Original Article

Knowledge and Awareness Level of First-aid Management of Pediatric Seizure among Teachers in KSA

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Abstract

No national studies have been published to assess the knowledge and awareness level of first-aid management of pediatric epilepsy among teachers in Saudi Arabia, Therefore, it is crucial to conduct a reliable assessment of teacher's knowledge and awareness level of first-aid management. The current study aims to assess the knowledge and awareness level of first aid management of pediatric epilepsy among teachers inKSA. Using an online survey created as a Google Form, a cross-sectional study was carried out among Saudi Arabian instructors. An electronic survey, composed entirely in Arabic, was disseminated over several social media platforms, Using the "Microsoft Office Excel Software" application [2016] for Windows, data was input on the computer. After that, the data was transferred to the IBM SPSS Statistics to be examined statistically. The study included 521 participants, 71.6% of them were females and 28.4% were males. Thirty-eight percent were aged 41- 50 years old while 28.8% were 31- 40 years old. 90.4% of participants know epilepsy, 50.1% have seen a child's seizure before, 29% know a child with epilepsy, and 28.8% had students with epilepsy in class. Additionally, 77.2% think that epilepsy can be controlled with medication. Regarding causes of epilepsy, 27.6% reported that lack of sleep, 10.6% reported certain foods cause an epileptic seizure, and 4.4% reported that epileptic seizures occur only in children Compared to previous Saudi literature, participants exhibited moderate awareness levels of epilepsy, yet, not sufficient. Education of epilepsy was not significantly associated with any of the sociodemographic characteristics of participants.

Keywords: Epilepsy, Seizure, Awareness, Children

Introduction

The provision of immediate medical care for a disease or injury is known as first aid. It is often given to an ill or injured individual by a non-expert until they can get access to proper medical treatment [1]. One of the most prevalent neurological conditions in children is epilepsy [2]. Epilepsy is intermittent nervous system dysfunction brought on by rapid excessive cerebral neuron discharge [3]. More than 50 million people worldwide suffer from epilepsy, making it a very prevalent condition [1]. The reported yearly incidence rates for epilepsy differ from nation to nation, with Norway reporting a rate of 11/100,000, Italy a rate of 33/100,000, and the United Kingdom a rate of 48/100,000. The populations of developing countries have been reported to have the greatest incidence rates, ranging from 140 to 230 per 100,000 per year [2].

In 2020, research conducted in Saudi Arabia showed that 90.1% of participating school teachers read about epilepsy and 46.2% of them have heard about it in public media. Shaking tremors have been recognized by the majority (92.1%) as serious indicators, along with convulsions. The majority of participants felt positively toward kids who had epilepsy. Furthermore, the majority of educators thought that children with epilepsy should get standard care. When it came to the teacher's experience managing seizures, the majority of participants (48.5%) phoned a doctor for assistance, and (42.6%) put something in their mouth to stop them from biting their tongue. 84.7% of the participants preferred the usage of the drug as the main treatment for epilepsy [2].

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In 2019 a study conducted in Taif city in Saudi Arabia, aimed to assess the level of knowledge, attitude, and practice about epilepsy among elementary school teachers. This study showed that 95% of participants had heard of epilepsy, and 43% of them relied on the public media as their source of knowledge. A significant number of the participants 58% believed that the major cause of epilepsy is multiple causes like head trauma and brain tumors. 15.5% think that epilepsy can't be cured or controlled and 17.3% think children with epilepsy can't practice their life normally. 40.3% of the teachers chose to open their mouth forcefully to prevent tongue swallowing as their first aid management [4].

Research conducted in 2019 in Arar City, a northern region of Saudi Arabia, showed that 99% of participants who were teachers knew what epilepsy is. Only [46.5%] of participants knew what the cause of epilepsy was, 44% stated the early signs/symptoms of epilepsy, and only 38.8% of participants knew the treatment of epilepsy. Regarding the source of information, the study showed that 49.1% of participants' main sources were friends and relatives followed by the internet as the second source 44.1%. Most (75.5%) of interviewees reported having seen an epileptic kid during a seizure. Their procedures included dialing an ambulance for 72% of cases, clearing the sufferer of any potentially harmful items, placing a soft object between his teeth, making sure there was adequate air, pulling his tongue out, and 68.6% of cases [5].

