CAHIERS MAGELLANES-NS
Volume 06 Issue 1
2024

ISSN:1624-1940
DOI 10.6084/m9.figshare.26207066
http://magellanes.com/

SCHOOLTEACHERS' KNOWLEDGE, AWARENESS AND ATTITUDE TOWARD STUDENTS WITH EPILEPSY IN SAUDI ARABIA

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Abstract

Background: Epilepsy is one of the most common chronic neurological disorders affecting school-age children. School teachers play an essential role in the life and development of patients with epilepsy. Hence, adequate knowledge of and positive attitudes toward epilepsy among school teachers are critical.
Objectives: This study aimed to assess the knowledge, awareness, and attitude levels regarding epilepsy among the teaching community and how these factors contribute to the well-being of affected students.
Methodology: This was cross-sectional study by using structured Questionnaire was distributed among teachers in Kingdom of Saudi Arabia. The minimum sample size in our research was 377.
Results: the total sample was 584 with 83.2% female and 16.8% males. As regard knowledge and awareness score about epilepsy, there were 17.1% demonstrated high knowledge about epilepsy, while most participants, 70.5%, fell under the category of moderate knowledge. Furthermore, 12.3% showed low knowledge levels regarding epilepsy. As regard relation between knowledge level about epilepsy among Saudi teachers and sociodemographic characteristic, there was a statistically insignificant relation to gender, age, nationality, region of residence, qualification, education level that the teachers teach, and years of teaching experience.
Conclusion: the study highlighted the importance of improving knowledge, awareness, and attitudes among teachers regarding epilepsy in Saudi Arabia. While a significant portion of teachers demonstrated moderate knowledge levels, there is still a need for further education and training to enhance their understanding of epilepsy and ability to provide appropriate support to students with the

ISSN:1624-1940
DOI 10.6084/m9.figshare.26207066
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condition. Addressing misconceptions, promoting inclusive environments, and implementing health education programs are crucial steps towards creating a more supportive and tolerant community for individuals with epilepsy. By empowering teachers with the necessary knowledge and skills, we can improve the quality of life and well-being of students affected by epilepsy in educational settings.

Keywords: Epilepsy, Teachers, Awareness, Attitude, First aid knowledge, Seizure Management, School Health, Student Safety.

Introduction:

The distinction between epilepsy and seizures must be emphasized. It is important to understand that while seizures are a characteristic symptom of epilepsy, the two terms are not interchangeable. Epilepsy refers to a neurological condition that is characterized by recurrent seizures. A diagnosis of epilepsy is made when a patient has recurrent seizures, at least two of which are unprovoked [1]. On the other hand, seizures

is a brain condition, It is characterized by an uncontrollable movement that is occasionally accompanied by unconsciousness [2]. There are several common risk factors contribute to the development of epilepsy including Cerebrovascular diseases, brain tumors, alcohol abuse, traumatic head injuries, malformation in cortical development, genetic inheritance, and infections of the central nervous system [3] . The lack of knowledge about epilepsy reflects the social survival of epilepsy patients Epilepsy is usually associated with social discrimination, misunderstanding, and fear [4]. Many communities have a general misunderstanding about this illness, which cause social, physical, and psychological problem to the patients. Increasing public knowledge about epilepsy is essential to help patients and their families seek medical help earliest [5]. This results in an early diagnosis of the illness immediate treatment for the patients, and less stress for their caregivers, and therefore improve the quality of living for patients with epileptic disease [6,7]. Epilepsy is considered one of the most prevalent neurological conditions worldwide, affecting about 50 million people. In Saudi Arabia, there are 6.5 epilepsy cases per 1000 individuals [8].

