents, and may frequently witness seizures.[8-10] In such situations, teachers may feel emotionally overwhelmed, fail to apply their existing knowledge, or respond inappropriately, leading to ineffective interventions and preventable complications.[5,6] Therefore, all teachers, regardless of whether they have students with epilepsy, need to be knowledgeable about seizure management and the broader implications of the condition.[6,11,12] Teachers are also in a unique position to observe early signs of undiagnosed epilepsy, such as attention deficits, academic decline, behavioral changes, and learning difficulties, since children spend much of their day at school.[13,14] Thus, their role is crucial both before and after the diagnosis of epilepsy.[15] The school transition is especially challenging for children with neurological conditions, and teachers play a pivotal role in supporting these children, ensuring their safety, and providing first aid when necessary.[6,11,13]

Given their role in health education, teachers frequently require up-to-date, accurate information about epilepsy.[5,16-18] Educational programs designed to strengthen teachers' knowledge and attitudes toward epilepsy are therefore essential. These programs could be integrated into the national education curriculum, contributing both to teacher empowerment and to the protection of children with epilepsy.

In this context, the Modular Epilepsy Education Program for Teachers (MEEP-T) was developed, consisting of 3 modules: Knowledge about epilepsy, seizure management, and epilepsy and social life. This study aimed to evaluate the impact of MEEP-T on teachers' knowledge of epilepsy, seizure first aid, and their attitudes towards children with epilepsy. Considering the lack of comprehensive training programs in Türkiye, MEEP-T is expected to fill an important gap and contribute significantly to the literature.

Research Hypotheses

H_{1-1}: MEEP-T increases teachers' level of knowledge.

H_{1-2}: MEEP-T increases teachers' knowledge of seizure first aid.

H_{1-3}: MEEP-T has a positive effect on teachers' attitude towards children with epilepsy.

MATERIAL AND METHODS

TRIAL DESIGN

Pretest-posttest control group design was used in this quasi-experimental study. The study was conducted based on the TREND checklist.

PARTICIPANTS

This study was conducted between January 2022 and July 2023 in 11 public primary and secondary schools affiliated with the Provincial Directorate of National Education in Aksaray Anatolian city in Türkiye. All participating teachers reported having at least one student in their class diagnosed with epilepsy and receiving treatment. The inclusion criteria were being employed at the selected schools, voluntary participation, and providing informed consent.

Using G*Power 3.0 (Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany), the required sample size was calculated as 54 (effect size=0.90; power=90%; α=0.05). To account for potential attrition, 69 teachers were recruited (35 intervention, 34 control). Ultimately, 6 teachers withdrew, and the final analysis included 63 participants (30 intervention, 33 control).

DATA COLLECTION TOOLS

Research data were collected using the "Teacher Identification Form", "Epilepsy Questionnaire for Teachers", "Seizure First Aid Questionnaire for Teachers" and "Public Attitudes Toward Epilepsy (PATE)".

Teacher Identification Form

This form, created by the researchers, consists of 6 questions about the socio-demographic characteris-

tics of the teachers and whether there is an epilepsy patient in the family.[2,3]

Epilepsy Questionnaire for Teachers

This 20-item questionnaire assessed teachers' general knowledge of epilepsy, covering topics such as disease characteristics, treatment, follow-up, and social life (Appendix 1).[2,10,12] Responses were "yes" or "no", with correct answers scored as 1 and incorrect answers as 0; higher scores indicated greater knowledge. Expert validation was obtained (W=0.8, p<0.05).

Seizure First Aid Questionnaire for Teachers

This questionnaire designed in line with the literature assessed teachers' knowledge of seizure first aid, including appropriate and inappropriate responses during an epileptic seizure (e.g., calling emergency services, loosening clothing, etc.) (Appendix 2).[2,10,12] Items were answered as "yes" or "no", with correct answers scored as 1 and incorrect answers as 0; higher scores reflected greater knowledge. Expert consensus on the content was confirmed (W=0.7, p<0.05).

Public Attitudes Toward Epilepsy

The PATE Scale, developed by Lim et al., is a 14-item instrument using a 5-point Likert scale to assess attitudes toward epilepsy.[19] It consists of 2 subscales: general (9 items) and personal (5 items). Higher scores indicate more negative attitudes, with items 2, 5, 10, 11, and 14 reverse scored (Appendix 3). The original scale had a Cronbach's alpha of 0.9. Aktürk et al. adapted it for Turkish populations, confirming its validity and reliability (Cronbach's alpha=0.8).[20] In the current study, Cronbach's alpha was 0.8.

Interventions

Preparatory Phase of MEEP-T

The preparatory phase involved developing the MEEP-T curriculum, weekly presentations, and educational materials (Table 1). MEEP-T comprised 3 modules: Knowledge about epilepsy, seizure management, and epilepsy and social life, based on relevant literature and guidelines.[2,10,12] Expert evaluation confirmed the program's clarity and content validity (W=0.8, p<0.05). Data collection tools were also prepared during this phase.

