Original Article

Primary school female teachers' knowledge, attitude, and practice toward students with epilepsy in Riyadh, Saudi Arabia

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Abstract

Background: Epilepsy is the most neurological condition prevalent in humanity and it is associated with stigma and discrimination. Knowledge and practice of primary care teachers toward students with epilepsy, especially at young age, is imperative for their development. **Objectives:** This study was designed to assess the level of knowledge, attitude, and practice of female primary school teachers toward students with epilepsy in Riyadh, Saudi Arabia. **Subjects and Methods:** In this cross-sectional study, 582 female primary school teachers had volunteered. They were assessed on their knowledge, attitude, and practice toward students with epilepsy using a self-administrated questionnaire. The questionnaire was cross-culturally validated before the distribution. **Results:** The results suggest above-average familiarity with epilepsy (79.2%). Younger teachers are less likely to associate epilepsy with retardation ($P = 0.038$). In general, the attitude was positive among the teachers, and 36.9% felt that the students should be treated normally and 63.1% with compassion toward them. Only 14.3% answered that epileptic students should be transferred to special need schools. Highly educated teachers were less likely to feel that epileptic students can cause problems ($P = 0.038$). The practice was poor with 31.8% expressed the ability to provide first aid to epileptic students. Only 27.5% accepted to give the students prescribed medications. **Conclusion:** The knowledge about epilepsy needs improvement among primary school teachers in Riyadh. Public level interventions through proper courses can provide a leverage. The higher level of knowledge can be pivotal in increasing the positive attitude and practice of teachers toward epileptic students.

Keywords: Cross-section, epilepsy, primary school, Saudi Arabia

Introduction

The World Health Organization (WHO) identified epilepsy as one of the oldest conditions known to humanity and the most common neurological condition affecting individuals. The prevalence, at any given time, is estimated to be around 50 million people living with the condition.[1] The prevalence in Saudi Arabia in the most recent study was estimated to be 6.54/1000 population.[2] In other countries, the prevalence ranged between 0.9 and 17.6/1000 population.[3-10]

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One of the main problems of having epilepsy is the stigma and discrimination associated with the condition.[1,11-14] It has been suggested that this stigma can be more of a burden than the conditions itself.[11] Several factors increase the feeling of being stigmatized by epileptic individuals, and one of it was the poor education that an individual receives in their life.[14] One of the key components is the stigmatizing that can associate with people with epilepsy (PWE) early in life, especially at school reflecting severe physical and psychological impact on PWE.[12] This can affect the quality of education, and a PWE receives and worsen the feeling of stigma. In addition, raising the knowledge level will improve the welfare of young student with epilepsy. For example, a 16-year-old boy passed away in a middle school at Kuwait

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due to lack of first aid training among teachers or professional health-care workers at the premises.[15] This study is part of the effort to assess knowledge, attitude, and practice among female primary school teachers in Saudi Arabia.

Subjects and Methods

Study area

The study was conducted at the Capital City of Riyadh in Saudi Arabia. We considered all public schools in Riyadh operated by the Ministry of Education in Saudi Arabia as our population.

Inclusion criteria

Females and primary school teachers, Riyadh area, were included in the study.

Exclusion criteria

Participants with epilepsy, nonteaching school staff, and staff who are unavailable to fill the questionnaire (e.g., on leave) were excluded in the study.

Study design

This was a cross-sectional study.

Sampling method

The sampling method adopted was two-stage random sampling. Riyadh is divided into five administrative areas, such as North, South, West, East, and Center. In the first stage, from each administrative area, five female primary schools were selected randomly using the list of 410 schools obtained from the Ministry of Education. The second-stage questionnaires were distributed to the teachers who had given the consent to participate from each school.

The sample size was calculated based on Muthaffar and Jan[16] study that estimated the level of public knowledge about epilepsy as 52%. Hence, the minimum sample size required to conduct the present study with $\alpha = 5\%$ error and $L\% = 5\%$ as Limit of Accuracy was 384 calculated using the following formula:

$$N = \frac{Z_{\alpha}^{2} * P * (1-P)}{[L\% (P)]^{2}}$$

We distributed 630 questionnaires to all teachers from selected schools. The response rate was 582/630 = 92.4%. Each cluster (administrative area) has approximately the same number of schools. Therefore, the sample size was uniformly distributed over the five administrative areas.

The research tool

The research tool is a structured self-administrated questionnaire and the face validation commenced after the initial design mainly adopted from Shehata and Mahran study.[17] The reliability of the questionnaire was tested on the responses from 25 teachers and further tested for the validity of data.

