

School Teachers' Knowledge and Attitude toward School Students with Epilepsy

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Abstract

Background: Epilepsy is a chronic disorder of the central nervous system that affects people of all ages worldwide.

Objectives: to measure schoolteacher's perception of epilepsy in school children in Riyadh, Saudi Arabia in 2018.

Methods: an observational, descriptive, cross-sectional study was done and data was collected by online and manual survey from (476) teachers chosen by quota sampling technique. The data was analyzed by using SPSS. Scale of level of knowledge in Table 1.

Results: Most of the teachers had moderate and good knowledge (81%); females had better knowledge (85%); teachers with higher educational level had better knowledge (92%) and teachers with more years of experience had better knowledge (83%). Most of the teachers feel sympathy toward students with epilepsy (67%). Most of the teachers had moderate and good attitude (84%). Those who were 40 years or above had a better attitude (88%).

About half the teachers knew about epilepsy from their friends (45%). Most of the teachers had poor practice (85%).

Conclusion: Our study revealed that the majority of the teachers had moderate and good knowledge and attitude while only a few teachers had moderate and good practice. Teachers' age and years of experience are shown to be factors in acquiring knowledge. It was found that teachers' age has a significant effect on their attitude and teachers with higher educational level had better attitude. Teachers' gender and educational level appeared to have a significant effect on their knowledge.

Key words: Teachers, Knowledge, Attitude, Students, Epilepsy, Saudi Arabia

Introduction

Epilepsy is a chronic disorder of the central nervous system that affects people of all ages worldwide (1). Epilepsy seizures are brief episodes of involuntary movement that may involve a part of the body (partial) or the entire body (generalized), and are sometimes accompanied by loss of consciousness and control of bowel or bladder sphincters (1). It is one of the world's oldest recognized conditions. Fear, misunderstanding, discrimination and social stigma have surrounded epilepsy for centuries. This stigma continues in many countries today and can impact on the quality of life for people with the disorder and their families. It is one of the most prevalent, frequent and non-infective neurologic disorders in Saudi Arabia (2). Epilepsy seizures are most likely to occur in schools, and teachers need to know the proper way in which they can deal with them (1,2). Teachers are considered as social leaders and role models thus influencing the child's critical period of social and psychological development (1,2).

The prevalence rate of epilepsy is about 6.54 per 1,000 of population and its psychosocial impact results in depression, huge stigma and cognitive impairment (3).

The school period from elementary to secondary has the greatest role in building up the personality of the students physically, psychologically and socially (4). The proper attitude and practice of teachers toward epileptic students have a significant impact on their academic performance. The findings of this study will help in strengthening the role of the teachers. Very few studies have been done in different cities in Saudi Arabia, and they have reported the need to improve teacher's knowledge and attitude toward students with epilepsy (4).

A study conducted in Ethiopia in 2017 found that 41% of teachers had good awareness about epilepsy, about 74% had a positive attitude and only 60.3% of the respondents had proper first aid training (5).

Another study done in Greece found that 37.75% of the teachers obtained information about epilepsy from personal experience and (34.93%) from the internet. 6.2% referred to courses and 88.1% had the right view about the nature of the illness (6).

A study conducted in Kuwait in 2016 concluded that school teachers have relatively very poor knowledge about epilepsy but have positive attitudes toward students with epilepsy (7).

In the Kingdom of Saudi Arabia (KSA) a study was done in 2014 and found that only 17% of the teachers felt very well informed about epilepsy and teachers with higher education were more likely to have good knowledge. Teacher's attitudes correlated highly with their knowledge (8). Another study done in 2015 concluded that schoolteachers were generally knowledgeable about epilepsy but there is a lack of proper plan of action to deal with epileptic students (9).

It is expected that teachers with high level of education have a better attitude toward the students with epilepsy compared to those with low level of education. This study aimed to measure school teachers' awareness, attitude and practice with epilepsy in school students in Riyadh, Saudi Arabia in 2018 and to evaluate the variation between teachers' characteristics regarding their knowledge, attitude, and practice.

Subjects and Methods

Study design: An observational, descriptive, cross-sectional study was done in 2018.

Study area/population: The study was carried out in Riyadh, Saudi Arabia. According to the last statistics published in 2015, the number of elementary schools in Riyadh region are 7,875; while the number of intermediate schools are 4,844 and secondary schools are 3,939 for both genders. The study population was in elementary, intermediate and secondary school teachers (male and female).