APPENDIX 1: Epilepsy Questionnaire for Teachers

Number of questions	Epilepsy Questionnaire for Teachers	True	False
1	Have you ever talked to anyone with epilepsy?		
2	Does anyone in your family have epilepsy?		
3	Have you been a teacher of a student with epilepsy?		
4	Are you currently a teacher of a student with epilepsy?		
5	Do you have information about the living conditions of people with epilepsy?		
6	If one of your students has a seizure during class, are you prepared to handle the seizure?		
7	Are you aware of the different types of seizures and what they look like?		
8	Would you like to have more general information about epilepsy?		
9	Want to learn more about how to respond when a student is having a seizure?		
10	Did you receive adequate training in seizure management and epilepsy in your teacher training?		
11	A person with epilepsy is also mentally retarded.		
12	A person with epilepsy does not have a normal life expectancy.		
13	You can expect the epileptic person's condition to worsen		
14	The epileptic child is like everyone else once her/his seizures are controlled.		
15	Child with epilepsy can cope with difficult tasks		
16	Epileptic children can safely participate in strenuous activities		
17	Epilepsy is not a contagious disease		
18	The child of an epileptic patient will have epilepsy		
19	The epileptic child in the regular classroom has a negative impact on other children		
20	Epilepsy and epilepsy medications have a significant impact on a student's mood, memory, and learning.		

APPENDIX 2: Seizure First Aid Questionnaire for Teachers			
Number of questions	**Seizure First Aid Questionnaire for Teachers**	**True**	**False**
1	It is necessary to assess the child's consciousness.		
2	Timing/video recording is required		
3	There is no need to loosen your clothes.		
4	It is important to keep away from harmful tools or environments.		
5	If saliva has come out, it should be cleaned.		
6	The interventions of surrounding people should be taken into account.		
7	The child should be placed in a side position or his/her head should be turned to the side.		
8	112 should be called immediately.		
9	If the seizure lasts longer than 3 minutes, 112 should be called.		
10	If there is an injury during the seizure process, the 3rd minute should not be waited.		
11	If a seizure is followed by another seizure, 112 should be called.		
12	An attempt should be made to open the jaw to open the airway.		
13	A stimulus should be given (slapping, making the child smell lemon cologne, sprinkling water, etc.).		
14	An attempt should be made to give the medicine.		
15	Foods such as sugar or water should not be given orally.		
16	As soon as it is noticed, it should be placed in a car or vehicle and taken to the nearest health facility.		
17	Urinary incontinence should be assessed.		
18	In order to intervene correctly, it should be checked whether the epilepsy bracelet is present.		
19	Consciousness should be assessed at regular intervals.		
20	If there is any sleepiness or fatigue following the event, it should be noted.		

APPENDIX 3: Public Attitudes Toward Epilepsy						
Number of questions	**Public Attitudes Toward Epilepsy (PATE)**	**Strongly disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly agree**
General area						
1	Individuals with epilepsy should not study at university/higher education.					
2	People with epilepsy have the same rights as other people.					
3	People with epilepsy should be treated the same as other people.					
4	Individuals with epilepsy should not participate in social activities.					
5	I have no problem partnering with people with epilepsy.					
6	Individuals with epilepsy should not marry.					
7	I stay away from friends who I know have epilepsy.					
8	Individuals with epilepsy should study in special schools.					
9	Schools should place individuals with epilepsy in special classes.					
Personal area						
10	I would date someone with epilepsy.					
11	I would marry/marry someone who has epilepsy.					
12	I would be uncomfortable working with someone who has epilepsy.					
13	I would not recommend that any of my family members marry someone with epilepsy.					
14	If I were an employer, I would give equal employment opportunities to individuals with and without epilepsy.					

Interventional Phase of MEEP-T

During the interventional phase, both groups completed pre-tests (T0). The education group then received the MEEP-T as a classroom-based training, while the control group received no intervention. Post-tests (T1) were administered immediately after

the training, followed by a 1-month follow-up assessment (T2) using the same tools.

Assessment Phase of MEEP-T

The effectiveness of MEEP-T was evaluated through intergroup comparisons. After the study, the control group was provided with the training content in guideline form, in accordance with ethical principles.

DATA COLLECTION PROCEDURE

Prior to the study, school principals were consulted to schedule the training in an accessible location-a centrally located school conference hall. To ensure a quiet setting, sessions were held on weekends or during school breaks. The interventional phase began with pre-testing (T0), followed by the 3-week (30-hour) MEEP-T, delivered face-to-face by a single researcher. Post-testing (T1) was conducted immediately after the program, and follow-up testing (T2) occurred 1-month later. Each weekly session lasted 10-hours (Table 1, Figure 1).