Recent research shows that Southern Europe has better epilepsy comprehension and knowledge, while Asian countries have less knowledge regarding the disease [9]. According to other studies, knowledge regarding epilepsy varies across Saudi Arabia. A cross-sectional study conducted in Jeddah, Saudi Arabia, showed that knowledge regarding epilepsy was moderate [10]. In a 2023 study in the Eastern Province of Saudi Arabia, teachers lacked knowledge about epilepsy. The main limitation of this study is that it does not represent larger cities or rural areas [11]. According to recent research, the level of awareness regarding epilepsy is similar among Asian and developing nations, but significantly lower compared to knowledge and attitude levels in Western and developed countries [12].

Few local studies have examined the level of understanding and attitude among school teachers concerning epilepsy and their capacity to offer first aid if they notice a seizure, despite the high prevalence of epilepsy in Saudi Arabia [13,14].

Objectives :

The objectives of our study were as follows:

1 . To aassess and evaluating teachers' knowledge of and approaches to epilepsy .

ISSN:1624-1940
DOI 10.6084/m9.figshare.26207066
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2 .To identify the relationship between instructors' knowledge and attitudes and their sociodemographic traits and teaching experience.

Materials and Metho
ds:

Study design:
A cross-sectional study was conducted in Saudi Arabia.

Study setting: Participants, recruitment, and sampling procedure:
The study's population consisted of both male and female teachers in Saudi Arabia. The online questionnaire was distributed to most of Saudi teachers fulfilling the criteria through WhatsApp groups via a web link to Google Docs. Those giving consent were recruited in the study.

Inclusion and Exclusion Criteria:

Inclusion criteria :
Targeting Saudi male and female teachers at all levels of education, both private and public, in all Saudi governorates.

Exclusion criteria:
Non-Saudi teachers, teachers outside Saudi Arabia.

Sample size:
The sample size was estimated by using a Qualtrices calculator with a confidence level of 95% the minimum sample size was 377.

Method for data collection and instrument (Data collection Technique and tools) :
The method of data collection for this study involved utilizing a questionnaire-based approach. The questionnaire used in this study was adapted from a previous study that successfully evaluated knowledge and awareness related to epilepsy.

The questionnaire consisted of two main sections: social information and knowledge/awareness towards epilepsy.

In the first section, participants were asked to provide their demographic details and background information, including age, gender, occupation, educational background, and any prior experiences or personal connections with epilepsy. This section aimed to gather information that facilitates

ISSN:1624-1940
DOI 10.6084/m9.figshare.26207066
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understanding participants' social perspective.

The second section focuses on assessing participants' understanding and awareness of epilepsy. It includes questions about participants' familiarity with epilepsy, their knowledge of different seizure types, awareness about epilepsy management, and perceptions towards individuals with epilepsy.

By utilizing this adapted questionnaire, the researcher aimed to collect comprehensive data that provides insights into both the social and knowledge-related aspects of epilepsy. The inclusion of questions from a previously validated study ensured that the questionnaire aligned with established measures used in prior research.

Scoring system:

There were six questions that assessed the participants' knowledge, and an overall knowledge score was created from the responses. The scoring system was divided into three categories: high knowledge, moderate knowledge, and low knowledge. If the participant answered correctly, they would receive one point; incorrect and I don't know answers resulted in zero points. If the participant answered five to six accurate responses, they were in the high-knowledge category; if they answered three to four accurate responses, they were in the moderate-knowledge category; and if they answered one to two accurate responses, they were in the low-knowledge category.

Analyzes and entry method:
The computer's "Microsoft Office Excel Software" (2016) program for Windows would input data. Then, the data was imported to the SPSS program, version 20 (IBM SPSS Statistics for Windows, Version 20.0; Armonk, NY: IBM Corp.), where it was statistically analyzed.

