

## Knowledge and practice of schoolteachers towards students with epilepsy in Khamis Mushate, Southern Saudi Arabia

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ABSTRACT

**Objectives:** Epilepsy is a very common chronic neurological disorder in children throughout the world. This study was conducted to assess Saudi male schoolteachers' knowledge of epilepsy and practice in Southern Saudi Arabia. **Subjects and Methods:** A cross-sectional descriptive study was conducted among male teachers; 315 teachers filled a well-designed and pretested self administered questionnaire. **Results:** Approximately three-quarters (72.7%) of the schoolteachers had witnessed epileptic fits. Forty-six percent believed that epilepsy was caused by electrical discharges. Most of the school teachers (79.7%) disagreed with the idea of teaching children with epilepsy separately, or preventing them from sporting activity (50.5%). In addition, 94.9% disagreed with the idea that epilepsy was shameful. Unfortunately, 64.1% of the teachers who were exposed to cases of seizures were not able to provide first aid to students having epileptic fits ( $P = 0.03$ ). **Conclusions:** The schoolteachers were generally knowledgeable about epilepsy. This fact can be used to design a national program through which teachers can help to bring about a well-informed and tolerant community toward epileptics.

**Key words:** Elementary and intermediate schoolteachers, epilepsy, knowledge, Saudi Arabia

### INTRODUCTION

Epilepsy is one of the most common chronic noncommunicable neurologic disorders found throughout the world. It is characterized by episodes of recurrent convulsive attacks of different types. Approximately 50 million people worldwide have epilepsy, and nearly 80% of them live in developing regions.<sup>[1,2]</sup> The reported annual incidence rates for epilepsy vary from country to country. The annual incidence rates reported are 11/100,000/year in Norway, 33/100,000 in Italy, and 48/100,000 in the United Kingdom. It has been observed that the highest incidence rates are found in the populations of

developing countries with values of 140–230/100,000/year.<sup>[3]</sup> Data from Arab countries revealed prevalence rates of 0.9/1000 in Sudan,<sup>[4]</sup> 2.3/1000 in Libya,<sup>[5]</sup> and 6.5/1000 in Saudi Arabia.<sup>[6]</sup>

In view of its complex nature, epilepsy is a condition with high psychosocial and economic costs. Therefore, a multidisciplinary approach to its management is required. To improve the overall management of epilepsy, the concerns of both health professionals and people with epilepsy should be taken into account. Some of the major problems faced by both health professionals and people with epilepsy are poor knowledge in the

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community, lack of awareness, and cultural beliefs and stigma.<sup>[3,7]</sup>

Throughout the history, in all countries, epilepsy has been surrounded by fear, misunderstanding, social discrimination and stigma, all of which negatively affect the quality of life of patients and their families. Many people do not know how to appropriately deal with an episode of seizure. Some believe that epilepsy is contagious or that it may cause learning disabilities.<sup>[8-11]</sup> These and other inappropriate ideas are culturally reinforced and can promote negative attitudes toward people with epilepsy and practice, which can ultimately negatively affect the quality of life of epileptic patients and their families.<sup>[9]</sup>

Children with epilepsy face erroneous attitudes mainly in social environments like schools.<sup>[12]</sup> Some epileptic students do not perform well in school, others present with difficulties in learning and social interactions. These difficulties may not be related to epilepsy only (age at first seizure, severity of epilepsy, etiology and treatment, frequency and type of seizures, medications), but to psychological factors such as the teacher's level of education, low expectations, and rejection by teachers, parents, and peer group and low self-esteem of the child.<sup>[13]</sup> Misunderstanding and misinformation are still present even in reasonably well-informed communities.<sup>[14]</sup>

In schools teachers are important role models for children and have a lifelong influence. Teachers' attitudes may influence the educational performance of children, particularly those with epilepsy.<sup>[15]</sup> In Saudi Arabia, teaching is the most popular civilian job. It attracts people of both sexes and the different ages from all social and economic classes, with varying levels of education.

Despite the significant impact of the teacher's role in the lives of these children, very little research has been conducted in Saudi Arabia to assess these issues.<sup>[16-18]</sup> In a recent Saudi study, Abulhamail *et al.* reported that primary school teachers' knowledge of epilepsy needed improvement, and that educational campaigns on epilepsy were required.<sup>[18]</sup>

The aim of this study was to investigate the knowledge of male teachers in Southern Saudi Arabia and their practice towards students who have epilepsy.