STATISTICAL ANALYSIS

Data were analyzed using R version 4.3.1 (R Foundation for Statistical Computing, Vienna, Austria). Results were presented as percentages and mean± standard deviation. The Shapiro-Wilk test confirmed normal distribution. Independent samples t-tests and chi-square tests were used for group comparisons. Statistical significance was set at $p<0.05$. Expert consensus was evaluated using Kendall's W.[21]

ETHICAL CONSIDERATIONS

Permission to use the measurement tools was obtained from the original authors. Ethical approval was granted by the Aksaray University Human Research Ethics Committee (date: December 22, 2021; no: 2021/08-44) and the Aksaray Provincial Directorate of National Education (2022; no: 624/23). Written informed consent was obtained from all participants, and the study was conducted in accordance with the Declaration of Helsinki.

TABLE 1: Content of the modular epilepsy education program for teachers (total duration of the modular epilepsy education program for teachers)

Procedure (3 modules)	Chapter	Curriculum	Duration of the session	Activities	Methods	Materials
Module 1	Knowledge about epilepsy	- What is epilepsy? - Symptoms of epilepsy - Diagnosis of epilepsy - Treatment of epilepsy - Complementary alternative approach for epilepsy	10 hours	- Question and answer - Group discussion - Brainstorming - Recommendations on the topic	- Face to face education	- Online slides - Videos - Brochures - International conventions
Module 2	Seizure management	- How can one manage seizure? - When should one call for an emergency help? - What should one pay attention to when using medicine? - What should one do during a seizure? - What should one not do during a seizure?	10 hours			
Module 3	Epilepsy and social life	- Does epilepsy affect social life? - Is there any activity that needs to be stopped because of epilepsy? (e.g., shopping, going on a holiday, etc.) - What can people with epilepsy not do? - Epilepsy and Sports - Does epilepsy affect child's friendships? - Marriage and having a baby	10 hours			