Sample size and techniques: Data was collected online and distributed to teachers in schools with up to (476) teachers. Participants were chosen by quota sampling technique.

Data collection: An online questionnaire was used and included 4 sections. The first was for basic information, the second was for general knowledge, the third was for attitude towards epilepsy and the last was for investigation of major related factors. The questionnaire was initially drafted in English, and subsequently translated into Arabic. Confidentiality was maintained.

The data was collected by two methods: first by creating a web link; the link of the questionnaire was sent to participants through social media for filling in online till they reached a suitable response rate. Second, a hard copy was distributed to teachers in schools and it was retrieved after one week of distribution for analysis.

Data analysis: All the data was cleaned, coded and entered using SPSS. The result was represented in table and graphs as frequencies and percentages. A suitable statistical test was used.

Ethical consideration: Permission was taken from the participant teachers by asking them to participate by clicking on the link. The data was used only for the purpose of the study and confidentiality and privacy was maintained.

Results

Table 2 shows that out of 476 teachers in Riyadh, the survey results revealed that 45% of teachers from different educational levels knew about epilepsy from their friends, and 37% knew about epilepsy from the media, and some of the teachers knew about epilepsy from seminars.

Table 3 shows that more than half of the teachers thought the causes were unknown, and 34% believed that it was genetic, 20% supposed that it was from trauma, the rest of them assumed that it was caused either by spirit possession, evil eye, tumor and infection.

Teachers generally have good knowledge about symptoms of epilepsy. They believe that loss of consciousness (62%), biting of tongue (53%) and foaming of mouth (48%) are the most common symptoms of it. This is shown in Table 4.

Most teachers (67%) feel sympathy and (30%) tolerance toward students with epilepsy, while only 11% of teachers feel hostility toward them. This is shown in Table 5.

In regard to Table 6, practices of teachers during epileptic seizures were poor. Out of 476 participants, only 19% supported the student's head and neck, and 15% called the ambulance. The other 42% of participants did inappropriate practices.

Table 7 shows that teacher's knowledge about managing an epileptic student during the attack was moderate. 53% asked for help and 37% of the participants called the students' parents. The rest of the responses revealed that 54% put something in the student's mouth, 18% restrained the student, and 15% held the student upright.

Knowledge about epilepsy among teachers was investigated across the age groups. Thirteen percent of them were less than thirty years of age. Those forty or above were 54%. The proportion of moderate and good knowledge among teachers amounted to 81%. Of those who were 40 years or more the level of moderate and good knowledge amounted to 85% compared to 77% of those who were less than 40 years of age. This difference in the proportion of moderate and good knowledge was statistically significant ($p=0.0216$). This is shown in Table 8.

Knowledge about epilepsy among teachers was investigated across the genders. Forty percent of them were males, and sixty percent of them were females. The ratio of moderate and good knowledge between teachers was 81%. The level of moderate and good knowledge across males was 77%. In contrast, it was 85% percent in females who have good and moderate knowledge. These differences in the proportion of good and moderate knowledge was statistically significant ($p=0.0182$). This is demonstrated in Table 9.

Knowledge about epilepsy between teachers was investigated in proportion to their nationality, either Saudi or non-Saudi. Eighty percent of them were Saudi while twenty percent of them were non-Saudi. Among those who were Saudi, the level of moderate and good knowledge

was 84%. Whilst it was 75% among non-Saudi. These differences in the proportion of good and moderate knowledge were not statistically significant ($p=0.084$). This is demonstrated in Table 10.

Knowledge about epilepsy between school teachers was measured according to their educational level. Seventy-five percent have Bachelor's degree, the educational level of 6% of them was high school, 2% of those who have a Doctorate degree. Eighty-one percent of those teachers with Doctorate degree have good and moderate knowledge. Of those whose level was high school, teacher institute and Bachelor's degree 80% have good and moderate knowledge in comparison with 92% who have Master's degree and Doctorate degree. This difference was statistically significant ($p=0.008$), and is shown in Table 11.

Knowledge about epilepsy between school teachers was studied according to their years of experience. The knowledge among those who have less than five years of experience was fourteen percent and 68% in teachers who have more than 9 years of experience. Eighty-one percent of those teachers have good and moderate knowledge. Of those who have less than 5 years of experience about 71% have good and moderate knowledge whereas the percentage of teachers who have more than 5 years of experience and have good and moderate knowledge was 83%. This difference was statistically significant ($p=0.0222$). This is shown in Table 12.