The questionnaire consists of four sections. The first section concerns the background data, second section measured knowledge about epilepsy, third section related to participants attitude toward epilepsy, and fourth part about the practices of teachers toward students with epilepsy. The tool was standardized for its reliability and validity to measure accurately based on.[18,19]

Statistical analysis

The data were analyzed using SPSS version 21 (Released 2012. IBM SPSS Statistics for Windows, Version 21.0. IBM Corp., Armonk, NY).[20] The results are presented as descriptive statistics and inferential statistics – Chi-squared test of association for categorical variables and Fisher's exact test and Student's *t*-test for continuous variables at 5% level of significance.

Results

The teachers' average age was 39 years with average work experience of 14.2 years. Figure 1 presents the education status, with majority holding bachelor degrees (69.2%), and Figure 2 shows the marital status of the participants with 79.6% married women.

Table 1 highlights the association between the demographic characteristics with responses to familiarity and Table 2 with their knowledge about epilepsy. For scale variables (i.e., age and work experience), the two-independent sample *t*-test was employed to find the difference between the two groups who answers "yes" and "no" or "correct" and "incorrect." For the categorical variables (i.e., education level and marital status), Chi-squared test of association is used. In the case of cells that contain <5 observation, Chi-squared test was substituted with Fisher's exact test. The highlighted *P* values are statistically significant at 5% level. Majority, i.e., 79.2% of teachers were aware about epilepsy.

Nearly (17.5%) of the participants had a student with epilepsy and did not show any significant association with demographic

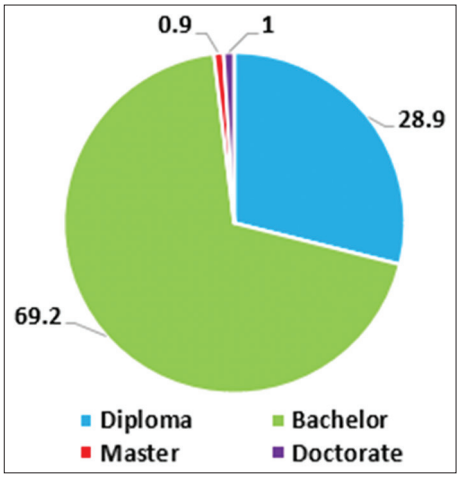

Figure 1: Education level of the participants (%)

Table 1: Association between demographic variables and teacher's familiarity with epilepsy

Characteristic	Q1† (%)	*P*	Q2† (%)	*P*	Q3† (%)	*P*
Age (years)*	461 (79.2)	0.79	102 (17.5)	0.954	146 (25.1)	0.202
Work experience*	461 (79.2)	0.79	102 (17.5)	0.906	146 (25.1)	0.180
Education level**						
College or diploma	122 (72.6)	0.051	35 (20.8)	0.203	57 (33.9)	0.008
Bachelor degree	328 (81.4)		64 (15.9)		86 (21.3)	
Master degree	5 (100.0)		2 (40.0)		2 (40.0)	
Doctorate	6 (100.0)		1 (16.7)		1 (16.7)	
Total	461 (79.2)		102 (17.5)		146 (25.1)	
Marital status**						
Single	72 (87.8)	0.201	13 (15.9)	0.112	19 (23.2)	0.068
Married	360 (77.8)		77 (16.6)		111 (24.0)	
Widowed	8 (72.7)		6 (54.5)		5 (45.5)	
Divorced	21 (80.8)		6 (23.1)		11 (42.3)	
Total	461 (79.2)		102 (17.5)		146 (25.1)	

†The reported numbers under each question are for the participants who answered "yes," *Comparison between "yes" and "no" groups using *t*-test, **Comparison between "yes" and "no" groups using Chi-squared test of association or Fisher's exact test in the case of cell (s) contain (s) <5 observations. Q1: Have you ever heard or read about the disease called – epilepsy or convulsive seizure?; Q2: Have you ever had an epileptic student in your classroom?; Q3: Have you ever witnessed a seizure at school?

