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Knowledge, attitude and practice of epilepsy among secondary school teachers in Bisha, Saudi Arabia 2023

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ABSTRACT

Background: Epilepsy, a chronic brain disease causing recurrent seizures, remains significantly undiagnosed despite its common occurrence. *Methods:* this study aimed to assess 501 secondary school teachers' knowledge, attitude, and practice concerning epilepsy in Bisha, Saudi Arabia. Using systematic random sampling, a descriptive cross-sectional study collected data via an online questionnaire. *Results:* Findings revealed a good level of knowledge among teachers, albeit with a noticeable gap in understanding infections as a cause of epilepsy. Gender showed a significant association with knowledge levels (P=0.03). *Conclusion:* Most teachers held a positive attitude toward epilepsy, with age and teaching experience correlating significantly (P=0.03) with attitude levels. Although teachers often aided students during seizures, schools lacked effective strategies. Recommendations include providing epilepsy first aid training for teachers, establishing on-site clinics, and conducting educational campaigns to enhance awareness and preparedness.

Keywords: Epilepsy, Knowledge, Attitude, Practice, Secondary school teachers, Bisha, Saudi Arabia

1. INTRODUCTION

Neurological disorders require long-term care and are associated with severe consequences that affect the daily lives of patients and their families. Epilepsy is a chronic non-communicable disease (NCD) that affects the brain and is characterized by unprovoked or recurrent seizures that result in an excessive electrical discharge of brain cells. This discharge can occur in different parts of the brain. The frequency of seizures varies from less than one per year to several per day (Al-Rajeh et al., 2001). Seizure characteristics are based on the first onset disturbance in the brain and how it spreads (Asawavichienjinda et al., 2002). Symptoms include disturbances in movement and sensation, loss of awareness, and unconsciousness (Attia-Romdhane et al., 1993). Physical

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problems and mental illnesses such as anxiety and depression are more common in Epilepsy patients (Aziz et al., 1997; Banerjee et al., 2009; Basch et al., 1997; Beghi et al., 1991).

The risk of dying from Epilepsy is three times higher in preterm infants than in the general population (Gourie-Devi, 2014; Bielen et al., 2007). The World Health Organization (WHO) has stated that Epilepsy is the most common and oldest disease affecting humans, with approximately 50% of cases still undiagnosed (Fernandes et al., 2011; England et al., 2014; Thomas and Nair, 2011; Taylor et al., 2011; Caveness and Gallup, 1980; Canger and Cornaggia, 1985). The prevalence of Epilepsy is estimated at 50 million worldwide. The incidence of this disease in Saudi Arabia is estimated to be 6.54/1000 population based on a recent study (Al-Rajeh et al., 2001). In other countries, it ranges from 0.9 to 17.6/1000 population (Attia-Romdhane et al., 1993; Aziz et al., 1997; Banerjee et al., 2009; Basch et al., 1997; Beghi et al., 1991; Gourie-Devi, 2014; Bielen et al., 2007; Fernandes et al., 2011).

Social stigma is a bigger problem for Epilepsy patients than the disease itself (England et al., 2014; Thomas and Nair, 2011; Taylor et al., 2011; Caveness and Gallup, 1980; Canger and Cornaggia, 1985). There is a high intolerance of the public towards Epilepsy patients because they are afraid of sudden seizures. In contrast, in developed countries such as the United States and Denmark, it has been periodically observed that public knowledge and attitudes toward Epilepsy have improved through robust public education and awareness (Canger and Cornaggia, 1985; Jensen and Dam, 1992; Haneef et al., 2014). Approximately 85% of Epilepsy patients are from developing countries (Alaqeel et al., 2015; Devinsky et al., 1999). In the Kingdom of Saudi Arabia, a public awareness campaign was conducted that showed a significant positive trend in general knowledge about Epilepsy and led to a decrease in negative attitudes (Alqahtani, 2015).