No national studies have been published to assess the knowledge and awareness level of first-aid management of pediatric epilepsy among teachers in Saudi Arabia, Therefore, it is crucial to conduct a reliable assessment of teacher's knowledge and awareness level of first-aid management. The current study aims to assess the knowledge and awareness level of first aid management of pediatric epilepsy among teachers in Saudi Arabia.

Materials and Methods

Study Design

A cross-sectional study was conducted among teachers in Saudi Arabia through an online questionnaire made as a Google form. Sampling and population [including inclusion and exclusion criteria]:

Sample Size

The sample size was estimated using the Qualtrics calculator with a confidence level of 95%; a sample size of 384 and a margin error of 5%.

The Sample size was estimated by using this formula:
$n = P [1-P] * Z\alpha^2 / d^2$ with a confidence level of 95%.
n: Calculated sample size
Z: The z-value for the selected level of confidence [1- a] = 1.96.
P: An estimated knowledge
Q: [1 – 0.50] = 50%, i.e., 0.50
D: The maximum acceptable error = 0.05.
So, the calculated minimum sample size was:
$n = [1.96]^2 \text{ X } 0.50 \text{ X } 0.50 / [0.05]^2 = 384$.

Exclusion and Inclusion Criteria

Inclusion criteria were the following: Currently employed school teachers living in Saudi Arabia
Exclusion criteria were the following: Home teachers and Retired teachers

Methods and Instruments for Data Collection [Data Collection Technique and Tools]

Tools and data collection procedure:
The questionnaire was used in Arabic. The questionnaires will assess teachers' understanding of first aid for an epileptic seizure. The questionnaires were divided into four parts: one section asked about demographics (city, age, gender, nationality); The second section asked about epilepsy and seizure knowledge, the third section asked about first aid, and the fourth section asked about stigma towards patients with epilepsy.

An electronic questionnaire written in Arabic was distributed via multiple social media applications (though mainly Twitter and WhatsApp). Information was kept private per Google's privacy policies. A structured questionnaire was used as a study tool. This tool was developed after consulting relevant studies conducted in Saudi Arabia and elsewhere. The final version of the questionnaire consisted of 40 questions categorized into four main sections. Section one contained demographic background characteristics questions. The second section includes measuring knowledge about epilepsy. The third part includes First aid for an epileptic seizure. The fourth section includes stigma towards patients with epilepsy.

Analyzes and Entry Method

The PC was used to enter data using the "Microsoft Office Excel Software" (2016) Windows software. The data was moved to IBM SPSS Statistics for Windows, Version 20.0, a statistical package for social science software (SPSS) program version 20. IBM Corp., Armonk, NY, for statistical analysis.

Results and Discussion

Of the 521 participants in the research, 71.6% were women and 28.4% were men. Ages ranged from 41 to 50 years old for 38%, 31 to 40 years old for 28.8%, and 20 to 30 years old for 19.6%. Of the participants, 21.1% were single and 72.4% were married. 60.8% of participants work currently. 84.3% work in government schools and 10% work in private schools. 57.2% of participants have more than 10 years of experience, 24% have one to five years of experience, and 12.1% have 6 to 10 years of experience as illustrated in **(Table 1)**.

Table 1. Sociodemographic characteristics of participants [n=521]

Parameter		No.	%
Age	less than 20	12	2.3
	20 - 30	102	19.6
	31 - 40	150	28.8
	41 - 50	198	38.0
	51 - 60	59	11.3
Gender	Males	148	28.4
	Females	373	71.6
Marital status	Single	110	21.1
	Married	377	72.4
	Divorced	24	4.6
	Widow	10	1.9
Region	Southern area	62	11.9
	Eastern Province	89	17.1
	The northern area	30	5.8
	Western Region	188	36.1
	Central Region	152	29.2
Work currently	Yes	317	60.8
	No	204	39.2
School type	government	439	84.3
	Private	52	10.0
	International	30	5.8
Teaching stage	Pre-school	32	6.1
	Primary	175	33.6
	Medium	165	31.7
	High School	149	28.6
Years of Experience	less than one year	35	6.7
	Between 1 to 5 years	125	24.0
	Between 6 and 10 years	63	12.1
	More than 10 years	298	57.2