Table 2: Association between demographic variables and teacher's knowledge about epilepsy

Characteristic	Q4† (%)	*P*	Q5† (%)	*P*
Age (years)*	350 (60.1)	0.062	171 (29.4)	0.038
Work experience*	350 (60.1)	0.996	171 (29.4)	0.162
Education level**				
College or diploma	105 (62.5)	0.662	52 (31.0)	0.198
Bachelor degree	238 (59.1)		114 (28.3)	
Master degree	4 (80.0)		1 (20.0)	
Doctorate	3 (50.0)		4 (66.7)	
Total	350 (60.1)		171 (29.4)	
Marital status**				
Single	62 (75.6)	0.004	28 (34.1)	0.572
Married	264 (57.0)		132 (28.5)	
Widowed	5 (45.5)		2 (18.2)	
Divorced	19 (73.1)		9 (34.6)	
Total	350 (60.1)		171 (29.4)	

†The reported numbers under each question are for the participants who answered "correct," *Comparison between "correct" and "incorrect" groups using *t*-test, **Comparison between "correct" and "incorrect" groups using Chi-squared test of association or Fisher's exact test in the case of cell (s) contain (s) >5 observations. Q4: What do you think is the cause for epilepsy?; Q5: Do you think a student with epilepsy is usually associated with mental retardation?

variables. Almost quarter of the teachers witnessed a student with seizure. A proportion of 60.1% recognized it as a mental condition. Only 29.4% of women around the middle age 38.2 years opted the correct response that epilepsy has no association with mental retardation and was statistically significant. The attitude of teachers toward epilepsy is positive as presented in Table 3, and Table 4 shows the practice of teachers toward the epileptic students.

Discussion

The level of knowledge and attitude of teachers toward epileptic students can be crucial in their characters, i.e., development and academic achievement.[12] Saudi Arabia is one of the countries that youths comprise the largest portion of the population, i.e., 60% are less than or equal to 24 years.[21] Therefore, the role of teachers, lecturers, and counselors is

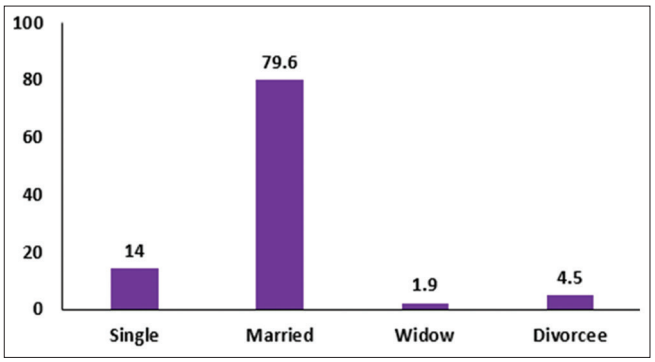

Figure 2: Marital status of the participants (%)

pivotal in the society. The results also can serve as suggestions to the ministry of education about the interventions that can be implemented to improve the knowledge, attitude, and practice of the teachers and consequently improving the well-being of the students.

The familiarity with epilepsy among the elementary school teachers was above average (79.2%) when compared to highly qualified teachers from Nigerian studies (70%, 59%)[22,23] and Jordan (81%).[24] However, the level of familiarity about epilepsy in our study was lower compared to Indian study -97%,[25] Burkina Faso (97%),[26] Egypt (100%),[17] Italy (99.7%),[27] and the US (95.7%).[28] The main sources of knowledge about the condition were media, internet, and parents of students.[29,30,31-33]

The high prevalence rate that reported in the only study we found suggested that a higher level of familiarity should be present. This suggestion is also supported by the percentage of teachers who reported teaching a student with epilepsy (17.5%) or witnessing a seizure (25.1%). These numbers are comparable to other studies who reported similar levels of witnessing seizures among the students in Greece (24%),[30] Thailand (24%),[32] and Nigeria (23%).[23] However, it is higher than the regional country Egypt (17%).[17] The level of

Table 3: Teachers attitude toward epilepsy

Questions of practice	Frequency (%)
How do you deal a student with epilepsy?	
Deal an epileptic student like any other student	215 (36.9)
Feel sympathy with the student and treat him/her like any student with chronic disease	367 (63.1)
Do you think that a student with epilepsy at your class makes a problem?	
Yes	248 (42.6)
No	334 (57.4)
Disrupt the education training in the class	62 (10.7)
Make the teacher anxious about the possibility of the seizure occurrence at the classroom	157 (27.0)
Had bad psychic effect upon other students	142 (24.4)
Can affect the other students negatively	10 (1.7)
The objection of the other student's parents	9 (1.5)
Other reasons*	5 (0.9)
Do you think that a student with epilepsy should continue his education at your school?	
Yes, despite the possibility of having a seizure	201 (34.5)
Yes, and warns their parents to continuing the medication	298 (51.2)
No, they should be transferred to special needs school	83 (14.3)