## SUBJECTS AND METHODS

This cross-sectional descriptive study was conducted over a period of 6 months from February to July 2013, in Khamis Mushate, the largest and the most populous city in the southern region of Saudi Arabia. There are 62 elementary

and 43 intermediate boys' governmental schools in the city. Thirty elementary schools and 20 intermediate schools were randomly selected from an official list obtained from the Ministry of Education. An official cover letter and Research Committee approval were given to each school's director. A validated, self-administered questionnaire with a cover letter explaining the aim of the research was distributed. By a stratified random sampling technique, a sample of 500 male teachers received the questionnaire designed to assess their knowledge and practice toward the students with epilepsy. Female teachers were not included in our study as it had been decided that since there are separate schools for girls and boys in Saudi Arabia, another study will be conducted specifically for female teachers. It is expected that any differences there are may be brought out in the results of the two separate studies. Most of the questions were adapted from previous studies.<sup>[18,19]</sup> The questionnaire was initially drafted in English, and subsequently translated into Arabic and translated back into English, to check for discrepancies. Answers to the questions were mainly of the yes/no/not sure variety, but teachers were also allowed to respond to questions on the sources of information and prior exposure to epileptic patients. The questionnaire was pretested on 50 teachers who did not participate in the study, and all changes deemed necessary were incorporated into the questionnaire after the pretesting. Of the 500 teachers who received a questionnaire, 323 responded. Only 315 respondents answered all of the questions (63% response rate) and were included in the statistical analysis. Of those, 59.4% ( $n = 187$ ) were teachers in elementary schools, and 40.6% ( $n = 128$ ) in intermediate schools. Values were expressed as percentages for discrete variables, or as mean and standard deviation for continuous variables. Data was analyzed using the Statistical Package for the Social Sciences, Version 15.0 (SPSS Inc., Chicago, IL, USA).

## RESULTS

Table 1 shows that age of the teachers ranged from 18 to 57 years, with a mean age of  $36.5 \pm 0.9$  years. All of them were of Saudi nationality. Their level of education ranged from secondary education to a Master's degree or a PhD. Most of the teachers had a Bachelor's degree (62.5%), whereas, 14.6% and 21.3% had a secondary school certificate or a diploma, respectively. Only 1.6% of teachers had a Masters or PhD degree.

Most of the teachers (82.2%) believed that epilepsy was not infectious; 34.3% teachers thought epilepsy was hereditary, 46% responded that epilepsy was caused by electrical discharges [Table 2].

Only 62.5% of teachers knew that epileptics do not pose a risk to the community. Most teachers (82.5%) believed

that an epileptic patient had a normal cognitive function; only 5.7% of teachers believed that epileptic patients were mentally retarded. In addition, 51.4% of the teachers did not expect a lower standard of learning from children with epilepsy. Concerning restrictions that might be imposed on schoolchildren with epilepsy, 79.7% of the schoolteachers did not believe that these children should be taught in separate classes or prevented from participating in sporting activities (50.5%). In addition, 94.9% of teachers did not agree with the notion that epilepsy was shameful,

and 75.9% of teachers did not believe it was necessary to give epileptic children a special diet. However, 65.4% and 44.8% of the teachers thought that epileptic students should be prevented from riding motorcycles or swimming, respectively.

In studying the teachers' familiarity with epilepsy, it was found that 13% of the teachers had a relative with epilepsy, and 72.7% ( $n = 229$ ) had witnessed an epileptic seizure; of those who had seen an epileptic seizure, 54.6% had been scared. Furthermore, 39% of teachers had taught a child with epilepsy, and 31.7% had seen a student having a seizure; of those teachers who had witnessed an epileptic seizure, 64.1% were unable to give first aid treatment. About 84% of teachers needed some information on epilepsy, and 86.7% needed some instruction on giving first aid to someone who is having an epileptic seizure [Table 3].

The main sources of information on epilepsy for the teachers were friends and relatives (36.8%), followed by reading (21.6%), media (20.6%), and education (14.6%). Doctors were ranked last (6.3%) as the source of information on epilepsy [Table 4].