Results:

Table (1) displays various demographic parameters of a group of people. it is evident that a total of 584 individuals were included in the study. The distribution of participants across different parameters such as age, gender, nationality, region of residence, qualification, educational level taught, and teaching experience provides valuable insights into the sample composition. In terms of age, most participants fell within the 31 to 50 age range, with 37.0% aged between 31 to 40 and 43.5% aged between 41 to 50. Furthermore, the gender distribution skewed towards females, constituting 83.2% of the sample. Most participants were of Saudi nationality (98.6%), with only a small percentage being non-Saudi (1.4%). Regionally, the participants were evenly distributed across the Northern (18.2%), Southern (24.1%), Central (23.1%), Eastern (9.1%), and Western (25.5%) regions. In terms of qualifications, the highest proportion held a bachelor's degree (78.8%), followed by "Others" (8.0%), Diploma (6.7%), master's degree (5.8%), and PhD (.7%). When asked about the educational level they teach, a significant portion indicated teaching at the high school level (34.4%), followed by primary school (38.5%) and middle school (27.1%). Lastly, the distribution of teaching experience revealed that most participants had more than 10 years of experience (68.2%), with smaller percentages reporting 1 to 5 years (17.6%) and 6 to 10 years (14.2%) of experience.

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Volume 06 Issue 1
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ISSN:1624-1940
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Table (1): Sociodemographic characteristics of participants (n=584)

Parameter		***No.***	***Percent (%)***
Age	30 or less	60	10.3
	31 to 40	216	37.0
	41 to 50	254	43.5
	more than 50	54	9.2
Gender	Female	486	83.2
	Male	98	16.8
Nationality	Saudi	576	98.6
	Non-Saudi	8	1.4
Region of residence	Northern region	106	18.2
	Southern region	141	24.1
	Central region	135	23.1
	Eastern region	53	9.1
	Western region	149	25.5
Qualification	Diploma	39	6.7
	Bachelor's	460	78.8
	Master's degree	34	5.8
	PhD	4	.7
	Others	47	8.0
Which educational level do you teach?	Primary school	225	38.5
	Middle school	158	27.1
	High school	201	34.4
Teaching experience	1 to 5 years	103	17.6
	6 to 10 years	83	14.2
	More than 10 years	398	68.2

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ISSN:1624-1940
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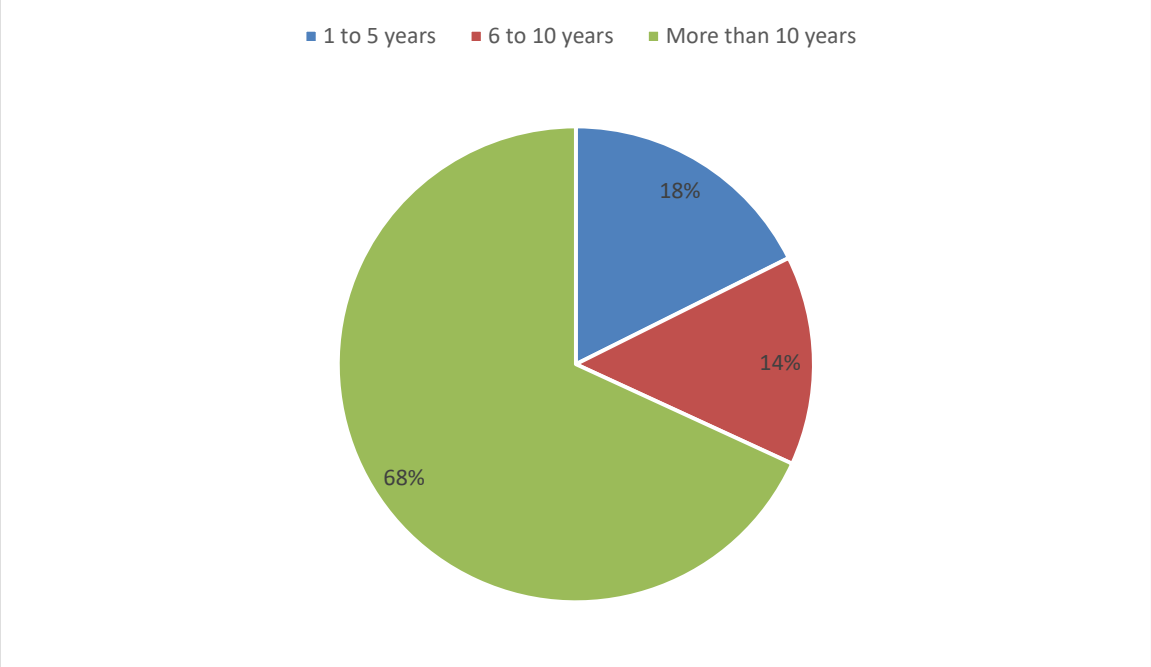
Figure (1): Illustrates the teaching experience in years among participants.