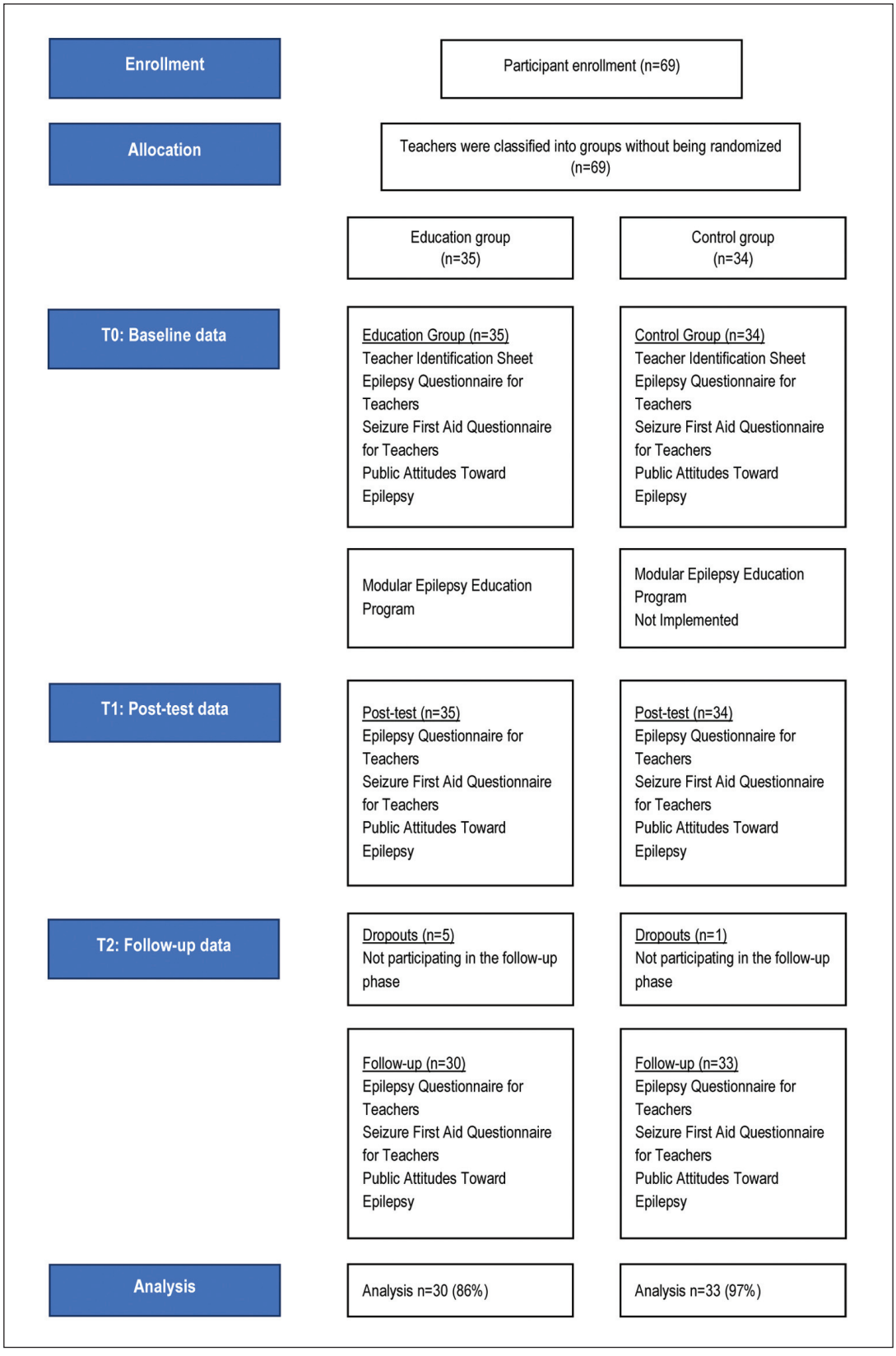


FIGURE 1: Flow chart: enrollment of teachers

RESULTS

TEACHERS' CHARACTERISTICS

Table 2 summarizes participants' socio-demographic data, prior epilepsy education, and family history of epilepsy. The mean age was 38.0±1.2; 50.8% were male, 93.6% were married, and 69.8% lived in the city center. Half of the teachers (50.8%) had previous epilepsy training, and 85.7% reported no family history of epilepsy. There were no significant differences between groups in socio-demographic variables or prior education, though the education group had more participants with family members affected by epilepsy.

LEVELS OF KNOWLEDGE ABOUT EPILEPSY

Table 3 shows the mean scores for "knowledge about epilepsy" at T0, T1, and T2. There was no significant difference between groups at T0. However, the education group's scores significantly increased at T1 ($p<0.05$), while the control group showed no significant change ($p>0.05$) (Table 3, Figure 2).

LEVELS OF KNOWLEDGE OF SEIZURE FIRST AID

Table 4 presents the "seizure first aid knowledge" scores at T0, T1, and T2. No group differences were found at T0. The education group showed a signifi-

TABLE 2: Characteristics of teachers (n=63)

Characteristic	Education (n=30)		Control (n=33)		Total (n=63)		Test	p value
Mean age (years) ($\bar{X}$±SD)	38.5±2.3		37.5±1.9		38.0±1.2		1.6	0.216
	n	%	n	%	n	%		
Gender								
Female	16	53.3	15	45.5	31	49.2	1.8899	0.1607
Male	14	46.7	18	54.5	32	50.8		
Marital status								
Married	28	6.7	31	93.9	59	93.6	4.9816	0.1206
Single	2	93.3	2	6.1	4	6.4		
Place of residence								
Province	19	63.3	25	75.8	44	69.8	3.4455	1.1257
District	11	36.7	8	24.2	19	30.2		
Previous education received on epilepsy								
Yes	7	32.3	25	75.8	32	50.8	3.4455	1.1257
No	23	67.7	8	24.2	31	49.2		
Presence of a family member with epilepsy								
Yes (my child)	7	32.3	2	6.1	9	14.3	3.6807	0.0002
No	23	67.7	31	93.9	54	85.7		
Total	30	100.0	33	100	63	100.0		

SD: Standard deviation

TABLE 3: Comparison of Epilepsy Questionnaire for Teachers means of groups

	Epilepsy Questionnaire for Teachers	Education $\bar{X}$±SD	Control $\bar{X}$±SD	t-test	p value
Measurement times	T0 (pre-test)[a]	14.3±0.3	14.6±0.8	3.2732	0.832
	T1 (post-test)[b]	18.8±1.8	15.0±0.9	3.8020	0.001
	T2 (1 month after post-test)[c]	17.9±1.4	14.7±0.3	4.7831	0.001
		F (95% CI)	p value	d value	Significant difference
Test	Differences over time	91.2	0.002	2.0	**Education**: b>a, c
	Differences between groups	116.3	0.001	2.8	**Control**: b>c, a
	Time-group interaction differences	93.5	0.001	3.3	

SD: Standard deviation; CI: Confidence interval; t: Independent sample t-test; F: Repeated measures analysis of variance; d: Effect size