## DISCUSSION

Epilepsy is a very common and chronic pediatric neurologic condition that can affect not only the social and educational interactions of children who have epilepsy, but also their families.<sup>[1,13]</sup> A lack of information about epilepsy, myths, and fears about epilepsy and the stigma of the condition has been identified in many locations.<sup>[15,19,20]</sup>

Regarding the cause of epilepsy, the present study has revealed that most schoolteachers (82.2%) believed that epilepsy was not infectious. Some schoolteachers believed epilepsy to be hereditary (34.3%), whereas others thought it was an acquired disease (36.5%), and 46.0% believed that epilepsy was caused by electrical discharges. 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. These findings are contrary to the findings of others who have reported that there was still the belief in some places that epilepsy was a contagious disease.<sup>[13,19,20]</sup> In a previous Brazilian study, Fernandes and Souza<sup>[13]</sup> 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

**Table 1: Schoolteachers' characteristics (n=315)**

Demographic characteristics	N (%)
Age (years)	
15-24	21 (6.7)
25-34	139 (44.1)
35-44	97 (30.8)
45-54	42 (13.3)
55-60	16 (5.1)
Academic qualification	
Secondary	46 (14.6)
Bachelor's	197 (62.5)
Diploma	67 (21.3)
Master's or Ph.D.	5 (1.6)
Teaching experience (years)	
5-9	89 (28.3)
10-14	65 (20.6)
15-19	72 (22.9)
20-24	75 (23.8)
25+	14 (4.4)
Total	315 (100)

**Table 2: Knowledge of studied school teachers about epilepsy (n=315)**

Questions on knowledge about epilepsy	Responses		
	Yes N (%)	No N (%)	Not sure N (%)
Epilepsy is infectious	2 (0.6)	259 (82.2)	54 (17.1)
Epilepsy is familial	108 (34.3)	115 (36.5)	92 (29.2)
Epilepsy is caused by electrical discharges	145 (46.0)	24 (7.6)	146 (46.3)
Epilepsy does not cause any risk	40 (12.7)	197 (62.5)	78 (24.8)
Epileptic patient is mentally retarded	18 (5.7)	260 (82.5)	37 (11.7)
Epileptic patient is weak in learning	63 (20.0)	162 (51.4)	90 (28.6)
Epileptic should be taught in separate classes	38 (12.1)	251 (79.7)	26 (8.3)
Epileptic should be prevented from sport classes	102 (32.4)	159 (50.5)	54 (17.1)
It is shameful	5 (1.6)	299 (94.9)	11 (3.5)
Epileptic should be prevented from riding a motorcycle at all times	206 (65.4)	57 (18.1)	52 (16.5)
Epileptic should be prevented from swimming	141 (44.8)	107 (33.9)	67 (21.3)
Epileptic should be given a special diet	15 (4.8)	239 (75.9)	61 (19.4)

**Table 3: Familiarity about epilepsy among the studied school teachers (n=315)**

Familiarity about epilepsy	Yes N (%)	No N (%)
Are you or any of your family is epileptic?	41 (13.0)	274 (87.0)
Did you see an epileptic fit?	229 (72.7)	86 (27.3)
Were you scared? (for those answered "yes" in question number 2)	125 (54.6)	104 (45.4)
Did you teach an epileptic student?	123 (39.0)	192 (61)
Did any of your students have an attack or a fit? (for those answered "yes" in question number 4)	39 (31.7)	84 (68.3)
Did you give them a first aid? (for those answered "yes" in question number 5)	14 (35.9)	25 (64.1)
Are you qualified for first aid?	108 (34.3)	207 (65.7)
Do you need to learn about epilepsy?	263 (83.5)	52 (16.5)
Do you think you need to learn first aid for an epileptic fit?	273 (86.7)	42 (13.3)

**Table 4: Teachers' sources of information about epilepsy**

The main source of information	N (%)
Reading	68 (21.6)
Media	65 (20.6)
Education	46 (14.6)
Doctors	20 (6.3)
Friends and relatives	116 (36.8)
Total	315 (100)

treatable (90%). Bekiroglu *et al.*<sup>[19]</sup> 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.

On the education of epileptic students, our findings reveal that most teachers (82.5%) believed that epileptic students had normal mental ability, and 51.4% did not expect a lower standard of learning from children with epilepsy. These positive findings are very encouraging and are in line with those of Bannon *et al.*<sup>[21]</sup> However, these findings are in contrast to other studies that have shown that teachers assume that children with epilepsy have learning difficulties problems that affect school performance.<sup>[19,20,22]</sup> Unfortunately, many people still believe that epilepsy is a disease of people with impaired cognitive ability. Some teachers in our study had doubts about the cognitive potential of students with epilepsy.

