Knowledge and attitude toward epilepsy and seizure first aid among school teachers in Al-Kharj City, Saudi Arabia

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Abstract

Background: Teachers' knowledge about epilepsy and seizures can have a significant effect on building well-educated and socially developed students. Hence, teachers' positive behaviors encourage social acceptance of children with epilepsy from their classmates and prevent social stigmatization at school. In schools, seizures are a common emergency, and emergency management training is required for school teachers. This study aimed to assess the knowledge and attitude toward epilepsy and seizure first aid among school teachers in Al-Kharj City, Saudi Arabia.

Methods: This was a cross-sectional study conducted among school teachers in Al-Kharj City, Saudi Arabia. A self-administered questionnaire was distributed among teachers using an online survey. The questionnaire included sociodemographic characteristics and assessment of knowledge and attitude toward epilepsy and seizure first aid.

Results: In total, 500 school teachers were included in this study. The most common age group was 31–40 years. The prevalence of teachers who had witnessed a student with a seizure attack was 32.4%. The levels of knowledge regarding epilepsy and seizure first aid were moderate, poor, and good in 50.2%, 47%, and 2.8% of the teachers, respectively. The factors associated with increased knowledge were older age (>40 years) and being a non-Saudi teacher.

Conclusion: Despite adequate knowledge and attitude demonstrated by the school teachers, nearly half of them showed a lack of understanding about epilepsy and seizure first aid. More education and training are required among school teachers to narrow the gaps in their knowledge about epilepsy and seizure management.

Keywords
Epilepsy, seizure first aid, school teachers, knowledge, attitude

Introduction

Seizure is defined as a burst of uncontrolled, hypersynchronous discharge of the brain's electrical activity that is associated with an alteration in the level of consciousness and behavioral or personality changes(1). It is one of the most common medical conditions and the most common chronic neurological disease in children(2). The prevalence of epilepsy in Saudi Arabia among school age children is 5.5%(3). Teachers are an important group in every community as they contribute to raising new generations. Teachers' knowledge about epilepsy and seizures can have a significant effect on building well-educated and socially developed students(4). Thus, teachers' positive behaviors encourage social acceptance of children with epilepsy from their classmates and prevents social stigmatization at school(5). In schools, seizures are a common emergency, and emergency management training is required for school teachers(6). Studies in Saudi Arabia, such as in Riyadh and Khamis Mushait, showed that school teachers have good knowledge about epilepsy(7,8). Other studies from Tabuk, Arar, and Makkah found that teachers had inadequate knowledge about epilepsy, and a recent study in Jeddah reported that teachers had moderate knowledge about epilepsy and lacked first aid training(9). Since there is no study in Al-Kharj that assesses the knowledge about epilepsy among teachers, this study aimed to assess the knowledge and attitude toward epilepsy and seizure first aid and investigate the causative factors that affect attitude toward epilepsy and seizure first aid among school teachers in Al-Kharj City.

Methods

This study was approved by the local Research Ethics Committee (December 2021). This was a cross-sectional descriptive study that used an electronic and self-administered prevalidated questionnaire in Arabic language among teachers in Al-Kharj City to assess their knowledge and attitude toward epilepsy and seizure first aid from January to March 2022. We aimed to include all teachers in Al-Kharj City from public and private schools, including male and female teachers of all educational levels. An approval formal letter was distributed from the Ministry of Education to all schools in Al-Kharj City to encourage teachers to participate and share the QR code, which included electronic questionnaire, with their colleagues. The study sample size was 500, which was calculated using Google form questionnaire. The questionnaire was used from a previous study that assessed knowledge about epilepsy and seizure first aid among teachers in Jeddah, Saudi Arabia (9). The questionnaire had three sections: the first section included a question regarding agreement to participate in the study, the second section included demographic questions (age, sex, nationality, educational level, type of school, experience years), and the third section included questions on knowledge about epilepsy and seizure first aid. The level of teachers' knowledge about epilepsy and seizure first aid was assessed using 7 questions, where the correct answer for each question was identified and coded with 1, and the incorrect answer was coded with 0. The total knowledge score was calculated by adding the 7 items, and a possible score range from 0 to 7 was generated, which generally indicates that the greater the score, the greater the knowledge about epilepsy and seizure first aid. The total knowledge was divided into three categories representing the level of knowledge, where 0–3, 4–5, and 6–7 points were classified as poor, moderate, and good knowledge levels, respectively.