As illustrated in table (2), It is evident from the table that most teachers, accounting for 90.8%, correctly identify epilepsy as a neurological disorder, while a smaller percentage attribute it to psychological factors or demonic possession. Furthermore, a significant proportion of teachers, 82.2%, are aware that there is a treatment available for epilepsy, although a notable 17.8% believe otherwise. The data also sheds light on teachers' perceptions regarding the potential for addiction caused by epilepsy treatment drugs, with 32.9% expressing concerns in this regard. Additionally, a considerable portion of teachers, 34.2%, have witnessed a seizure in one of their students, highlighting the relevance of this issue in an educational setting. The responses provided by teachers on how to handle a student experiencing a seizure vary, with actions ranging from ensuring safety and seeking help to engaging in practices such as reading the Quran or using gauze. Importantly, the data indicates a need for further training, as a significant majority of teachers, 87.3%, report not having received any specific training on how to deal with epileptic seizures.

Table (2): Parameters related to knowledge and awareness about epilepsy among Saudi teachers (n=584).

Parameter		***No.***	***Percent (%)***
What are the causes of Epilepsy?	Psychological	42	7.2
	Neurological disorder	530	90.8

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	Demonic possession	12	2.1
Is there a treatment for Epilepsy?	Yes, there is.	480	82.2
	No, there is not.	104	17.8
Does epilepsy treatment drugs cause addiction?	Yes	192	32.9
	No	392	67.1
Have you witnessed a seizure on one of your students before?	Yes	200	34.2
	No	384	65.8
What is your response if one of your students had a seizure attack?	Ensure the patients safety and ask for help.	330	56.5
	Read the Quran.	24	4.1
	Open his mouth and put gauze in it "a piece of cloth".	230	39.4
What do you do after a seizure ends?	Lay the student on his side and ask for help.	368	63.0
	Try to wake him up.	90	15.4
	Read the Quran.	13	2.2
	Wash his face with water and give him water to drink.	113	19.3
When do you have to transport the student to a hospital?	Immediately, if a seizure occurred.	94	16.1
	If a seizure continued for more than 5 minutes.	78	13.4
	If a seizure continued for more than 10 minutes.	41	7.0
	If a seizure continued for more than 20 minutes.	20	3.4
	If the seizure reoccurred and the student didn't wake up.	51	8.7
	Both A & B	115	19.7
	Both B & E	185	31.7

ISSN:1624-1940
DOI 10.6084/m9.figshare.26207066
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Did you get any training on how to deal with Epileptic seizures?	Yes	74	12.7
	No	510	87.3

Figure (2): Illustrates if the teachers received any training on how to deal with epileptic seizures.