In ancient times, people believed that Epilepsy was obsessive and contagious (Saengpattrachai et al., 2010). Knowledge, attitudes, and practices regarding Epilepsy have been widely studied in the general population and among teachers responsible for teaching and caring for students worldwide. Since time immemorial, people with Epilepsy have been considered "possessed", to this day, many people hold on to this belief, as well as the belief that Epilepsy is contagious (Birbeck et al., 2006). Despite the various public education programs implemented, the misperception of Epilepsy has not significantly improved over time (Kankirawatana, 1999). Throughout the world, there is still much superstition about Epilepsy (Thacker et al., 2008).

Owolabi et al., (2014) in a study conducted among the general population, reported low levels of knowledge and misconceptions about Epilepsy but appropriate attitudes toward students with Epilepsy in northwestern Nigeria. Students with Epilepsy still face social barriers that prevent them from academic achievement, in addition to the limitations already imposed on them by the disease itself (Gebrewold et al., 2016). A higher teacher education level was significantly associated with good attitudes toward Epilepsy. About 72.7% of schoolteachers had confirmed epileptic seizures, and 46% believed that electrical discharges cause Epilepsy (Al-Harbi et al., 2018). As reported by Alhazzani et al., (2016), the level of knowledge about Epilepsy in the Asser region is poor and needs to be improved.

2. SUBJECTS AND METHODS

Study design

A community- based, cross - sectional study.

Study area

Bisha Governorate, Asir Province, Kingdom of Saudi Arabia. Bisha is in the southwestern Saudi Arabia, with a population of around 206,000. As reported by the General Directorate of Education, the total number of secondary schools in Bisha City is seven for males and 461 for females, including all stages. Bisha City has six male secondary schools and seven female secondary schools.

Study population

The target population includes Saudi secondary school teachers from secondary schools in Bisha city.

Inclusion criteria

Male and female Saudi Secondary school teachers who agreed to participate in the study.

Exclusion criteria

Non-Saudis Secondary school teachers

Teachers on formal vacation.

Sampling

The sample size calculated by using the single population proportion formula where $Z\alpha/2 = 1.96$ at a 95% confidence interval, p = 50% (as there is no previous published study in this study area), and d = 5%, which is the marginal error. Based on these values, the minimum sample size will be 384 participants.

Type of sampling

Systemic random sampling

Data collection plan

Participants' Socio - demographic characteristics and knowledge, attitude, and practice of Epilepsy were studied through a self-administered questionnaire attitude (Alqahtani, 2015). The institutional research committee approved the content validity of the questionnaire. The questionnaire was designed to explore the participants' KAP of Epilepsy and contained four categories. The first category studied participants' Socio - demographic characteristics and included five items, while the second category set the respondent's knowledge of BD and had 13 items. In contrast, the third and fourth categories assessed the respondent's attitude and practice toward Epilepsy and included four and two items, respectively.

The knowledge of respondents about Epilepsy evaluated via using a scoring scale. The total score obtainable for knowledge assessment is 13. Every correct answer gets a score of one, while every wrong answer gets a score of zero. Knowledge graded into poor knowledge (score of less than 7) and good knowledge (score of ≥ 7). The attitude was assessed through four questions using a scoring scale. The total score obtainable for attitude assessment towards Epilepsy is four. Every positive response gets a score of one, while every negative response gets a score of zero. The attitude graded into a negative attitude (score of less than 2) and a positive attitude (score of > 2). The survey was voluntary, the study information will remain confidential, and participants completed the survey individually.

Data analysis plan

The authors analyzed 501 completed questionnaires. Data were analyzed using SPSS Statistics, version 25.0. Categorical variables described using frequencies and percentages. A univariate analysis conducted using a chi-squared test for categorical variables to study the association between independent and dependent variables. A p-value of ≤ 0.05 was considered statistically significant.

Study duration

The study was conducted between February 2023 and August 2023.

Study limitation

As this study used an online questionnaire, sampling, and respondent bias were limitations. The Sample size doesn't reflect the true population of the area, as it was only a preliminary discovery carried out in a particular location, and a more significant scale study is advised for further investigation.

Ethical Considerations

Ethical approval was sought by the Institutional Review Board of our institute Reference number UBCOM/H-06-BH-087 (06/15). The agreement of the participants was taken at the beginning of the questionnaire.