Statistical Analyses

The data were analyzed using the Statistical Package for the Social Sciences version 26 (Armonk, NY, IBM Corp.). In descriptive statistics, all categorical variables are presented using numbers and percentages, whereas all continuous variables are summarized using mean and standard deviation (SD). The knowledge score was compared to the sociodemographic characteristics of the teachers using the Mann–Whitney Z-test and Kruskal–Wallis H test. The overall distribution of knowledge scores was performed using the Shapiro–Wilk test. The knowledge score followed the abnormal distribution. Thus, nonparametric tests were applied. A p-value cut-off point of 0.05 at 95% confidence interval was used to determine statistical significance.

Results

In total, 500 school teachers were recruited in this study. Table 1 presents the sociodemographic characteristics of the school teachers. The most common age groups were 31–40 (39.8%) and 41–50 (38.6%) years. Moreover, 51.6% and 48.4% of the participants were male and female, respectively, and nearly all were Saudis (92.8%). Respondents who had bachelor's degrees constituted most of the teachers (93.2%). A significant proportion of the teachers were teaching at government schools (83.6%), with primary and secondary schools being the most common school year levels of teaching (38.6% and 34.8%, respectively). Approximately 53.4% of the teachers had more than 10 years of teaching experience. The prevalence of teachers who witnessed a seizure from one of their students was 32.4%.

Table 1: Sociodemographic characteristics of school teachers (n = 500)

Study data	N (%)
Age group	
• 21–30 years	83 (16.6%)
• 31–40 years	199 (39.8%)
• 41–50 years	193 (38.6%)
• >50 years	25 (05.0%)
Sex	
• Male	258 (51.6%)
• Female	242 (48.4%)
Nationality	
• Saudi	464 (92.8%)
• Non-Saudi	36 (07.2%)
Qualification	
• Bachelor's degree	466 (93.2%)
• Master's degree	31 (06.2%)
• PhD	03 (0.60%)
Type of school	
• Government	418 (83.6%)
• Private	82 (16.4%)
Which educational level do you teach?	
• Kindergarten	35 (07.0%)
• Primary	193 (38.6%)
• Secondary	174 (34.8%)
• High school	98 (19.6%)
Years of teaching experience	
• 1–5 years	89 (17.8%)
• 6–10 years	144 (28.8%)
• >10 years	267 (53.4%)
Have you witnessed a seizure on one of your students before?	
• Yes	162 (32.4%)
• No	338 (67.6%)

Regarding the assessment of the knowledge and attitude toward epilepsy and seizure first aid, most of the teachers knew that neurological disorder is the cause of epilepsy (89.6%). Teachers were aware that there was available treatment for epilepsy (78%). Only 37.2% of the teachers believed that continuous taking of epilepsy medication could lead to drug addiction. The most common action to be taken if one of the students had a seizure attack was to ensure the patient's safety and ask for help (53.8%), whereas the most common action to be taken after the seizure ended was to lay the student on his/her side and ask for help (58%). Only 35.2% of the teachers knew that the patients should be brought to a hospital if a seizure continued for more than 5 minutes or if it reoccurred and the student was not able to wake up. Only 8% of the teachers had attended training related to epilepsy. Based on the provided criteria, the overall mean knowledge score was 3.59 (SD, 1.10), with poor, moderate, and good knowledge detected among 47%, 50.2% and 2.8% of the teachers, respectively (Table 2).

Table 2: Assessment of the knowledge and attitude toward epilepsy and seizure first aid among school teachers (n = 500)