Regarding teacher's age, teachers who are below 40 years old accounted for 46% of the whole sample, and those who were 40 years or above accounted for 54%. The proportion of moderate and good attitude among those teachers accounted for 84%. The level of good and moderate attitude in those who were below 40 years was 80% compared to 88% of those who were 40 or above years. This difference between teachers' age and attitude was statistically significant ($p=0.0198$). This is shown in Table 13.

Regarding teacher's gender and their attitude toward epileptic students, about 60% were female teachers and 40% were male teachers. The proportion of moderate and good attitude towards epilepsy was 84% among males and 85% among females, with no statistical significance ($P\text{-value} = 0.996$). This is shown in Table 14.

Attitude towards epilepsy between school teachers was studied according to their nationalities. 80% of those teachers were Saudi, while non-Saudi were 20%. The level of moderate and good attitude amounted to 84%, same proportion for non-Saudi was found. The relation between attitude and nationalities was statistically non-significant. That was shown in Table 15.

Attitude towards students with epilepsy between school teachers was studied according to their educational level. Seventy-five percent have Bachelor's degree, the educational level of 6% of them was high school, 2% of them have Doctorate degree. Of those whose level was high school, teacher institute and Bachelor's degree 84% have good and moderate knowledge in comparison with 89% who have Master's degree and Doctorate degree.

This difference was statistically significant ($p=0.006$) and is shown in Table 16.

Attitude toward epilepsy and teacher's years of experience was investigated across the age groups. Those who have more than nine years of experience exhibited moderate and good attitude (68%). Those who have experience from five to nine years showed moderate and good attitude (19%) more than those who have less than five years of experience (14%). This difference in proportion of moderate and good attitude was statistically significant ($p=0.019$). Seventy four percent of them had less than five years of experience. Those from five to nine were eighty two percent. Eighty seven percent had more than nine years of experience. The proportion of moderate and good attitude from teachers was 85%. This is shown in Table 17.

Regarding the age of teachers and their practices toward epilepsy, those who were 40 years or more showed moderate and good practice (54%). Those who were less than 30 years have a lower proportion of moderate and good practice (13%). This difference in proportion of moderate and good practice was statistically non significant ($p=0.960$). Sixteen percent of them were less than thirty years of age. Those forty or above were fifteen percent. The proportion of moderate and good practice among these teachers was 15%. This is shown in Table 18.

Practice toward epilepsy among teachers in Saudi Arabia was investigated. Forty percent of those teachers were males and females were 60%. The proportion of moderate and good practice among those teachers amounted to 15%. The level of moderate and good practice of those who were females amounted to 13% compared to 18%

of those who were males. This difference in the level of practice between males and females was statistically not significant. This is shown in Table 19.

Practice toward epilepsy among Saudi and non-Saudi teachers in Saudi Arabia was investigated. Eighty percent of them were Saudi while non-Saudi were 20%. It was found that 15% of those teachers have moderate and good practice. The level of moderate and good practice in Saudi teachers amounted to 15% which is the same for non-Saudi teachers. This association between teachers' nationalities and their level of practice was statistically not significant. This is shown in Table 20.

Practice toward epilepsy among teachers was investigated across the educational level. Fifteen percent of them were high school, teacher institute and bachelor's degree. Those who had master's and doctorate degree had a higher level of practice which amounted to 16% compared to 15% of those who had less educational level. This difference in proportion of moderate and good practice was not significant. The proportion of moderate and good practice among teachers based on educational level amounted to 15%. This is shown in Table 21.

Practice toward epilepsy among teachers was investigated across the years of experience. Eight percent of them had less than five years of experience, those who had 5 to 9 years of experience amounted to 16% compared to the same value of those with more than 9 years of experience which was not significant. Nine years and above were 16%; the proportion of moderate and good practice based on experience among teachers amounted to 15%. This is shown in Table 22.

Table 1: Scale of level of knowledge.