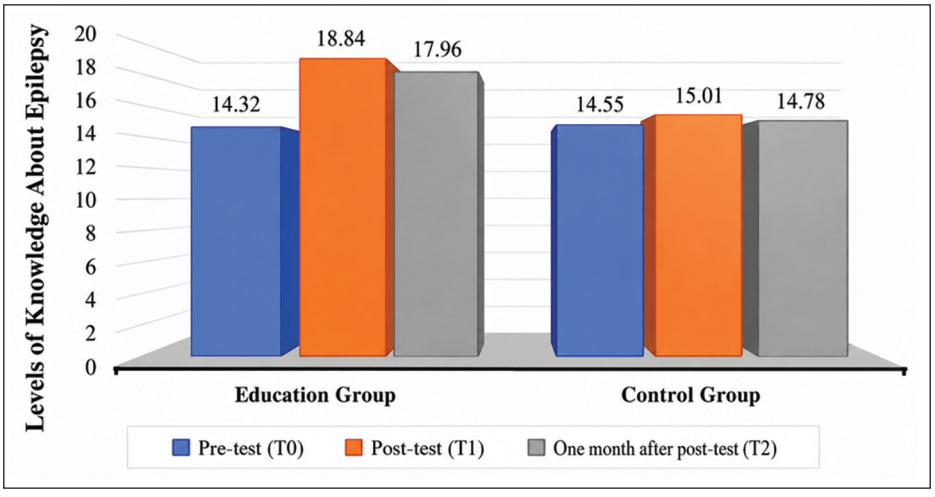


FIGURE 2: Mean scores of teachers for "levels of knowledge about epilepsy"

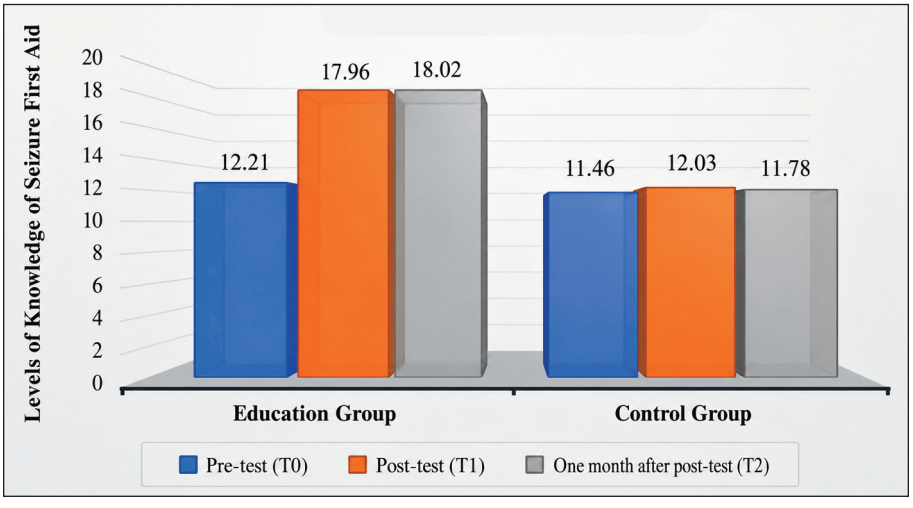


FIGURE 3: Mean scores of teachers for "levels of knowledge of seizure first aid"

TABLE 4: Comparison of Seizure First Aid Questionnaire for Teachers means of groups

	Seizure First Aid Questionnaire for Teachers	Education X̄±SD	Control X̄±SD	t-test	p value
Measurement times	T0 (pre-test)[a]	12.2±0.7	11.5±0.2	4.1025	0.792
	T1 (post-test)[b]	18.0±1.3	12.0±0.6	4.8154	0.001
	T2 (1 month after post-test)[c]	18.0±1.6	11.8±0.9	4.2534	0.000
		F (95% CI)	**p value**	**d value**	**Significant difference**
Test	Differences over time	201.6	0.001	2.4	**Education**: c>b, a
	Differences between groups	261.7	0.002	3.1	**Control**: b>c, a
	Time-group interaction differences	89.8	0.001	3.4	

SD: Standard deviation; CI: Confidence interval; t: Independent sample t-test; F: Repeated measures analysis of variance; d: Effect size

cant increase at T1 ($p<0.05$), while the control group's scores remained low and unchanged ($p>0.05$) (Table 4, Figure 3).

PUBLIC ATTITUDES TOWARD EPILEPSY "PATE"

Table 5 shows the PATE scores at T0, T1, and T2. No significant differences were found at T0. At T1,

TABLE 5: Comparison of Public Attitudes Toward Epilepsy means of groups

	Public Attitudes Toward Epilepsy	Education X̄±SD	Control X̄±SD	t-test	p value
Measurement times	T0 (pre-test)[a]	3.9±0.4	3.8±0.5	2.2663	0.783
	T1 (post-test)[b]	2.6±0.3	3.8 ±0.8	2.1651	0.001
	T2 (1 month after post-test)[c]	2.5±0.4	3.8±0.6	1.8892	0.000
		F (95% CI)	**p value**	**d value**	**Significant difference**
Test	Differences over time	3.9	0.024	1.7	**Education**: a<b, c
	Differences between groups	144.8	0.029	1.2	**Control**: a<c, b
	Time-group interaction differences	2.7	0.033	1.9	

SD: Standard deviation; CI: Confidence interval; t: Independent sample t-test; F: Repeated measures analysis of variance; d: Effect size