3. RESULTS

Socio-demographic characteristics

A total of 501 secondary school teachers from 13 secondary schools in Bisha Governorate participated in this study, with a response rate of 83.5%. The majority of respondents were married 388 (77.4%), within the age group 33-43 years 188 (37.5%), had achieved a university degree 410 (81.8%), and had more than 20 years of teaching experience 146 (29.1%) (Table 1).

Table 1 Socio-demographic characteristics of the respondents (n=501)

Socio - demographic	Gender	
	Male	Female
Age in years		

22-32	80 (15.9%)	39 (7.7%)
33-43	55 (10.9%)	133 (26.5%)
44-54	80 (15.9%)	77 (15.3%)
> 54	35 (6.9%)	2 (0.3%)
Marital status		
Single	69 (13.7%)	25 (4.9%)
Married	178 (35.5%)	210 (41.9%)
Other	3 (0.5%)	16 (3.1%)
Academic qualification		
Diploma	16 (3.1%)	34 (6.7%)
Bachelor	208 (41.5%)	202 (40.3%)
Master's or PhD	26 (5.1%)	15 (2.9%)
Teaching experience in years		
< 5 years	57 (11.3%)	53 (10.5%)
5-9 years	25 (4.9%)	27 (5.3%)
10-14 years	25 (4.9%)	83 (16.5%)
15-19 years	98 (19.5%)	40 (7.9%)
> 20 years	45 (8.9%)	48 (9.5)

Knowledge assessment

Almost all participants had heard of Epilepsy 482 (96.2%). The primary source of information was families of children with Epilepsy (53.5%) (Figure 1). The total score for knowledge assessment was 9, indicating a good level of knowledge among the respondents. However, there was an apparent gap in knowledge regarding infection as a cause of Epilepsy (9%) (Table 2). A statistically significant association was found between knowledge level and gender (P= 0.03) (Table 3).

Table 2 Knowledge of Epilepsy (n=501)

Knowledge assessed	Correct knowledge frequency /%	Incorrect knowledge frequency /%
Are Genetic disorders contributing factors to Epilepsy?	331 (66.1)	170 (33.9)
Do traumas have a role in Epilepsy?	308 (61.5)	193 (38.5)
Are Infections have a role in Epilepsy?	45 (9)	456 (91)
Are Brain diseases considered a risk factor to have Epilepsy?	334 (66.7)	167 (33.3)
Are Tumors have a role in Epilepsy?	208 (41.5)	293 (58.5)
Do brain Malformations have a role in Epilepsy?	203 (40.5)	298 (59.5)
Does Epilepsy a contagious disease?	463 (92.4)	38 (7.6)
Are there any triggers before a seizure attack?	327 (65.3)	174 (34.7)
Are there any features or alarms before a seizure attack?	284 (56.7)	217 (43.3)
Do you think Epilepsy is a brain disease that can be cured?	184 (36.7)	317 (63.3)
Do you think Epilepsy is a brain disease that can be controlled?	297 (59.3)	204 (40.7)
Do you think intelligence is affected in a person with Epilepsy?	367 (73.3)	134 (26.7)
Do you think Children with Epilepsy have behavioral problems?	341 (68.1)	160 (31.9)