Scale of level of knowledge:	
Good knowledge	By answering >14 questions correctly
Moderate knowledge	By answering 8-14 questions correctly
Poor knowledge	By answering <8 questions correctly
Scale for teacher response:	
Positive response	By answering ≥ 4 questions correctly
Negative response	By answering <3 questions correctly

Table 2: Teacher's source of knowledge

	Number out of "476"	Percentage.
Media	176	37%
Friends	214	45%
Seminars	86	18%

Table 3: Teacher's knowledge about the cause of epilepsy

	Number out of "476"	Percentage.
Genetic	160	34%
Tumor	42	9%
Infection	8	2%
Trauma	96	20%
Spirit possession	49	10%
Evil eye	44	9%
Unknown	248	52%

Table 4: Teacher's knowledge about epilepsy symptoms

	Number out of "476"	Percentage
Loss of consciousness	297	62%
Falling down	291	61%
Rolling of eyes	147	30%
Foaming of mouth	230	48%
Uncontrolled urination	62	13%
Biting of tongue	254	53%
Far gaze	103	22%

Table 5: Teachers attitude toward students with epilepsy

	Number out of "476"	Percentage
Indifference	70	15%
Tolerance	142	30%
Sympathy	318	67%
Intimidation	33	7%
Confusion	51	11%
Hostility	53	11%

Table 6: Practices of teachers during epileptic seizures

	Number out of "476"	Percentage
Nothing	35	7%
Called ambulance	73	15%
Spilled water on his/her face	28	6%
Sprayed him/her with perfume	6	1%
Open his/her mouth and put something in it	77	16%
Prevented his/her involuntary movement	58	12%
Supported his/her head and neck	89	19%

Table 7: Teacher's knowledge about managing an epileptic student during the attack

	Number out of "476"	Percentage
Do nothing and call his parents.	176	37%
Restrain the student.	87	18%
Put something in his mouth to prevent tongue swallowing.	255	54%
Hold him upright.	73	15%
Ask for help.	252	53%

Table 8: Knowledge among teachers according to their age groups (School Teachers' Knowledge and Attitude toward School Students with Epilepsy 2018-2019).

	Poor	Moderate	Good	Total
<30	15	28	18	61
30-39	36	63	58	157
40 - >40	39	137	82	258
Total	90	228	158	476

Table 9: Knowledge toward epilepsy and teacher's Gender in Saudi Arabia according to their gender (School Teacher's Knowledge and Attitude toward School Students with Epilepsy 2018-2019).

	Poor	Moderate	Good	Total
male	46	84	61	191
female	44	144	97	285
Total	90	228	158	476

Table 10: Knowledge about epilepsy and teacher's nationality in Saudi Arabia according to their gender (School Teacher's Knowledge and Attitude toward School Students with Epilepsy 2018-2019)

	Poor	Moderate	Good	Total
Saudi	66	191	123	380
non Saudi	24	37	35	96
Total	90	228	158	476

Table 11: Knowledge about epilepsy among teachers according to their educational level (School Teachers' Knowledge and Attitude toward School Students with Epilepsy 2018-2019).

	Poor	Moderate	Good	Total
High secondary	14	10	4	28
Teacher Institute	4	32	18	54
Bachelor's degree	69	168	119	356
Master's degree	3	15	12	30
Doctorate degree	0	3	5	8
Total	90	228	158	476

Table 12: Knowledge about epilepsy among teachers according to their years of experience (School Teachers' Knowledge and Attitude toward School Students with Epilepsy 2018-2019).

	Poor	Moderate	Good	Total
<5	19	26	20	65
5-9	15	43	31	89
>9	56	159	107	322
Total	90	228	158	476

Table 13: Attitude towards epilepsy and teacher's age (School Teacher's Knowledge and Attitude toward School Students with Epilepsy 2018-2019)

	Poor	Moderate	Good	Total
<30	15	21	25	61
30-39	29	50	78	157
40->40	30	61	167	258
Total	74	132	270	476

Table 14: Attitude toward epilepsy and teacher's gender (School Teacher's Knowledge and Attitude toward School Students with Epilepsy 2018-2019)

	Poor	Moderate	Good	Total
Male	30	53	108	191
Female	44	79	162	285
Total	74	132	270	476

Table 15: Attitude toward epilepsy and teacher's nationality (School Teacher's Knowledge and Attitude toward School Students with Epilepsy 2018-2019).