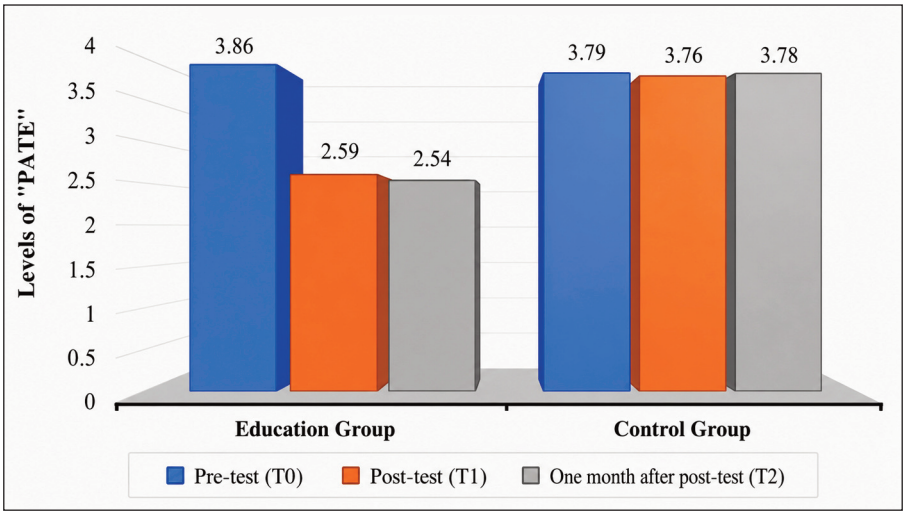


FIGURE 4: Mean scores of teachers for "PATE"

the education group's scores improved significantly ($p<0.05$), while the control group showed no significant change ($p>0.05$) (Table 5, Figure 4).

DISCUSSION

To our knowledge, this is the first experimental study in Türkiye involving teachers affiliated with the Provincial Directorate of National Education, using a modular program designed to improve epilepsy knowledge and seizure management skills. Regardless of whether teachers currently have a student with epilepsy, the assessed parameters (epilepsy knowledge, seizure first aid, and social attitudes) are essential for all educators. These competencies are practical, fundamental, and should be delivered through systematic, regular, and modular training. Teachers play a critical role in the lives of children with epilepsy, providing not only support after diagnosis but also contributing to early detection, given that children spend most of their day at school.[6,8,9,11,13]

This study found that the MEEP-T significantly increased teachers' knowledge of epilepsy and seizure first aid. While numerous descriptive studies have assessed these areas, few have implemented educational interventions or evaluated their outcomes.[5,13,15,17,22-24] Previous research has reported inadequate knowledge among teachers, consistent with the T0 findings of this study.[15,23,24] Unlike prior research, this study developed and applied a modular education program, assessing its effects on teachers' knowledge, first aid skills, and attitudes. Similar to our findings, one study showed that health education significantly increased teachers' seizure first aid

knowledge.[15] At T0, misconceptions were common, such as beliefs that epilepsy is contagious, solely hereditary, causes mental disability, or that medical check-ups are only needed during seizures (Appendix 1). These misconceptions are consistent with other studies.[5,13,15,17,22,25] The T1 results confirmed substantial knowledge improvement.

Teachers' seizure first aid skills also improved post-training. Most teachers correctly rejected harmful practices, such as forcing the mouth open, sprinkling water, administering medication, slapping, shouting, or calling emergency services without initial intervention (Appendix 2). They reported correct procedures, such as ensuring safety, checking consciousness, turning the child on their side, and noting seizure duration (Appendix 2). These findings align with studies showing that training enhances teachers' knowledge, skills, and awareness regarding epilepsy management.[15,26-30]

Teachers' attitudes toward children with epilepsy were assessed via the PATE scale. At T0, many believed that children with epilepsy should not study or play alongside healthy peers and would face disadvantages in marriage and personal life (Appendix 3). Similar and conflicting findings exist in the literature.[15] However, post-intervention results showed more positive attitudes. Educational interventions have been shown to improve social perceptions of epilepsy.[15,31-34] Quereshi et al. emphasized the need for seizure management training to improve access to education for young people with epilepsy.[29] Makhado et al. highlighted the importance of incorporating epilepsy into life skills education, and Kuzlu Ayyıldız et al. demonstrated that childhood epilepsy training increases teacher knowledge and awareness.[27,28] In summary, the MEEP-T not only improved teachers' knowledge and first aid competencies but also fostered more positive and inclusive attitudes toward children with epilepsy.

LIMITATIONS

This study was conducted in a single province, limiting the generalizability of the findings. A quasi-experimental design was used; future randomized controlled trials are recommended. Additionally, follow-up was limited to one month, and longer-term assessments are suggested.