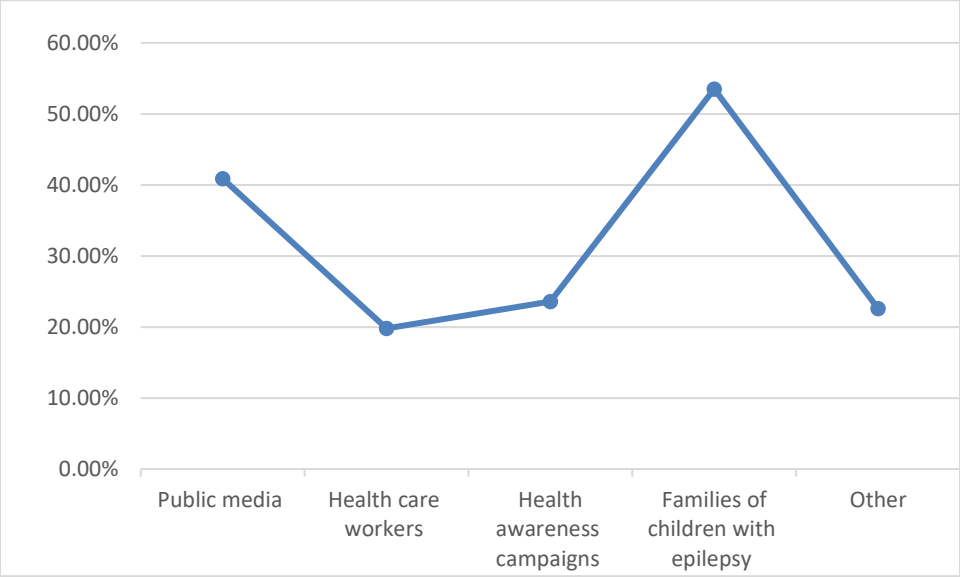

Figure 1 Source of teacher's information about Epilepsy

Table 3 Socio-demographic characteristics of the respondents and their association with their knowledge of Epilepsy (n= 501)

Characteristics	Level of knowledge		Total /%	P value
	Good knowledge frequency /%	Poor knowledge frequency /%		
Age in years				
22-32	116 (23.2)	3 (0.6)	119 (23.8)	0.12
33-43	181 (36.1)	7 (1.4)	188 (37.5)	
44-54	152 (30.3)	5 (1)	157 (31.3)	
> 54	33 (6.6)	4 (0.8)	37 (7.4)	
Gender				
Male	236 (47.1)	14(2.8)	250 (49.9)	0.03
Female	246 (49.1)	5 (1)	251 (50.1)	
Marital status				
Single	91 (18.2)	3 (0.6)	94 (18.8)	0.61
Married	372 (74.3)	16 (3.2)	388 (77.4)	
Other	19 (3.8)	0 (0)	19 (3.8)	
Academic qualification				
Diploma	49 (9.8)	1 (0.2)	50 (10)	0.74
Bachelor	394 (78.6)	16 (3.2)	410 (81.8)	
Master's or PhD	39 (7.8)	2 (0.4)	41 (8.2)	
Teaching experience in years				
< 5 years	106 (21.2)	4 (0.8)	110 (22)	0.76
5-9 years	51 (10.2)	1 (0.2)	52 (10.4)	
10-14 years	105 (21)	3 (0.6)	108 (21.6)	
15-19 years	80 (16)	5 (1)	85 (17)	
> 20 years	140 (27.9)	6 (1.2)	146 (29.1)	

Attitude

Regarding attitude towards Epilepsy, more than three-quarters of the respondents 400 (79.8%) had a positive attitude as they expressed their willingness to help students with Epilepsy. However, only 88 (17.6%) received first aid training in handling seizures. About 71 (14.2%) respondents indicated they would prefer to place students with Epilepsy in special classrooms (Figure

2). Approximately three-quarters of 401 (80%) would allow healthy students to play with students with Epilepsy (Figure 2). Attitude had a statistically significant association with age (P=0.01) and teaching experience (P=0.02) (Table 4).