(Table 2) shows that 90.4% of participants were aware of epilepsy, 50.1% had witnessed a child's seizure previously, 29% knew of any child with epilepsy, 28.8% had students in their class who had epilepsy, 1.2% believed that epilepsy was a communicable disease, 13.1% believed it was a mental illness, 82.7% believed it was a neurological disorder, 30.9% believed it was a genetic disease, and 32.1% believed it was an organic disease. 21.7% of participants reported that epilepsy affects the child's intelligence, 44.9% reported that children with epilepsy recover completely, and 77.2% think that epilepsy can be controlled with medication. 54.9% reported symptoms of pre-epileptic seizure included staring and looking in one direction, 82.7% reported that epilepsy causes loss of consciousness, and 86.6% reported that symptoms of epilepsy jerky movements in the arms and legs. Regarding causes of epilepsy, 27.6% reported that lack of sleep, 10.6% reported certain foods can cause an epileptic seizure, 4.4% reported that epileptic seizures occur only in children, and 55.5% reported there are different types of epilepsy. 20.7% reported that a child with epilepsy should attend a private school, 16.5% reported that there is discrimination against a child with epilepsy in society, 73.9% reported that a child can swallow his tongue during an epileptic seizure, and 35.5% received education about first aid for epileptic seizures in children.

Table 2. Knowledge of causes, symptoms, and management of epilepsy [n=521]

	Yes	No	Don't know
Know epilepsy	471 90.4%	34 6.5%	16 3.1%
Seen a child's seizure before	261 50.1%	260 49.9%	0 0%
Know any child with epilepsy	151 29.0%	370 71.0%	0 0%
Had any students with epilepsy in class	150 28.8%	297 57.0%	74 14.2%
Epilepsy is a contagious disease	6 1.2%	481 92.3%	34 6.5%
Epilepsy is a mental illness	68 13.1%	346 66.4%	107 20.5%
Epilepsy is a neurological disorder	431 82.7%	13 2.5%	77 14.8%
Epilepsy is a genetic disease	161 30.9%	152 29.2%	208 39.9%
Epilepsy is an organic disease	167 32.1%	188 36.1%	166 31.9%
Epilepsy affects the child's intelligence	113 21.7%	254 48.8%	154 29.6%
Children with epilepsy recover completely	234 44.9%	55 10.6%	232 44.5%
Epilepsy can be controlled with medication	402 77.2%	13 2.5%	106 20.3%
Symptoms of pre-epileptic seizure Staring and looking in one direction	286 54.9%	15 2.9%	220 42.2%
Symptoms of epilepsy loss of consciousness	431 82.7%	23 4.4%	67 12.9%
Symptom of epilepsy jerky movements in the arms and legs	451 86.6%	7 1.3%	63 12.1%
Causes of epilepsy lack of sleep	144 27.6%	80 15.4%	297 57.0%
Certain foods cause an epileptic seizure	55 10.6%	132 25.3%	334 64.1%
Epileptic seizures occur only in children	23 4.4%	465 89.3%	33 6.3%
There are different types of epilepsy	289 55.5%	20 3.8%	212 40.7%

A child with epilepsy should attend a private school	108 20.7%	316 60.7%	97 18.6%
There is discrimination against a child with epilepsy in society	86 16.5%	317 60.8%	118 22.6%
A child can swallow his tongue during an epileptic seizure	385 73.9%	21 4.0%	115 22.1%
Received education about first aid for epileptic seizures in children	185 35.5%	311 59.7%	25 4.8%

As illustrated in **(Figure 1)**, 77.2% of participants chose yes **can be controlled with medication**, 22.3% of participants chose I don't know, and only 2.5% said no.