CONCLUSION

Since teachers spend considerable time with children, epilepsy education is essential. The MEEP-T program significantly improved teachers' knowledge of epilepsy, seizure first aid, and attitudes toward children with epilepsy. Despite their key role, teachers' knowledge and attitudes remain insufficient. This study contributes valuable insights and highlights the need for standardized, comprehensive epilepsy training programs for educators at all levels. Nationwide implementation by the Ministry of National Education is recommended to support teacher preparedness.

Acknowledgement

I would like to acknowledge the translation agency for their valuable contribution to the language editing process. We thank all the participants who contributed to the research.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

This study is entirely author's own work and no other author contribution.

REFERENCES

1. Kutluk MG, Danis A. Bibliometric analysis of publications on pediatric epilepsy between 1980 and 2018. Childs Nerv Syst. 2021;37(2):617-26. [Crossref] [PubMed]
2. Gürhopur Turan FD, İşler Dalgıç A. Çocuklarda epilepsi nöbetlerinin hastane dışında yönetilmesine yönelik verilen eğitimlerin etkinliğinin değerlendirilmesi: randomize kontrollü çalışmaların sistematik derlemesi [Evaluation of the effectiveness of the education program for the management of seizures out of hospital in children who have epilepsy: systematic review of the randomized control trials]. Epilepsi. 2020;26(2):94-102. [Crossref]
3. Turan Gürhopur FD, Işler Dalgiç A. The effect of a modular education program for children with epilepsy and their parents on disease management. Epilepsy Behav. 2018;78:210-8. [Crossref] [PubMed]
4. Epilepsy foundation [Internet]. © 2024 Epilepsy Foundation® [Cited: May 11, 2026]. Our Impact Together. Available from: [Link]
5. Karabulut N, Abi Ö. Primary school teachers' health literacy levels, knowledge, and attitudes toward childhood epilepsy. Epilepsy Behav. 2022;127:108511. [Crossref] [PubMed]
6. Kos FM, Bektas M, Ayar D. Development and Psychometric Evaluation of the Epilepsy Self‐Management Scale for Teachers. Psychology in the Schools. 2025;62(6):1799-811. [Crossref]
7. Ayar D, Bektas M, Ünalp A, Yılmaz Ü, Kos FM, Okur TD, et al. The effect of illness-related fears of parents of children with epilepsy during the COVID-19 period on their children's seizure self-efficacy. Arch Pediatr. 2024;31(5):326-32. [Crossref] [PubMed]
8. Aleid DK, Alanazi AA, Kokandi AA, Aljahany MS. Epilepsy and seizures: knowledge, attitudes and first aid practice among school teachers in Saudi Arabia. Epilepsy & Seizure. 2020;12(1):28-39. [Crossref]
9. Eltibi R, Shawahna R. Knowledge and attitudes of physical educators toward epilepsy and students with epilepsy: a cross-sectional study from Palestine. Epilepsy Behav. 2022;126:108460. [Crossref] [PubMed]
10. Fowler SB, Hauck MJ, Allport S, Dailidonis R. Knowledge and fears of parents of children diagnosed with epilepsy. J Pediatr Nurs. 2021;60:311-3. [PubMed]
11. Basri R, Alruwaili M, Alruwaili R, Alrashed K, Alshammari A, Alshammari S, et al. Knowledge, attitude and practice of schoolteachers towards students with epilepsy in Al-Jouf, Saudi Arabia. Work. 2022;73(1):255-62. [Crossref] [PubMed]
12. Yang L, Lu Q, Tang W, Ji J, Tang P, Jiang Y, et al. Teachers' experiences of managing children with epilepsy in school: a qualitative study. Epilepsy Behav. 2021;121(Pt A):108039. [Crossref] [PubMed]
13. Alzhrani SH, AlSufyani MH, Abdullah RI, Almalki S. Schoolteacher's knowledge, attitudes, and practice toward student with epilepsy in Taif, Saudi Arabia: Cross-sectional study. J Family Med Prim Care. 2021;10(7):2668-78. [PubMed] [PMC]
14. Okumura A, Saitoh S, Natsume J, Yamamoto H, Kurahashi H, Numoto S. Attitudes of school teachers toward epilepsy in Nagoya, Japan. Epilepsy Behav. 2020;103(Pt A):106359. [Crossref] [PubMed]
15. Alkhotani AM, Alkhotani AM. Effect of health education on female primary school teachers' knowledge of seizure first aid: an interventional study. Epilepsy Behav. 2022;127:108523. [Crossref] [PubMed]
16. Akbas Y, Kartal S. An evaluation of the knowledge, attitudes, and behaviors of parents regarding epilepsy. Epilepsy Behav. 2022;129:108621. [Crossref] [PubMed]