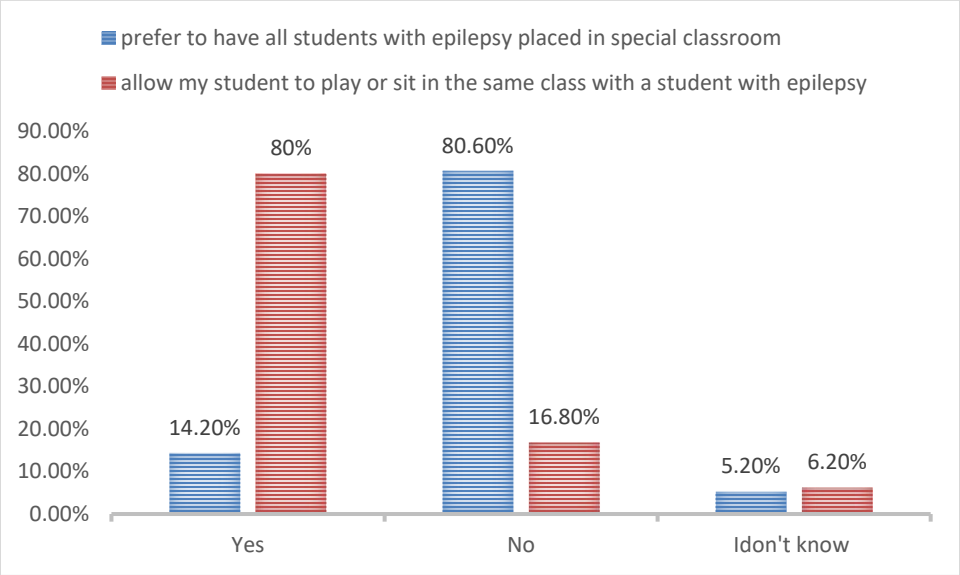

Figure 2 Attitude toward Epilepsy students

Table 4 Socio-demographic characteristics of the respondents and their association with their attitude toward Epilepsy (n=501)

Characteristics	Attitude assessed.		Total /%	P value
	Good attitude frequency /%	Poor attitude frequency /%		
Age in years				
22-32	88 (17.6)	31 (6.3)	119 (23.8)	0.001
33-43	140 (27.9)	48 (9.6)	188 (37.5)	
44-54	140 (27.9)	17 (3.4)	157 (31.3)	
> 54	32 (6.4)	5 (1)	37 (7.4)	
Gender				
Male	208 (41.5)	42 (8.4)	250 (49.9)	0.06
Female	192 (38.3)	59 (11.8)	251 (50.1)	
Marital status				
Single	72 (14.4)	22 (4.4)	94 (18.8)	0.60
Married	313 (62.5)	75 (15)	388 (77.4)	
Other	15 (3)	4 (0.8)	19 (3.8)	
Academic qualification				
Diploma	43 (8.6)	7 (1.4)	50 (10)	0.50
Bachelor	324 (64.7)	86 (17.2)	410 (81.8)	
Master's or PhD	33 (6.6)	8 (1.6)	41 (8.2)	
Teaching experience in years				
< 5 years	83 (16.6)	27 (5.4)	110 (22)	0.02
5-9 years	38 (7.6)	14 (2.8)	52 (10.4)	
10-14 years	82 (16.4)	26 (5.2)	108 (21.6)	
15-19 years	67 (13.4)	18 (3.6)	85 (17)	
> 20 years	130 (25.9)	16 (3.2)	146 (29.1)	

Practice

Regarding the practice, 204 (40.7%) of the respondents had previously helped students during seizure attacks of Epilepsy. There was a statistically significant association between practice and age (P=0.03) (Table 5). The most common first action teachers took to help students with Epilepsy seizures was to inform the school administration 82 (40.9%), followed by telling the student's family 61 (29.9%). In contrast, direct help was the most minor action (Table 6).

Table 5 Socio-demographic characteristics of the respondents and their association with their practice toward Epilepsy (n=501)

Characteristics	Practice assessed.		Total /%	P value
	Had practice frequency /%	Didn't have practice frequency /%		
Age in years				
22-32	46 (9.2)	73 (14.6)	119 (23.8)	0.03
33-43	69 (13.8)	119 (23.8)	188 (37.5)	
44-54	66 13.2)	91 (18.2)	157 (31.3)	
> 54	23 (4.6)	14 (2.8)	37 (7.4)	
Gender				
Male	108 (21.6)	142 (28.3)	250 (49.9)	0.25
Female	96 (19.2)	155 (30.9)	251 (50.1)	
Marital status				
Single	39 (7.8)	55 (11)	94 (18.8)	0.93
Married	158 (31.5)	230 (45.9)	388 (77.4)	
Other	7 (1.4)	12 (2.4)	19 (3.8)	
Academic qualification				
Diploma	26 (5.2)	24 (4.8)	50 (10)	0.23
Bachelor	162 (32.3)	248 (49.5)	410 (81.8)	
Master's or PhD	16 (3.2)	25 (5)	41 (8.2)	
Teaching experience in year				
< 5 years	42 (8.4)	68 (13.6)	110 (22)	0.27
5-9 years	19 (3.8)	33 (6.6)	52 (10.4)	
10-14 years	37 (7.4)	71 (14.2)	108 (21.6)	
15-19 years	40 (8)	45 (9)	85 (17)	
> 20 years	66 (13.2)	80 (16)	146 (29.1)	