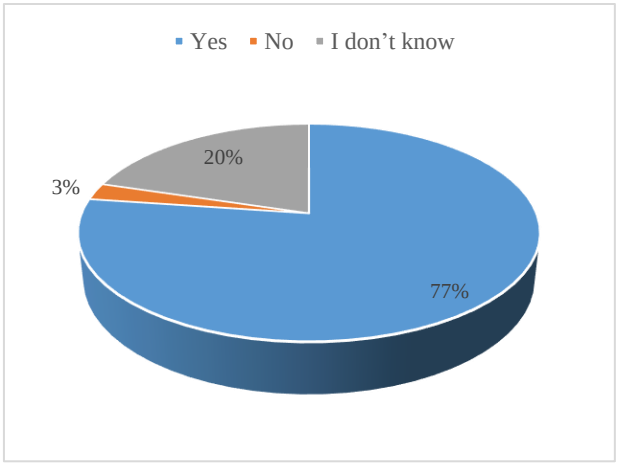

Figure 1. Knowledge of epilepsy if it can be controlled with medication

Of those who received education about first aid for epileptic seizures in children, 41.6% received education from social media, 19.5% received from approved sites such as MOH, 18.4% from doctors, and 8.6% from books. As for the correct position for epileptic seizures in children, 55.9% reported lateral position and 14% reported dorsal position. 47.2% reported stabilizing a child when having an epileptic seizure is one of the first aid methods. 52.2% reported that something solid should be placed inside the child's mouth or between his teeth to prevent him from biting his tongue during an epileptic seizure as in **(Table 3)**. **(Table 3)** also shows that 87.5% of participants think that children with epilepsy can live a normal life. 16.7% of participants reported that their child can play with a child with epilepsy. 31.9% reported that their son or daughter can marry a person with epilepsy. 77.9% reported that people with epilepsy should be employed in jobs like other people.

Table 3. Knowledge and awareness of first aid of epilepsy and attitude towards epilepsy [n= 521]

Parameter		No.	%
Source of information about epilepsy	The school administration	17	9.2
	media	5	2.7
	books	16	8.6
	doctor	34	18.4
	Approved sites such as MOH	36	19.5
	Social media	77	41.6
	Giving the child any kind of food or drink during an epileptic fit	1	.2
First step in aid to help a child during an epileptic seizure	Remove sharp objects near it	224	43.0
	Immobilization of the child during the seizure	148	28.4
	Call for help [call an ambulance[	137	26.3
	Trying to move the child during the seizure	11	2.1
The correct position for epileptic seizures in children	lateral position	291	55.9
	dorsal position	73	14.0
	I don't know	157	30.1
Stabilizing a child when having an epileptic seizure is one of the first-aid methods	Yes	246	47.2
	no	114	21.9
	I don't know	161	30.9
Something solid should be placed inside the child's mouth or between his teeth to prevent him from biting his tongue during an epileptic seizure	Yes	272	52.2
	no	101	19.4
	I don't know	148	28.4
A child with epilepsy can live a normal life	Yes	456	87.5
	no	17	3.3
	I don't know	48	9.2
Your child can play with a child with epilepsy	Yes	87	16.7
	no	393	75.4
	I don't know	41	7.9
Your son or daughter can marry a person with epilepsy	Yes	166	31.9
	no	177	34.0
	I don't know	178	34.2
People with epilepsy should be employed in jobs like other people	Yes	406	77.9
	no	53	10.2
	I don't know	62	11.9

43% of participants reported removing sharp objects near it as the first step in aid to help a child during an epileptic seizure, 28.4% reported immobilization of the child during the seizure, 26.3% reported calling an ambulance, and 2.1% reported trying to move the child during the seizure **(Figure 2)**.

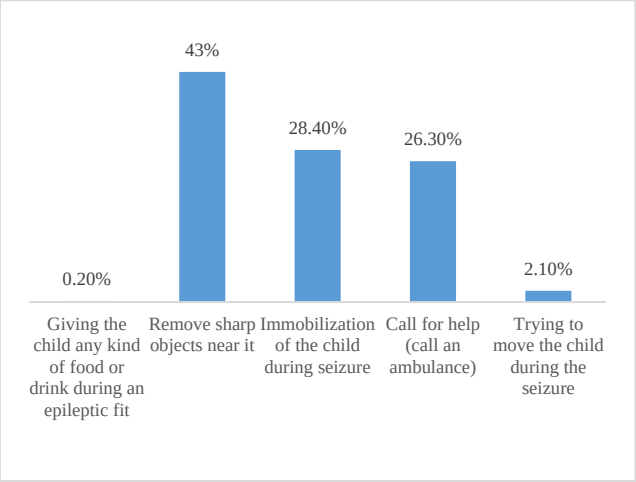

Figure 2. Knowledge and awareness of first aid for epilepsy to help a child during an epileptic seizure.

In **(Table 4)**, education about epilepsy was not significantly associated with any of the sociodemographic characteristics of participants [P> 0.05].