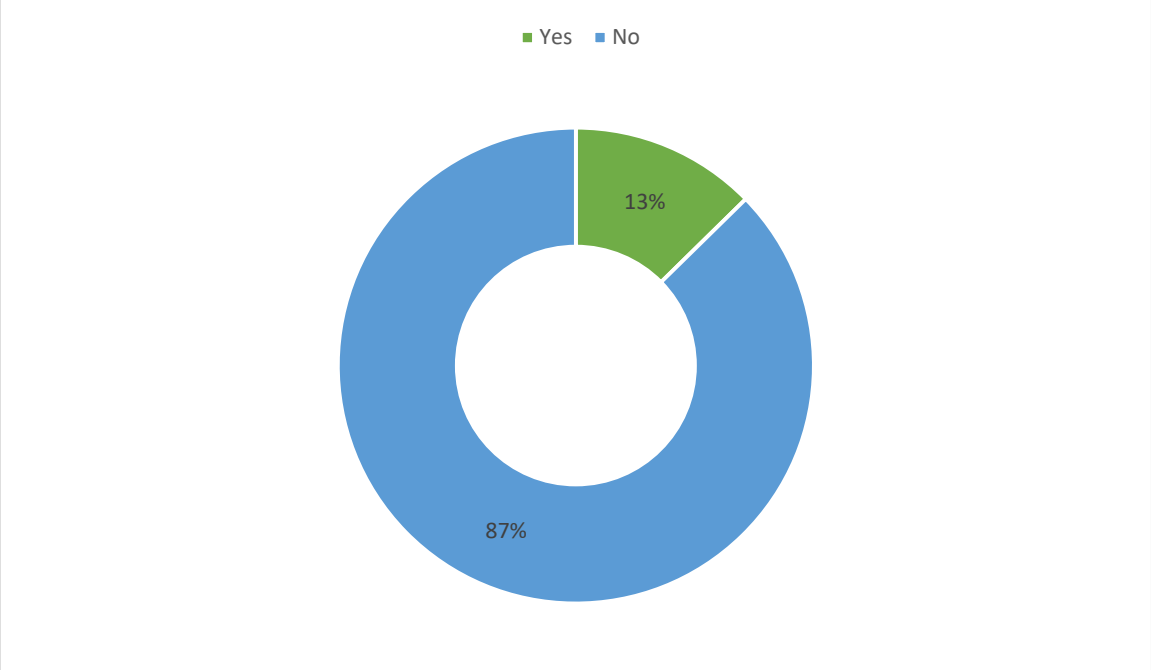

Table (3) provides a breakdown of the scores into three categories: High knowledge, Moderate knowledge, and Low knowledge. It is observed that out of the total 584 participants, 100 individuals (17.1%) demonstrated high knowledge about epilepsy, while most participants, 412 individuals (70.5%), fell under the category of moderate knowledge. On the other hand, 72 participants (12.3%) showed low knowledge levels regarding epilepsy. This distribution highlights a significant proportion of participants with varying levels of understanding about epilepsy, indicating a need for targeted educational interventions to improve awareness and knowledge in this area.

Table (3): Shows knowledge and awareness about epilepsy score results.

	Frequency	**Percent**
High knowledge	100	17.1
Moderate knowledge	412	70.5
Low knowledge	72	12.3
Total	584	100.0

Table (4) shows that knowledge level about epilepsy among Saudi teachers has statistically insignificant relation to gender, age, nationality, region of residence, qualification, education level that the teachers teach, and years of teaching experience.

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DOI 10.6084/m9.figshare.26207066
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Table (4): Relation between knowledge level about epilepsy among Saudi teachers and sociodemographic characteristic.

		Knowledge level			***Total (N=584)***	***P value****
		High	**Moderate**	**low**		
Gender	Female	84	339	63	486	0.536
		84.0%	82.3%	87.5%	83.2%	
	Male	16	73	9	98	
		16.0%	17.7%	12.5%	16.8%	
Age	30 or less	9	43	8	60	0.384
		9.0%	10.4%	11.1%	10.3%	
	31 to 40	29	163	24	216	
		29.0%	39.6%	33.3%	37.0%	
	41 to 50	52	167	35	254	
		52.0%	40.5%	48.6%	43.5%	
	more than 50	10	39	5	54	
		10.0%	9.5%	6.9%	9.2%	
Nationality	Saudi	100	407	69	576	0.060
		100.0%	98.8%	95.8%	98.6%	
	Non-Saudi	0	5	3	8	
		0.0%	1.2%	4.2%	1.4%	
Region of residence	Northern region	16	79	11	106	0.186
		16.0%	19.2%	15.3%	18.2%	
	Southern region	19	103	19	141	
		19.0%	25.0%	26.4%	24.1%	
	Central region	26	89	20	135	
		26.0%	21.6%	27.8%	23.1%	