Knowledge and attitude statements	N (%)
1. What are the causes of epilepsy?	
• Psychological	43 (08.6%)
• Neurological disorder*	448 (89.6%)
• Demonic possession	09 (01.8%)
2. Is there a treatment for epilepsy?	
• Yes*	390 (78.0%)
• No	110 (22.0%)
3. Do epilepsy treatment drugs cause addiction?	
• Yes*	186 (37.2%)
• No	314 (62.8%)
4. What is your response if one of your students has a seizure attack?	
• Ensure the patients safety, and ask for help*	269 (53.8%)
• Read the Quran	21 (04.2%)
• Open his/her mouth and put a gauze in it, "a piece of cloth"	210 (42.0%)
5. What do you do after a seizure ends?	
• Lay the student on his/her side and ask for help*	290 (58.0%)
• Try to wake him/her up	102 (20.4%)
• Read the Quran	10 (02.0%)
• Wash his/her face with water and provide him/her water to drink	98 (19.6%)
6. When do you have to transport the student to a hospital?	
• Immediately, if a seizure occurred	116 (23.2%)
• If a seizure continued for more than 5 minutes	68 (13.6%)
• If a seizure continued for more than 10 minutes	26 (05.2%)
• If a seizure continued for more than 20 minutes	21 (04.2%)
• If the seizure reoccurred, and the student did not wake up	16 (03.2%)
• Options 1 and 2	77 (15.4%)
• Options 2 and 5*	176 (35.2%)
7. Did you get any training on how to deal with epileptic seizures?	
• Yes*	40 (08.0%)
• No	460 (92.0%)
Total knowledge score (mean ± SD)	3.59 ± 1.10
Level of knowledge	
• Poor	235 (47.0%)
• Moderate	251 (50.2%)
• Good	14 (02.8%)

* Correct answer

Table 3: Association between the knowledge score and sociodemographic characteristics of school teachers (n = 500)

Factor	Knowledge score (7) Mean ± SD	Z/H test	P-value
Age group[a]			
• ≤40 years	3.53 ±1.09	1.997	**0.046****
• >40 years	3.68 ±1.12		
Sex[a]			
• Male	3.56 ±1.12	0.846	0.397
• Female	3.64 ±1.09		
Nationality [a]			
• Saudi	3.57 ±1.09	2.180	**0.029****
• Non-Saudi	4.00 ±1.26		
Qualification[a]			
• Bachelor's degree	3.58 ±1.10	1.210	0.226
• Master of PhD	3.82 ±1.11		
Type of school[a]			
• Government	3.55 ±1.08	1.945	0.052
• Private	3.82 ±1.19		
Which educational level do you teach? [b]			
• Kindergarten	3.51 ±1.15	3.016	0.389
• Primary	3.70 ±1.06		
• Secondary	3.49 ±1.13		
• High school	3.61 ±1.13		
Years of teaching experience [b]			
• 1–5 years	3.51 ±1.00	1.450	0.484
• 6–10 years	3.56 ±1.07		
• >10 years	3.65 ±1.16		
Witnessed a seizure on one of your students before [a]			
• Yes	3.59 ±1.28	0.332	0.740
• No	3.60 ±1.01		

a P-value was calculated using the Mann–Whitney Z-test.
b P-value was calculated using the Kruskal–Wallis H test.
** Significant at $p < 0.05$ level

When assessing the association between the knowledge score according to the sociodemographic characteristics of the teachers, a higher knowledge score was more associated with the above 40-year-old group ($Z = 1.997$, $p = 0.046$) and non-Saudi teachers ($Z = 2.180$, $p = 0.029$). Other variables, such as sex, qualification, type of school, educational level of teaching, years of teaching experience, and having witnessed a seizure from one of the students, did not show significant differences when compared to the knowledge score ($p > 0.05$).

Discussion

This study aimed to determine the knowledge of school teachers about epilepsy and examine their understanding of seizure first aid. Our results revealed that 50.2% and 47% of the teachers had moderate and poor knowledge about epilepsy, respectively. These findings are consistent with the results of Kanjo et al.'s study(9). According to their study, the majority of the teachers (69%) had moderate knowledge about epilepsy, 16.8% had good knowledge, and 14.2% had poor knowledge and insufficient training regarding seizure first aid. In contrast, poor knowledge about epilepsy and its first aid has been reported by Abulhamail et al.(4) and Al-Hashemi et al.(25). This could be attributed to teachers' belief that epilepsy was related to spirit possession or an evil eye. The appropriate knowledge of school teachers about epilepsy and seizure first aid is important since they are the ones responsible for the welfare of the children at school. Lack of knowledge about epilepsy will lead to panic during its incidence. Thus, more education about epilepsy and epilepsy first aid is imperative to achieve better handling of children with epilepsy(25).

