



Knowledge of Epilepsy and seizure first aid among teachers in Jeddah, Saudi Arabia



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ABSTRACT

Purpose: Epilepsy is one of the most common neurological disorders, with a national prevalence of 6.54/1000. The majority of the patients are adolescents and at risk of experiencing a seizure in school. Consequently, schoolteachers would be among the first health care providers. Thus, teachers' knowledge and practice are imperative for the students' safety and development. We aimed to assess the knowledge of epilepsy and seizure first aid among teachers at all educational levels in Jeddah, Saudi Arabia.

Method: A cross-sectional study using a self-administered validated questionnaire was distributed to teachers to assess their necessary demographic data and their knowledge about epilepsy and seizure first aid by using Chi-square test to find significant associations.

Results: Our sample included 822 teachers, 54.1% of the respondents were male, and 45.7% female. The majority of participants had moderate knowledge of epilepsy and lacked first aid training. Most participants recognized epilepsy as a neurological disorder, and 42.2% have witnessed a seizure in school. Our study showed a significant relationship between knowledge score and qualification (P-value = 0.037) as well as knowledge score and witnessing a seizure (P-value = 0.046).

Conclusion: The knowledge score shows that teachers in Jeddah have moderate knowledge of epilepsy, and approximately one-tenth have taken first aid training. We recommend educational campaigns on epilepsy and first aid courses targeting students and teachers in schools.

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1. Introduction

Epilepsy is considered one of the most common neurological disorders among children [1]. It is defined as recurrent seizures that happen as a result of a paroxysmal excessive electrical discharge of cortical neurons [2]. Epilepsy has a high prevalence rate with more than 50 million people worldwide [3]. In Saudi Arabia, it is about 6.54 per 1000 adults and children [4]. Epilepsy can negatively affect a child's health, behavior, and academic performance and undermine their mental health [5–7]. Moreover, a seizure can occur in school, and teachers consequently will be the first health care providers. Teachers' knowledge of epilepsy and seizure first aid can have a powerful impact on a child's health, performance, and social skill development [8].

Studies on teachers knowledge of epilepsy in Japan, Kuwait, and Khartoum showed poor knowledge [9–11], while another study in Jordan showed moderate knowledge [12]. However, studies in Saudi Arabia, such as Riyadh, and Khamis Mushate concluded that teachers have good knowledge of epilepsy [13,14]. On the other hand, studies from Tabuk, Arar, and Makkah's found that teachers had inadequate knowledge of epilepsy [15–17]. Furthermore, all the previous national studies assessed the practice of seizure first aid, and the result was poor practice [13–17].

To the best of our knowledge, the last study done in Jeddah was in 2013. They found that only 17% of teachers had good knowledge of Epilepsy, and the majority had insufficient seizure first aid knowledge [18].

As studies in Saudi Arabia are limited, and the last research in Jeddah was seven years ago, and it only focused on primary school teachers. This study aimed to evaluate knowledge of epilepsy and seizure first aid among teachers in all educational levels in Jeddah, Saudi Arabia.

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2. Methodology

The study was approved by Dr. Soliman Fakeeh Hospital Scientific Research Review Committee (DSFH IRB) in July 2020. A descriptive cross-sectional study was conducted in Jeddah, Saudi Arabia, from July to August 2020. Our targeted population was male and female teachers in private and public schools of all educational levels in Jeddah.

The sample size was 822 and was calculated using the Raosoft website [19]. A self-administrated validated questionnaire in Arabic and English languages were used. The questionnaires were taken from a study that assessed female teachers' knowledge about seizure first aid in Makkah [17]. The Questionnaires had two Sections: the first section included demographic questions (city, age, gender, nationality, qualification), and the second section included questions on knowledge of epilepsy and seizure first aid.

There were 6 questions assessing the participants' knowledge, and the answers were added together to form a knowledge score. It classified the teachers' knowledge into good (5–6 correct answers), moderate (3–4 correct answers), and poor (1–2 correct answers).

The electronic questionnaire was distributed to teachers and encouraged them to share the questionnaire with their colleagues using a snowball sampling technique. Data entry was done using Microsoft Office, Excel 2016. The statistical analysis was done using a Statistical Package for the Social Sciences (SPSS) software, version 25 (Armonk, NY: IBM Corp) applying Chi-square analysis. Statistical significance will be defined as P values of less than 0.05, with a confidence interval of 95%. All the information in this study was used for scientific purposes only, and the participants' confidentiality was protected.