Other educational concerns for students with epilepsy are the ideas that a child with epilepsy was more likely to have the mental disease in the future, and that epilepsy was itself a mental disease. These beliefs or irrational ideas are disseminated without scientific basis, and originate from the lack of proper knowledge about epilepsy and its treatment.<sup>[23,24]</sup>

Regarding restrictions on epileptics, 79.7% and 50.5% of teachers did not agree that epileptic students should be taught in separate classes or prevented from participating in sports, respectively. The majority of teachers (94.9%) believed that having epilepsy was not shameful, and that there was no need to give these children a special diet (75.9%). However, many teachers believed that epileptic children should always be prevented from riding motorcycles (65.4%) or swimming (44.8%). Overprotection and feelings of fear, worry, and insecurity can interfere with the epileptic child's personal relationships and academic life, increasing the perception of stigma.<sup>[18]</sup> In school, epileptic students have problems with regard to being restricted from certain activities. The fear of seizures and rejection of the child may be accompanied by the problem of not knowing how to manage children with epilepsy.<sup>[13]</sup> Furthermore, because people believe that these children are fragile, they may be overprotective toward the children out of frustration and the fear of possible mishap. This overprotection can lead to passivity in the children and may influence their psychosocial adjustment.<sup>[25]</sup>

On the question of being familiar with epilepsy, few teachers (13.0%) reported having a relative with epilepsy. However, many teachers (72.7%) had witnessed an epileptic seizure. Thirty-nine percent of the teachers had taught a child with epilepsy and, of those, 31.7% had seen students having an epileptic attack. Most of the teachers were familiar with epilepsy.

Ojinnaka<sup>[15]</sup> reported that only 23.2% of teachers recalled having taught a child with epilepsy, despite the fact that 75% of the seizures occur in school-age children.<sup>[3]</sup>

More than half (54.6%) of the teachers surveyed reported being scared when they had been present when someone had a seizure. The reason for this may be the teachers' lack of confidence even though their knowledge was reasonable and their awareness of the difficulties epileptic schoolchildren faced was considerable. The fear of the unknown can result in anxiety because of the lack of experience and relevant knowledge.<sup>[21]</sup> Furthermore, 64.1% of the teachers did not provide first aid to the person having a seizure. Most of the teachers in the study sample (65.7%) were not equipped to give first aid.

These findings reveal why 83.5% of teachers agreed to learn about epilepsy, and 86.7% agreed to receive first aid training for the treatment of epileptic seizures. These findings are in agreement with the request made by the teachers who wished to know more about first aid for epilepsy because they had to face the problem in the classroom. Several teachers were misinformed about the clinical characteristics of seizures, which reflects the lack of specific training in this area.<sup>[15,21]</sup> A study in Thailand showed that half of the respondents who had a previous experience with the first aid management of seizures also used improper and potentially harmful measures.<sup>[26]</sup> Misconceptions on first aid were also common.<sup>[9]</sup> These difficulties were related to poor educational programs for epilepsy. General public education campaigns for epilepsy must be encouraged to improve the quality of life for people with epilepsy.<sup>[15,22]</sup>

Friends and relatives were first in rank as sources of information on epilepsy, followed by reading, media, and education. Ojinnaka declared that the mass media, especially the radio, is an important source of information.<sup>[15]</sup> There is a need for much more public education about epilepsy.

On the question of prior exposure to people with epilepsy, 72.7% schoolteachers had been previously exposed to epileptic patients. There was a strong negative association between prior exposure to epilepsy cases and the provision of first aid treatment ( $P = 0.03$ ), with 64.1% of teachers reporting that they were unable to provide first aid to someone having a seizure. This underlines the urgent need for training in first aid for epileptic seizures. Seminars and school health education programs focusing on the causes and management of epileptic seizures would definitely improve knowledge of epilepsy.<sup>[15]</sup> Improved educational programs should be able to reduce myths and fears about epilepsy, and thereby minimize the effects of the associated social stigma.<sup>[24]</sup>

## CONCLUSION

Epilepsy is prevalent in Saudi Arabia, as it is worldwide. Although the schoolteachers are knowledgeable about the condition, they have difficulty in giving help to a student who is having a seizure. School teachers showed much enthusiasm for training in providing first aid to those with epilepsy. Without a doubt in Saudi Arabia, there is a lack of proper plan of action to deal with epileptic students. This lack of a plan has a negative impact on epileptic students and may even endanger their lives. Health education programs on epilepsy should be designed to educate schoolteachers and thereby, to eventually create a well-informed and tolerant community. Health authorities and specialists should be actively involved in educational programs on epilepsy. Because, there are separate schools

for males and females in Saudi Arabia, a separate study should be conducted for female schoolteachers.