Table 4. Association between previous education about epilepsy and sociodemographic characters of participants [n=521]

		Education of epilepsy first aid			Total [N=521]	P value
		Yes	No	I don't know		
Age	less than 20	4 0.8%	7 1.3%	1 0.2%	12 2.3%	0.816
	20 - 30	36 6.9%	59 11.3%	7 1.3%	102 19.6%	
	31 - 40	58 11.1%	85 16.3%	7 1.3%	150 28.8%	
	41 - 50	63 12.1%	127 24.4%	8 1.5%	198 38.0%	
	51 - 60	24 4.6%	33 6.3%	2 0.4%	59 11.3%	
marital status	Single	42 8.1%	61 11.7%	7 1.3%	110 21.1%	0.283
	Married	127 24.4%	235 45.1%	15 2.9%	377 72.4%	
	Divorced	10 1.9%	12 2.3%	2 0.4%	24 4.6%	
	widow	6 1.2%	3 0.6%	1 0.2%	10 1.9%	
Gender	Male	60 11.5%	85 16.3%	3 0.6%	148 28.4%	0.084
	Female	125 24.0%	226 43.4%	22 4.2%	373 71.6%	
Region	the South	31 6.0%	30 5.8%	1 0.2%	62 11.9%	0.188
	Eastern	34 6.5%	52 10.0%	3 0.6%	89 17.1%	
	North	13 2.5%	16 3.1%	1 0.2%	30 5.8%	
	Western	62 11.9%	116 22.3%	10 1.9%	188 36.1%	
	Central	45 8.6%	97 18.6%	10 1.9%	152 29.2%	
Work currently	Yes	123 23.6%	180 34.5%	14 2.7%	317 60.8%	0.145
	no	62 11.9%	131 25.1%	11 2.1%	204 39.2%	
School type	government	158 30.3%	258 49.5%	23 4.4%	439 84.3%	0.072
	especially	22 4.2%	28 5.4%	2 0.4%	52 10.0%	
	International	5 1.0%	25 4.8%	0 0.0%	30 5.8%	
Teaching stage	Preschool	11 2.1%	18 3.5%	3 0.6%	32 6.1%	0.707
	Primary	62 11.9%	106 20.3%	7 1.3%	175 33.6%	
	Medium	53 10.2%	103 19.8%	9 1.7%	165 31.7%	
	High School	59 11.3%	84 16.1%	6 1.2%	149 28.6%	
Years of Experience	less than one year	14 2.7%	18 3.5%	3 0.6%	35 6.7%	0.355
	Between 1 to 5 years	40 7.7%	77 14.8%	8 1.5%	125 24.0%	
	Between 6 and 10 years	24 4.6%	34 6.5%	5 1.0%	63 12.1%	
	More than 10 years	107	182	9	298	

20.5%	34.9%	1.7%	57.2%

Due to the disease of epilepsy and its manifestations, epilepsy has an impact on the quality of children's lives, particularly in terms of developing relationships, mental health, and academic success in school. To deal with this illness and lessen its effects on the affected kid, teachers must be knowledgeable in this area [5]. This study aims to assess the knowledge and awareness level of first aid management of pediatric epilepsy among teachers in Saudi Arabia.

According to our study results, 82.7% of participants think that epilepsy is a neurological disorder. This was greater than that of other studies conducted in Jordan [6], Sudan [7], and Saudi Arabia [8]. However, it was lower than that of prior Saudi research where all participants believed that epilepsy was a neurological condition [2]. Our findings were supported by another Saudi research, which found that 87.5% of participants recognized epilepsy as a neurological condition [9]. In another Saudi study, 97% of the responders recognized epilepsy as a neurological disease [10].

In our study, 44.9% reported that children with epilepsy recover completely, and 77.2% think that epilepsy can be controlled with medication. This was similar to findings from earlier Saudi research, where 75.2% of respondents thought that treatment was readily available and only 36.5% thought that anti-seizure medications could lead to dependency [2], In contrast, 61.2% of respondents said that medications used to treat epilepsy did not lead to addiction [9].

According to our results, 50.1% of teachers had seen a child's seizure before, 29% knew any child with epilepsy, and 28.8% had any students with epilepsy in class. A previous study reported that 42.1% of teachers had witnessed a seizure [2]. However, compared to studies conducted in India [97%], Burkina Faso [97%], Egypt [100%], Italy [99.7%], the US [95.7%], and Burkina Faso, Egypt, the level of acquaintance with epilepsy in a prior study [3] was lower [11].