Table 6 Distribution of first aid action taken by teachers to help students of Epilepsy during seizure attacks (n=204)

What have you done to help any student during a seizure attack?	
Action taken	Frequency /%
Inform school administration.	82 (40.1%)
Inform the family	61 (29.9%)
Tongue holding	13 (6.3%)
Spray water in the face	7 (3.4%)
Head protection	22 (10.7%)
Stay near the person	5 (2.4%)
Direct the body and head to the side	6 (2.9%)
Fix the position of the patient	7 (3.4%)
Place a strong odor near the nose	1 (0.4%)

4. DISCUSSION

Epilepsy is a widespread neurological ailment that dates back to ancient times. The teachers have to know how to deal with epileptic students to protect them from harm associated with the seizure. In the current study, almost all the participants, 482 (96.2%), were familiar with Epilepsy. This result is consistent with the previous studies (Al-Harbi et al., 2018; Alhazzani et al., 2016). On the other hand, this result was higher compared to antecedent studies Epilepsy (Thacker et al., 2008; Saengpattrachai et al., 2010). This discrepancy in results might be due to Arabia. The present study showed that the most common source of information was families of children with Epilepsy 268 (53%); that means the participants had obtained their information from non-medical people, which might not be accurate enough.

The current study revealed that the participants have good knowledge. This result is consistent with the previous studies conducted in the same country as our study (Al-Harbi et al., 2018; Alhazzani et al., 2016; Shehata and Mahran, 2010). Despite good knowledge of Epilepsy among respondents, the present study revealed an apparent gap in knowledge of infection as a cause for Epilepsy (9%). This result is aligned with the study conducted in India (Thacker et al., 2008). Regarding attitude, the present study revealed that many teachers were unwilling to help students during a seizure attack. This result is aligned with literature (Alhazzani et al., 2016; Shehata and Mahran, 2010). This may be explained by a lack of confidence due to a lack of training in dealing with patients with Epilepsy during seizure attacks.

Our study revealed that over two-thirds of participants did not receive first aid training for epileptic patients during a seizure attack. This result is aligned with previous studies (Alaqeel et al., 2015; Devinsky et al., 1999). In the present study, 71 (14.2%) preferred to keep all epileptic students in a particular classroom. This finding is like the result obtained from antecedent studies Thacker et al., (2008), Saengpattrachai et al., (2010) and is inconsistent with the findings obtained by (Alqahtani, 2015; Alhazen et al., 2016). Finllay, regarding the practice, the current study showed that 204 (40.7%) participants had helped epileptic students during seizure attacks. This finding is aligned with the literature (Alhazzani et al., 2016; Shehata and Mahran, 2010). Teachers' ability to provide first aid to seizure patients is essential to the educational setting, especially if there is no professional healthcare provider on the premises.

5. CONCLUSION AND RECOMMENDATIONS

The present study found that secondary school teachers in Bisha governorate had an excellent knowledge of Epilepsy, similar to some regional, developed, and developing countries. In addition, it was found that the participants' attitude toward Epilepsy was positive. Most participants had helped a student during an epileptic seizure, reflecting their practice. A positive attitude and practice are the result of more knowledge and understanding. Schools lack an effective strategy for dealing with students with Epilepsy. Students with Epilepsy suffer from this lack of planning, which can endanger their lives. The level of knowledge needs to be improved through more work. Programs should be developed to educate teachers about Epilepsy to create tolerant and well-informed teachers. Training in Epilepsy first aid should be offered to all teachers to enable them to deal with seizures in the classroom. We also recommend that a small clinic be set up in all schools. We also recommend conducting intervention research to inform teachers and the public about courses and education campaigns.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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