ISSN:1624-1940
DOI 10.6084/m9.figshare.26207066
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	Eastern region	8	34	11	53	
		8.0%	8.3%	15.3%	9.1%	
	Western region	31	107	11	149	
		31.0%	26.0%	15.3%	25.5%	
Qualification	Diploma	5	24	10	39	0.173
		5.0%	5.8%	13.9%	6.7%	
	Bachelor's degree	83	327	50	460	
		83.0%	79.4%	69.4%	78.8%	
	Master's degree	3	25	6	34	
		3.0%	6.1%	8.3%	5.8%	
	PhD	0	4	0	4	
		0.0%	1.0%	0.0%	0.7%	
	Others	9	32	6	47	
		9.0%	7.8%	8.3%	8.0%	
Education level that the teachers teach	Primary school	40	157	28	225	0.950
		40.0%	38.1%	38.9%	38.5%	
	Middle school	27	114	17	158	
		27.0%	27.7%	23.6%	27.1%	
	High school	33	141	27	201	
		33.0%	34.2%	37.5%	34.4%	
Years of teaching experience	1 to 5 years	16	74	13	103	0.490
		16.0%	18.0%	18.1%	17.6%	
	6 to 10 years	10	65	8	83	
		10.0%	15.8%	11.1%	14.2%	
	More than 10 years	74	273	51	398	
		74.0%	66.3%	70.8%	68.2%	

P value was considered significant if ≤ 0.05.

ISSN:1624-1940
DOI 10.6084/m9.figshare.26207066
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Discussion:

Epilepsy is a prevalent chronic condition and non-communicable neurologic disorder affecting approximately 50 million people worldwide, and nearly 80% of them live in developing regions [15]. A study in Saudi Arabia in 2001 showed prevalence rates of 6.54/1000 population. Epilepsy is one of the diseases that can be associated with poor quality of life as a sequence of seizures, and it is associated with cognitive and psychiatric disorders and medication adverse effects. Healthcare professionals and individuals with epilepsy often face problems [16]. Some of the major problems faced by both include a variety of challenges that can significantly impact their overall health and well-being such as poor knowledge in the community, lack of awareness, cultural beliefs, and stigma [17]. Children with epilepsy face erroneous attitudes mainly in social environments like schools. Some students with epilepsy do not perform well in school and others present with difficulties in learning and social interactions [18]. The challenges that a child with epilepsy may face are not limited to the condition itself, but can also be influenced by psychological factors such as the educator's qualifications, negative attitudes and expectations from teachers, parents, and peers, and the child's own low self-esteem [19]. Globally, teachers have misconceptions about epilepsy and its management. Studies in Korea and Brazil found that teachers play an important role in influencing the educational performance of children, particularly those with epilepsy [20,21]. In Saudi Arabia, teachers are considered social leaders and role models, and that gives them a vital role to play in the development of an attitude toward any disease of the school child, As teachers play a crucial role in the education and well-being of these children, health education programs should be developed to improve their attitude toward and knowledge of epilepsy [22]. In addition, there is a lack of a proper plan of action to deal with students with epilepsy which has a negative impact on them and may even endanger their lives. Health education programs on epilepsy should be designed to educate school teachers and thereby, to eventually create a well-informed and tolerant community [23]. Thus we aimed in this study to assess the knowledge, awareness, and attitude levels regarding epilepsy among the teaching community and how these factors contribute to the well-being of affected students.