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## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. WHO. Fact Sheet No. 999. Available from: <http://www.who.int/mediacentre/factsheets/fs999/en>. [Last updated on Oct 2012].
2. Al-Khateeb JM, Al-Khateeb AJ. Research on psychosocial aspects of epilepsy in Arab countries: A review of literature. *Epilepsy Behav* 2014;31:256-62.
3. Ngugi AK, Bottomley C, Kleinschmidt I, Sander JW, Newton CR. Estimation of the burden of active and life-time epilepsy: A meta-analytic approach. *Epilepsia* 2010;51:883-90.
4. Mohammed IN, Babikir HE. Traditional and spiritual medicine among Sudanese children with epilepsy. *Sudan J Paediatr* 2013;13:31-7.
5. Benamer HT, Grosset DG. A systematic review of the epidemiology of epilepsy in Arab countries. *Epilepsia* 2009;50:2301-4.
6. Al Rajeh S, Awada A, Bademosi O, Ogunniyi A. The prevalence of epilepsy and other seizure disorders in an Arab population: A community-based study. *Seizure* 2001;10:410-4.
7. World Health Organization. *Epilepsy Care in the World*. 2005: WHO, ILAE and IBE; Switzerland.
8. Asato MR, Doss JL, Plioplys S. Clinic-friendly screening for cognitive and mental health problems in school-aged youth with epilepsy. *Epilepsy Behav* 2015;48:97-102.
9. Szemere E, Jokeit H. Quality of life is social – Towards an improvement of social abilities in patients with epilepsy. *Seizure* 2015;26:12-21.
10. Hun C, Hok T, Ros S, Chan S, Bhalla D. Epilepsy: Some controversies, some knowledge and some experience from Cambodia. *Neurol India* 2014;62:606-9.
11. England MJ, Liverman CT, Schultz AM, Strawbridge LM. Epilepsy across the spectrum: Promoting health and understanding. A summary of the Institute of Medicine report. *Epilepsy Behav* 2012;25:266-76.
12. Hsieh LP, Chiou HH. Comparison of epilepsy and asthma perception among preschool teachers in Taiwan. *Epilepsia* 2001;42:647-50.
13. Fernandes PT, Souza EA. Perception of epilepsy stigma in fundamental school teachers. *Estud Psicol* 2004;9:189-95.
14. Jacoby A, Gorry J, Gamble C, Baker GA. Public knowledge, private grief: A study of public attitudes to epilepsy in the United Kingdom and implications for stigma. *Epilepsia* 2004;45:1405-15.
15. Ojinnaka NC. Teachers' perception of epilepsy in Nigeria: A community-based study. *Seizure* 2002;11:386-91.
16. Obeid T, Abulaban A, Al-Ghatani F, Al-Malki AR, Al-Ghamdi A. Possession by 'Jinn' as a cause of epilepsy (Saraa): A study from Saudi Arabia. *Seizure* 2012;21:245-9.
17. Alaqeel A, Sabbagh AJ. Epilepsy; what do Saudi's living in Riyadh know? *Seizure* 2013;22:205-9.
18. Abulhamail AS, Al-Sulami FE, Alnouri MA, Mahrous NM, Joharji DG, Albogami MM, et al. Primary school teacher's knowledge and attitudes toward children with epilepsy. *Seizure* 2014;23:280-3.
19. Bekiroglu N, Ozkan R, Gürses C, Arpacı B, Dervent A. A study on awareness and attitude of teachers on epilepsy in Istanbul. *Seizure* 2004;13:517-22.
20. Olson AL, Seidler AB, Goodman D, Gaelic S, Nordgren R. School professionals' perceptions about the impact of chronic illness in the classroom. *Arch Pediatr Adolesc Med* 2004;158:53-8.
21. Bannon MJ, Wildig C, Jones PW. Teachers' perceptions of epilepsy. *Arch Dis Child* 1992;67:1467-71.
22. Millogo A, Siranyan AS. Knowledge of epilepsy and attitudes towards

- the condition among schoolteachers in Bobo-Dioulasso (Burkina Faso). *Epileptic Disord* 2004;6:21-6.
23. Thacker AK, Verma AM, Ji R, Thacker P, Mishra P. Knowledge awareness and attitude about epilepsy among schoolteachers in India. *Seizure* 2008;17:684-90.
  24. Fernandes PT, Noronha AL, Araújo U, Cabral P, Pataro R, de Boer HM, *et al.* Teachers perception about epilepsy. *Arq Neuropsiquiatr* 2007;65 Suppl 1:28-34.
  25. Fernandes PT, Souza EA. Identification of family variables in parents' groups of children with epilepsy. *Arq Neuropsiquiatr* 2001;59:854-8.
  26. Kankirawatana P. Epilepsy awareness among school teachers in Thailand. *Epilepsia* 1999;40:497-501.