Better knowledge about epilepsy and its management can be significantly predicted among older age groups (>40 years) and non-Saudi teachers. These results were inconsistent with those of Abulhamail et al.'s study(4). According to them, Saudi teachers who had higher education exhibited better knowledge regarding epilepsy; however, they found no differences in the knowledge according to age, sex, years of experience, and type of school. In Nigeria(26), poor knowledge and attitude were more associated with lower grade school teachers and those with fewer years of experience. However, a survey conducted by Al-Qahtani et al.(27), found no differences between the knowledge score and demographic data of Saudi teachers. In our study, we also did not find significant differences between the knowledge according to sex, qualification, type of school, school level of teaching, years of teaching experience, and having witnessed a seizure from one of the students.

Regarding the specific assessment of knowledge, most teachers had a better understanding of epilepsy. For instance, 89.6% of the teachers were aware that the causes of epilepsy were mainly due to neurological disorders, and 78% were aware that there was an available treatment for epilepsy. Consistent with our results, Kanjo et al.(9) reported that most teachers acknowledge epilepsy as a neurological disorder, and 75.2% of the teachers believed that the treatment method is available for this type of disorder. In an opposing view, Babikar and Abbas(28) reported that nearly 60% of Sudanese teachers did not know the causes of epilepsy, whereas one-third of the teachers cited several causes, such as brain malformation, head injury, evil assault, hereditary and infection.

Surprisingly, a study conducted in the Southern part of Saudi Arabia(7) revealed that although 64.1% of the teachers were exposed to the incidence of seizures, they were not able to provide first aid to students who experienced epilepsy during their class. However, in our study, half of the teachers were aware of the appropriate action if one of the students had a seizure attack or what to do after the seizure ends. In contrast, Sudanese teachers exhibited a poor attitude and practice toward the action to be taken during epileptic incidence(28). According to a previous study, during seizure attacks, the majority of the teachers (74%) would not take any action and would stay away from the child, and other teachers would resort to potentially harmful actions, including pulling out the tongue and forcing a spoon inside the child's mouth. In this scenario, the most important step is to ask for help or rush the student to a nearby hospital. A proper understanding of the clinical manifestation of epilepsy is important to provide a precise response during the incidence of a seizure attack(28).

Despite having sufficient information in some of the knowledge indicators, our results confirmed that there were a considerable number of teachers (37.2%) who believe that excessive use of epileptic medication may lead to drug addiction. Furthermore, although 32.4% of the teachers had witnessed seizure attacks, only 8% were able to attend training or courses related to this condition. In Riyadh, Saudi Arabia(8), 42.2% of the teachers had witnessed a seizure attack from one of their students, wherein 27.5% of them expressed that they be able to provide proper medication along with appropriate first aid. Thus, we hypothesize that teachers who were teaching in Riyadh, Saudi Arabia, had a better way of handling children with epilepsy than the teachers in our study. This might be due to the presence of several awareness campaigns conducted about first aid of epilepsy annually in Riyadh City, and since Riyadh City is the capital city of Kingdom of Saudi Arabia, there are a considerable number of training centers that provide a course for appropriate seizure and epilepsy first aid. In our study, we covered all teachers in all educational levels and distributed the survey questionnaire to every school in Al-Kharj City.
This study has some limitations, including the following: some teachers were uncooperative and did not complete the survey, and there was a delay in the response after the administration of the survey in some teachers. Thus, more studies are required to obtain better and more accurate results regarding the knowledge of school teachers about epilepsy and its first aid in our region.

Conclusion

Despite adequate knowledge and attitude demonstrated by the school teachers, nearly half of them showed a lack of understanding about epilepsy and seizure first aid. Non-Saudi teachers who were older were more likely to exhibit better knowledge than the rest of the groups. More education and training are required among school teachers to narrow the gaps in their knowledge about epilepsy and seizure management. Increasing the level of knowledge and attitude among school teachers will increase their confidence to take action whenever there is an incidence of a seizure attack. Community epilepsy

awareness is necessary to educate children with epilepsy along with their families, which will eventually lead to a better quality of life among this population group.

List of abbreviations
QR = Quick Response
PhD = Doctor of Philosophy

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