As regard knowledge and awareness score about epilepsy, we have found that out of the total 584 participants, (17.1%) demonstrated high knowledge about epilepsy, while most participants, (70.5%), fell under the category of moderate knowledge. Furthermore, (12.3%) showed low knowledge levels regarding epilepsy. on the other hand, a study conducted by Lama A Lahiq et.al (2023) [24] aimed to assess the knowledge, attitudes, and practices of teachers in the Aseer region, Saudi Arabia, regarding epilepsy, revealed that 36.6% of the teachers studied had very bad knowledge, 29% had poor knowledge, 35.5% had intermediate knowledge, and 4.8% had good knowledge. A similar study was conducted by Babikar and Abbas [25]. They assessed the knowledge, attitude, and practice of 200 school teachers regarding epilepsy. The majority of respondents had never been informed about the disorder, giving evasive answers. Few considered epilepsy contagious, and none objected to having epileptic children in their classes. Of the studied teachers, 47% of primary school teachers had knowledge of initial procedures for helping a seizure child, compared to 64% in secondary schools. Another study assessed the knowledge, attitude, and practice of secondary school teachers in Assiut, Egypt, regarding epilepsy. Findings revealed that all teachers were aware of epilepsy, and 54% treated

ISSN:1624-1940
DOI 10.6084/m9.figshare.26207066
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students with epilepsy as normal, and 12.7% accepted giving the student, who was having a seizure in the class, any form of prescribed treatment [26]. Moreover, A study conducted by Alqahtani et al. (2018) [27] found that only 45% of schoolteachers in Saudi Arabia had adequate knowledge about epilepsy, with a significant portion lacking awareness about the condition. Furthermore, the study revealed that 60% of teachers held negative attitudes towards students with epilepsy, viewing them as a burden in the classroom. In contrast, a study by Alshahrani et al. (2019) [28] reported that 75% of teachers had positive attitudes towards students with epilepsy, showing empathy and understanding towards their condition. Another study by Almutairi et al. (2020) [29] highlighted that 55% of teachers felt unprepared to handle seizures in the classroom, indicating a need for further training and education on the topic. Additionally, a study by Alghamdi et al. (2021) [30] found that only 30% of teachers were aware of the appropriate first aid measures for students experiencing a seizure, pointing to a gap in knowledge and skills among educators in Saudi Arabia. On the other hand, Bannon *et al*. found that 68% of 142 schoolteachers in Staffordshire, UK, did not think that children with epilepsy were more likely to have problems with learning and the consensus was that a lower standard of work should not be expected from children with epilepsy. In their study, 99% of the participants responded correctly when they were asked if children with epilepsy were usually educationally subnormal [31]. In a previous Brazilian study, Fernandes and Souza [32] found that 51% of 120 schoolteachers believed that there was a higher likelihood of children with epilepsy acquiring mental disease in the future; that epilepsy was a disease (68%); that epilepsy was contagious (1%); that epilepsy was treatable (90%). Bekiroglu *et al*.[33] investigated the current attitude of 346 Turkish elementary school teachers toward epilepsy and their awareness of the condition, and the degree of benefit they acquired after attending a seminar on this topic. The authors reported that although the teachers had some misconceptions prior to the seminar, such as the idea that epilepsy was contagious (2.3%), or that it was a psychological disease (17.8%), the teachers' knowledge and awareness improved after the seminar owing to their special interest in the subject. Overall, these findings underscore the importance of enhancing schoolteachers' knowledge, awareness, and attitudes towards students with epilepsy to create a more inclusive and supportive learning environment.

Conclusion:

In conclusion, the study highlights the importance of improving knowledge, awareness, and attitudes among teachers regarding epilepsy in Saudi Arabia. While a significant portion of teachers demonstrated moderate knowledge levels, there is still a need for further education and training to enhance their understanding of epilepsy and ability to provide appropriate support to students with the condition. Addressing misconceptions, promoting inclusive environments, and implementing health education programs are crucial steps towards creating a more supportive and tolerant community for individuals with epilepsy. By empowering teachers with the necessary knowledge and skills, we can improve the quality of life and well-being of students affected by epilepsy in educational settings.

Acknowledgement:

We thank the participants who all contributed samples to the study.

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Ethical approval

Ethical approval was obtained from the research ethics committee of King Abdulaziz University with Application number: [204-22]. 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.

Funding

The study did not receive any external funding.

Conflict of interests

The authors declare that there are no conflicts of interest.

Informed consent:

Written informed consent was obtained from all individual participants included in the study.

Data and materials availability

All data associated with this study are present in the paper.

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