1.2% of participants in this research believe that epilepsy is a communicable illness. This was much less than the findings of a prior poll, which indicated that 41.9% of participants thought epilepsy was a communicable illness [12]. These findings are in line with surveys conducted in Niamey [13] and Sakoira [14], where they were reported in 46.2% and 42%, respectively. An Ethiopian study revealed results of 1% [15], and an Egyptian study reported results of 1.6% [16]. 26.8% of the survey participants said they would permit their children to wed someone who has epilepsy. In comparison to the 7.5% reported in the Ethiopia study, this rate is high [15]. We discovered that a significant percentage [57.4%] of school teachers believe that SCWE typically have related mental impairment. This number is similar to Egypt's stated rate of 52.9% [16], however, it is lower than Ethiopia's reported rate of 95% [15]. Of schoolteachers, 55.1% believe that epilepsy is an incurable condition. This rate exceeds the 6.9% recorded in Niamey [13], but lower than the 35% and 21% reported in Sakoira [14] and Jeddah [17]. While 85.6% of respondents think that epilepsy is a curable or manageable condition, just 26.4% of respondents think that epilepsy is treated by modern medicine. These outcomes surpass the 15% recorded in Burkina Faso [18], but they are comparable to those reported in Niamey at 26.2% [13].

As for first aid, 43% of our participants reported removing sharp objects near it as the first step in aid to help a child during an epileptic seizure, 28.4% reported immobilization of the child during the seizure, 26.3% reported calling an ambulance, and 2.1% reported trying to move the child during the seizure. As for the correct position for epileptic seizures in children, 55.9% reported lateral position and 14% reported dorsal position. 52.2% reported that something solid should be placed inside the child's mouth or between his teeth to prevent him from biting his tongue during an epileptic seizure. Previous Saudi study results showed that 64.8% reported that they would lay the student on his side and ask for help after a seizure ends [9]. Likewise, studies conducted in Tabuk and Makkah [8, 10] revealed no improvement in the practice of using an object placed in the patient's mouth as a seizure aid by 49% and 55%, respectively. [52%] say that they would put something in the patient's mouth to keep them from convulsing, and 13% say they would hold and restrain the patient] if they were confronted with a youngster who was having seizures [10].

According to our study, 35.5% of participants received education about first aid for epileptic seizures in children [41.6% of them received education from social media, 19.5% received from approved sites such as MOH, 18.4% from doctors, and 8.6% from books. Previous studies reported majority didn't get a first aid training course [2], and various studies indicate a lack of teachers trained in first aid [19-22].

According to our results, receiving education about epilepsy in children was not statistically significant with any of the sociodemographic characteristics. Conversely, prior Saudi research found a strong correlation between qualification and knowledge score, which might be explained by postgraduate degree holders' greater propensity to understand appropriate seizure management [2]. These findings resemble those of Arar's research [4].

Another study discovered no connection between years of experience and knowledge score. Arar's research also found the same results [4]. In contrast to Makkah's study, which indicated that years of experience and knowledge had a significant association and that younger people had more knowledge [8]. The fact that the bulk of Arar's participants and ours were 30 years of age and older prevented us from comparing the knowledge of the younger generation, which is likely the cause of the discrepancy in the studies' findings. It's possible to assume that there weren't many differences

because of the same educational and professional contexts. Another study found a substantial correlation between knowledge level and the educational level of instructors, with 50% of Ph.D. teachers having good knowledge compared to 38% of teachers with bachelor's degrees. The study found no correlation between age, gender, or knowledge level. This demonstrates how comparable Saudi Arabia's working and educational environments are, even though the survey was carried out in several areas [9].

The awareness programs held by the Saudi Epilepsy Society and Ministry of Health are likely responsible for the teacher's great improvement in understanding epilepsy in general. The annual Purple Epilepsy Awareness Day is observed on March 26 in various Saudi cities. In addition to several public awareness media, there is a public awareness campaign aimed at patients with epilepsy, their families, and the general public. However, there is a paucity of specialized first-aid training for instructors. Epilepsy health education has been shown by Eze and his research teams to improve teacher knowledge and promote effective first-aid administration [23-26].

Conclusion

Compared to previous Saudi literature, participants exhibited moderate awareness levels of epilepsy, yet, not sufficient. Education of epilepsy was not significantly associated with any of the sociodemographic characteristics of participants. The findings of the current study suggest including educational training courses about epilepsy in the curricula of teacher preparation programs so that instructors can become knowledgeable about epilepsy. The findings also call for the organization of public education regarding epilepsy, using possible channels including radio and television, as well as awareness campaigns to dispel any misconceptions about the condition and encourage understanding of those who live with it.

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ETHICS STATEMENT: Ethical approval was obtained from the research ethics committee of the Ministry of Health. Application number: [44-166]. An informed consent was obtained from each participant after explaining the study in full and clarifying that participation is voluntary. Data collected were securely saved and used for research purposes only.
Written informed consent was obtained from all individual participants included in the study.

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