17. Alharthi RSM, Ghmaird AS, Alatawi BE, Albalawi NM, Albalawi MA, Abosaber SA. Assess the level of awareness of epilepsy and first aid in seizure attact among teachers of children age group (6-18 yr), Tabuk City Kingdom of Saudi Arabia. Saudi Medical Journal of Students. 2021;2(1):1-8. [Link]
18. Mutanga O. Perceptions and experiences of teachers in Zimbabwe on inclusive education and teacher training: the value of Unhu/Ubuntu philosophy. International Journal of Inclusive Education. 2022:1-20. [Link]
19. Lim KS, Wu C, Choo WY, Tan CT. Development and validation of a public attitudes toward epilepsy (PATE) scale. Epilepsy Behav. 2012;24(2):207-12. [PubMed]
20. Aktürk T, Tanık N, Saçmacı H, Chia ZJ, Lim KS. Validity and reliability of the Turkish version of Public Attitudes Toward Epilepsy Scale. Epilepsy Behav. 2020;111:107245. [Crossref] [PubMed]
21. National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Committee on Science, Engineering, Medicine, and Public Policy; Board on Research Data and Information; Division on Engineering and Physical Sciences; Committee on Applied and Theoretical Statistics; Board on Mathematical Sciences and Analytics; Division on Earth and Life Studies; Nuclear and Radiation Studies Board; Division of Behavioral and Social Sciences and Education; Committee on National Statistics; Board on Behavioral, Cognitive, and Sensory Sciences; Committee on Reproducibility and Replicability in Science. Reproducibility and Replicability in Science. Washington (DC): National Academies Press (US); 2019. Available from: [Crossref]
22. Alharbi N, Alharbi YM, Almasaud AK, Alsamarh TN, Alwasil SA, Aldaham AH, et al. A cross-sectional study on knowledge and attitude of schoolteachers about epilepsy in Saudi Arabia. Advances in Human Biology. 2021;11(1):58-63. [Crossref] [PubMed]
23. Chew J, Carpenter J, Haase AM. Young people's experiences of epilepsy: a scoping review of qualitative studies. Health Soc Work. 2017;42(3):167-76. [Crossref] [PubMed]
24. Jones C, Atkinson P, Helen Cross J, Reilly C. Knowledge of and attitudes towards epilepsy among teachers: a systematic review. Epilepsy Behav. 2018;87:59-68. [Crossref] [PubMed]
25. AlHarbi FA, Alomari MS, Ghaddaf AA, Abdulhamid AS, Alsharef JF, Makkawi S. Public awareness and attitudes toward epilepsy in Saudi Arabia: a systematic review and meta-analysis. Epilepsy Behav. 2021;124:108314. [PubMed]
26. Kartal M, Karakaş N, Tuz P, Kapıkıran G. The evaluation of the training, "the approach to epilepsy and epileptic seizure," which was given to teachers in Türkiye. Brain Behav. 2024;14(5):e3538. [Crossref] [PubMed] [PMC]
27. Kuzlu Ayyıldız T, Aktaş E, Özsavran M, Seval M, Üstündağ M, Çiftçi D. The effects of childhood epilepsy training on knowledge and awareness among teachers. Health Education Journal. 2025;84(2):113-24. [Crossref]
28. Makhado TG, Lebese RT, Maputle MS, Makhado L. Epilepsy life skill education guidelines for primary school teachers and learners in Limpopo and Mpumalanga Provinces, South Africa: Multiphase mixed methods protocol. PLoS One. 2022;17(7):e0271805. [Crossref] [PubMed] [PMC]
29. Quereshi C, Standing HC, Swai A, Hunter E, Walker R, Owens S. Barriers to access to education for young people with epilepsy in Northern Tanzania: a qualitative interview and focus group study involving teachers, parents and young people with epilepsy. Epilepsy Behav. 2017;72:145-9. [Crossref] [PubMed]
30. Sulena S, Singh G, Tyagi D, Bansal N, Padda P, Garg R, et al. Epilepsy smart schools: educational intervention improves knowledge, attitude, and practices regarding epilepsy among school teachers. Epilepsy Behav. 2023;141:109138. [Crossref] [PubMed]
31. Abou Khaled KJ, Ibrahim MI, Moussa RF. Impact of epilepsy training on school teachers and counselors: an intervention study in Lebanon. Epilepsy Behav Rep. 2020;14:100365. [Crossref] [PubMed] [PMC]
32. Eze CN, Ebuehi OM, Brigo F, Otte WM, Igwe SC. Effect of health education on trainee teachers' knowledge, attitudes, and first aid management of epilepsy: an interventional study. Seizure. 2015;33:46-53. [PubMed]
33. Roberts RM, Farhana HS. Effectiveness of a first aid information video in reducing epilepsy-related stigma. Epilepsy Behav. 2010;18(4):474-80. [Crossref] [PubMed]
34. Tavares TP, Kerr EN, Secco M, Bax K, Smith ML. Brief video enhances teacher trainees' knowledge of epilepsy. Epilepsy Behav. 2021;118:107963. [PubMed]