3. Result

Our study aimed to assess the knowledge of epilepsy and seizure first aid among schoolteachers in Jeddah, Saudi Arabia. The contributed male teachers were 54.1%, and female teachers were 45.7%. Their ages ranged from the 20 s to the 60 s (mean 45, SD 8.1), 45% were between 40–49, and 30.2% were between 50–59 years old. Nearly all of them (90.8%) were of Saudi nationality. The majority of the participants reported completing

Demographic data of participants (N=822).	
Demographic data	N (%)
City:	
Jeddah	822 (83.7%)
Outside Jeddah	161 (16.3%)
Age (years):	
29 and less	15 (1.8%)
30-39	157 (19.1%)
40-49	370 (45%)
50-59	248 (30.2%)
60 and above	32 (3.9%)
Gender:	
Male	445 (54.1%)
Female	374 (45.7%)
Nationality:	
Saudi	744 (90.8%)
Non-Saudi	75 (9.2%)
Qualification:	
Bachelor	753 (91.9%)
Master	55 (6.7%)
PhD	11 (1.3%)
Level of student education:	
Primary	340 (41.6%)
Secondary	206 (25.2%)
High school	272 (33.3%)
Years of experience:	
5years and less	44 (5.4%)
6 to 10 years	110 (13.4%)
10 years and more	668 (81.3%)

Fig. 1. Demographic data of participants (N = 822).

a university bachelor's degree. Most of the participants had an experience of 10 years or more (Fig. 1).

3.1. Knowledge of epilepsy and seizure first aid

Most respondents (91.7%) correctly answered the item “cause of epilepsy”. Similarly, 75.2% of the responders believed in treatment availability, and only 36.5% believed that antiseizure medication could cause dependency, and 42.1% of teachers had witnessed a seizure. In the meantime, 60.5% correctly answered the question, “what is your response if one of your students had a seizure

attack?” and 64.8% responded correctly to the item “what do you do after a seizure ends?”. Besides, 30.4% believed that the student must be transported to the hospital “If a seizure continued for more than 5 minutes and If the seizure reoccurred and the student didn’t wake up”. Finally, only 11% of teachers did undergo seizure first aid training (Fig. 2).

3.2. Epilepsy knowledge score

Our results show that the majority of participants (69%) had moderate knowledge of epilepsy, and 16.8% had good knowledge,

Knowledge of Epilepsy and first aid.	
Knowledge of Epilepsy	N (%)
Etiology*:	
Psychological disease	54 (6.6%)
Neurological disease	751 (91.7%)
Jinn**	14 (1.7%)
Treatment availability*:	
Yes	616 (75.2%)
No	203 (24.8%)
Medication dependency*:	
Yes	299 (36.5%)
No	520 (63.5%)
Previously witnessed a seizure:	
Yes	346 (42.2%)
No	473 (57.8%)
Response to seizure attack*:	
Ensure the patients safety, and ask for help	496 (60.5%)
Read the Quran	27 (3.3%)
Open his mouth and put gauze in it “a Piece of cloth”	297 (36.2%)
Post-seizure care*:	
Lay the student on his side and ask for help	531 (64.8%)
Try to wake him up	108 (13.2%)
Read the Quran	8 (1.0%)
Wash his face with water and give him water to drink	172 (21.0%)
Hospital transportation*:	
Immediately, if a seizure occurred	124 (15.1%)
If a seizure continued for more than 5 minutes	122 (14.8%)
If a seizure continued for more than 10 minutes	46 (5.6%)
If a seizure continued for more than 20 minutes	27 (3.3%)
If the seizure reoccurred and the student didn’t wake up	94 (11.4%)
Both A & B	159 (19.3%)
Both B & E	250 (30.4%)
Seizure first aid training:	
Yes	90 (11.0%)
No	730 (89%)
(*) The listed questions consisted of the knowledge score. (**)The definition of Jinn by Roland Littlewood(20): is a spirit that can possess a person, and control or alter the person's behavior and actions	

Fig. 2. Knowledge of Epilepsy and first aid. (see above mentioned referene for further information.)

and only 14.2% had poor knowledge. Besides a significant relationship between knowledge score and qualification (P-value = 0.037), and between knowledge score and witnessing a seizure (P-value = 0.046). In addition there was a significant relationship between knowing the cause of Epilepsy and knowledge score (P-value = 0.01). On the other hand, there was no significant relationship between the knowledge score and gender, age, level of student education, years of experience, and seizure first aid training (Fig. 3).

4. Discussion

This study aimed to evaluate knowledge of epilepsy and seizure first aid among teachers in all educational levels in Jeddah, Saudi Arabia. Epilepsy affects the children's life quality, especially in

forming relationships, mental health, and educational achievement in school due to the condition of epilepsy and its manifestations [5–7]. Therefore, teachers must know how to deal with this disease and reduce its impact on the affected child.

Our study showed that more than half had moderate knowledge of epilepsy, unlike recent studies done in different regions of Saudi Arabia that showed that the majority have inadequate knowledge of epilepsy [15–17]. In addition, almost all of our participants thought of epilepsy as a neurological disease; the percentage was higher than that in previous studies done in Jordan [12], Sudan [11] and Saudi Arabia [17]. Our study's results support our theory of knowledge improvement as years progress; hence, the resources are more available and easier to access.