Table 4: teachers practice toward epilepsy

Characteristic	Q6† (%)	*P*	Q7† (%)	*P*
Age (years)*	185 (31.8)	0.083	160 (27.5)	0.003
Work experience*	185 (31.8)	0.290	160 (27.5)	0.002
Education level**				
College or diploma	60 (35.7)	0.029	53 (31.5)	0.349
Bachelor degree	118 (29.3)		103 (25.6)	
Master degree	4 (80.0)		2 (40.0)	
Doctorate	3 (50.0)		2 (33.3)	
Total	185 (31.8)		160 (27.5)	
Marital status**				
Single	24 (29.3)	0.901	13 (15.9)	0.011
Married	151 (32.6)		138 (29.8)	
Widowed	3 (27.3)		5 (45.5)	
Divorced	7 (26.9)		4 (15.4)	
Total	185 (31.8)		160 (27.5)	

†The reported numbers under each question are for the participants who answered "yes," *comparison between "yes" and "no" groups using *t*-test, **comparison between "yes" and "no" groups using chi-squared test of association or fisher's exact test in the case of cell (s) contain (s) <5 observations. Q6: do you think you can give first aid measures to a student with a seizure in your class?; Q7: do you accept to prescribe suppository medicine to a student with seizure in class?

familiarity with the epilepsy seems to influence positively the confidence in dealing with the condition as reported by Kaleyias *et al*.[30] Acknowledging that epilepsy is a mental condition was found in 60.1% of our answers. These findings show less informed sample in our study than the findings of Abuhamil who reported that 84%.[34] Furthermore, the findings in our study are less than those reported in other studies outside Saudi Arabia.[16,17,24,28-30,35,36] However, we observed an association with education, marital status, and the knowledge about the cause of epilepsy. Participants who were "single" seemed to recognize this issue more. This can be due to being more with free time and engaged with media and sources of information than "married." Shehata study[17] (47%) identified that epilepsy is not associated with mental retardation and in our study only 29.4%. The low percentage can be very alarming, considering that this belief could directly affect how the teacher is treating or working with the student academically.

The attitude of treating students as normal was found among 36.9% of the teachers. The majority felt sympathy toward their epileptic students (63.1%). Several studies promote the treatment of epileptic students as any other student to enhance their confidence.[11,12] This message should be conveyed to the teachers using appropriate interventional courses and campaigns aiming toward elevating the level of awareness among them.[11,37] Even with the high level of sympathy among the sampled teachers, 42.6% think that epileptic students may cause problems in the classroom. They were so anxious that the student will experience seizure. Such feeling can be relieved with improving the knowledge level and practice of dealing with such situations. The second concern is the psychological effect on their peers. This issue can be dealt with by improving the student awareness of the condition. A randomized study among the 5th grade students reported a significant effect of such interventional courses among the students in terms of their knowledge and enhancing the positive attitude.[37]

Finally, the practice of the teachers was found to be poor. In the sample, 31.8% felt the ability to give first aid to an epileptic student during a fit. Higher level of education was associated positively with this ability. However, the result in our study is higher than its Egyptian counterpart that used the same questionnaire (23.8%).[17] The ability of teachers to give first aid is essential to the education environment, especially if no professional health-care worker is present at the premise. This lack of confidence in giving the first aid also reflected in the teacher willingness to administer any prescribed medication to the epileptic student. Nearly 27.5% of the sampled teachers showed willingness to provide any prescribed medication to the students with epilepsy. Again, this number is still higher than what Shehata and Mahran reported (12.7%).[17]

Conclusion

The results suggest above average knowledge about epilepsy in female elementary schools' teachers. However, this level of knowledge is less than what can be found in some regional and developed countries. Further effort is necessary to increase the level of knowledge. Increasing the level of knowledge and awareness can lead to improved attitude and practice.

Limitations of this study

The study has many limitations that should be addressed. It was carried out in Riyadh city only; therefore, it cannot be used as a proxy to the whole country. Second, the study was only conducted with female participants. This limits the scope of the study's generalizability even further.

Recommendations

In light of the results found in this study, we recommend:

1. Multi-location studies in the country to assess the levels of knowledge, attitude, and practice on national level
2. Interventional studies that introduce courses and awareness campaign to teachers and public. These studies can assess the implications of such programs on the public and teachers more specifically
3. Longitudinal study that assesses the impact of the interventions on the well-being of epileptic students.

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Conflicts of interest

There are no conflicts of interest.

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