Moreover, only 1.7% of our participants thought that the cause of epilepsy is supernatural (Jinn*), which is an enormous improve-

knowledge of Epilepsy and seizure first aid score				
Demographic data & previous seizure attack & first aid training.	Knowledge Score			P value
	Poor	Moderate	Good	
Age:				0.225
29 and less	1 (6.3%)	8 (50.0%)	7 (43.8%)	
30-39	23 (14.6%)	100 (63.7%)	34 (21.7%)	
40-49	41 (11.3%)	263 (72.5%)	59 (16.3%)	
50-59	38 (15.3%)	167 (67.3%)	43 (17.3%)	
60 and above	4 (12.9%)	23 (74.2%)	4 (12.9%)	
Gender:				0.111
Male	68 (15.4%)	298 (67.4%)	76 (17.2%)	
Female	39 (10.5%)	263 (70.5%)	71 (19.0%)	
Nationality:				0.889
Saudi	97 (13.1%)	511 (69.1%)	132 (17.8%)	
Non-Saudi	10 (13.3%)	50 (66.7%)	15 (20.0%)	
Qualification:				0.037
Bachelor	98 (13.1%)	513 (68.5%)	138 (18.4%)	
Master	8 (14.5%)	43 (78.2%)	4 (7.3%)	
PhD	1 (9.0%)	5 (45.5%)	5 (45.5%)	
Level of student education:				0.113
Primary	54 (15.9%)	230 (67.8%)	55 (16.2%)	
Secondary	18 (8.7%)	143 (69.4%)	45 (21.8%)	
High school	35 (13.0%)	188 (69.6%)	47 (17.4%)	
Years of experience:				0.565
5 years and less	5 (11.4%)	32 (72.7%)	7 (15.9%)	
6 to 10 years	10 (9.1%)	76 (69.1%)	24 (21.8%)	
10 years and more	92 (13.9%)	454 (68.6%)	116 (17.5%)	
Previously witnessed a seizure:				0.046
Yes	34 (9.8%)	251 (72.5%)	61 (17.1%)	
No	73 (15.5%)	311 (66.2%)	86 (18.3%)	
Seizure first aid training:				0.130
Yes	12 (13.1%)	55 (69.8%)	23 (17.1%)	
No	95 (13.3%)	507 (61.1%)	124 (25.6%)	

Fig. 3. knowledge of Epilepsy and seizure first aid score.

ment compared to the last study done in Jeddah, in 2013, which stated that 27% of the participants thought that epilepsy is caused by supernatural manifestations [18]. The result proves there is an improvement in teachers' knowledge about epilepsy, which is maybe due to an increase in awareness campaigns in the last seven years. However, still more educational campaigns can eradicate these myths and improve the social understanding of epilepsy.

Regarding seizure first aid, most of our participants answered correctly questions assessing their response during and after a seizure attack, although the majority didn't get a first aid training course, and various studies clearly indicate a lack of teachers trained on first aid [9,13–17,21]. We believe teachers are trying to improve their knowledge via the internet or peers; this might be the reason for answering a couple of questions correctly or from personal experience, or it could be due to the question wording itself. However, guidelines-based management should be followed by providing first aid courses in schools.

Our study found a significant relationship between years of experience and witnessing seizures. 74.4% of the teachers who got a first aid course witnessed a seizure. We believe it might be due to their feeling of responsibility toward their epileptic students. Moreover, there was a significant association between knowledge score and witnessing a seizure, which further aids in supporting our hypothesis. However, only 11% of the teachers in our study got first aid courses compared to a study in Makkah with 8% [17]. We believe that they did not take a seizure first aid since it is not mandatory, while it should be necessary, because there is a dire need for such courses and awareness campaigns for schoolteachers.

Our study showed a significant relationship between knowledge score and qualification, which may be due to teachers with postgraduate degrees being more inclined to learn the right management of a seizure. These results are similar to Arar's study [15].

Surprisingly, there is no significant association between knowledge score and years of experience. In the same manner, Arar's study found the same results [15]. Unlike Makkah's study, which showed a significant association between knowledge and years of experience indicating that the younger generation had more knowledge [17]. The difference in the results of the studies is probably due to the fact that the majority of Arar's participants, and ours were 30 years old and older, which prohibited us from evaluating the younger generation's knowledge. In addition, our study and the latter studies found no significant association between knowledge and age and gender, respectfully [15,17]. One may suppose that having similar educational backgrounds and working environments resulted in no significant differences.

5. Limitation

The majority of the participants had obtained a bachelor's degree, and only a few were post-graduate teachers. Also the vast majority of participants were Saudi and had 10 years of experience and more limiting extension to other cohorts.

6. Conclusion

This study intended to assess knowledge of epilepsy and seizure first aid among teachers in all educational levels in Jeddah, Saudi Arabia. Our research found that teachers have moderate knowledge about epilepsy, which shows that the knowledge in Jeddah has been improving compared to the last study done in 2013. However, only a minority had first aid training, which suggests the knowledge and practice needs to be improved via public awareness campaigns and first aid training courses in schools. Further

study on the knowledge of epilepsy in Saudi Arabia is recommended.

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Conflicts of Interest

The authors declare no conflict of interest.

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