		Poor	Moderate	Good	Total
	Saudi	59	108	213	380
	non Saudi	15	24	57	96
Total		74	132	270	476

Table 16: Attitude toward epilepsy and teacher's educational level (School Teacher's Knowledge and Attitude toward School Students with Epilepsy 2018-2019)

		Poor	Moderate	Good	Total
	High secondary	10	5	13	28
	Teacher Institute	4	12	38	54
	Bachelor's degree	56	107	193	356
	Master's degree	3	4	23	30
	Doctorate degree	1	4	3	8
Total		74	132	270	476

Table 17: Practice by teachers according to their age groups (School teacher's knowledge and attitude toward school student with epilepsy (2018-2019)

		Poor	Moderate	Good	Total
	<30	53	5	3	61
	30-39	131	18	8	157
	>40	220	25	13	258
Total		404	48	24	476

Table 18: Attitude of teachers according to their experience (School teacher's knowledge and attitude toward school student with epilepsy) (2018-2019).

		Poor	Moderate	Good	Total
	<5	17	22	26	65
	5-9	16	24	49	89
	>9	41	86	195	322
Total		74	132	270	476

Table 19: Practice toward epilepsy among teachers in Saudi Arabia according to their gender (School Teachers' Knowledge and Attitude toward School Students with Epilepsy 2018-2019).

		Poor	Moderate	Good	Total
	Male	156	25	10	191
	Female	248	23	14	285
Total		404	48	24	476

Table 20: Practice toward epilepsy among teachers in Saudi Arabia according to their nationality (School Teachers' Knowledge and Attitude toward School Students with Epilepsy 2018-2019).

		Poor	Moderate	Good	Total
	Saudi	322	38	20	380
	non Saudi	82	10	4	96
Total		404	48	24	476

Table 21: Practice toward epilepsy and teacher's educational level in Saudi Arabia according to their gender (school teachers' knowledge and attitude toward school students with epilepsy 2018-2019).

		Poor	Moderate	Good	Total
High secondary.		25	2	1	28
Teacher institute.		46	6	2	54
Bachelor's degree.		301	35	20	356
Master's degree.		26	3	1	30
Doctorate degree.		6	2	0	8
Total.		404	48	24	476

Table 22: Practice toward epilepsy and teacher's years of experience in Saudi Arabia according to their gender (school teachers' knowledge and attitude toward school students with epilepsy (2018- 2019

		Poor	Moderate	Good	Total
	<5	60	2	3	65
	5 - 9	75	8	6	89
	>9	269	38	15	322
Total		404	48	24	476

Discussion

The finding that the teachers 40 years old and above had better knowledge about epilepsy than the younger ones was expected. According to this study, age proved to be a factor in acquiring knowledge. This finding is different from a study conducted in Nepal in 2015 which found that teacher's age did not correlate significantly with their knowledge about epilepsy (10). This can be verified by further studies.

The result that the male teachers had less knowledge about epilepsy than females was expected. This might be because females have more free time, which in turn, reflected their ability to search, and read more about everything. In addition, females tend to show more empathy in dealing with students. However, in a study conducted in Saudi Arabia in 2014 found that gender had no significant difference as reported in this study. Gender was shown to be a factor in acquiring knowledge (8). This could be proved by upcoming studies.

Regarding the nationality of teachers, there is no significant relation between the knowledge of Saudi teachers and non-Saudi teachers. This finding might be because improving knowledge depends on the person's personality and efforts. This finding is different from a study conducted in Jeddah in 2014 which found that Saudi teachers are more likely to report good knowledge when compared to those of other nationalities (8). We hope that this will be verified in the upcoming studies.

The results that showed higher level of knowledge about epilepsy with teachers who have higher educational level was expected. This can be explained by expanded education and interaction with people who have more knowledge and longer years of experience. In a study conducted in Saudi Arabia in 2014 the same finding was reported (8). Regarding the results, educational level contributes to teachers' level of knowledge. This can be confirmed in coming studies.

The finding which reported higher level of knowledge about epilepsy with teachers who have more years of experience than those who have less years of experience was expected. This could be due to encountering more cases which make them more aware about the seriousness of the condition. A study conducted in Saudi Arabia in 2014 reported no relation between knowledge and years of experience (8). According to the results, years of experience affect teacher's knowledge. This can be proven by further studies.

Good and moderate attitude toward epileptic students was higher among teachers who are 40 years and above. This was expected. It can be explained by their increased experience and knowledge about epilepsy. A previous study in Turkey found that young teacher's age was predictive of good attitudes. This difference between these studies results might be due to the difference of study population (11).

The results that showed that teachers in both genders have good attitude was expected. This might be due to influence of good morals and character. A previous study in Turkey found that male teachers have more positive attitude. This difference between these studies results might be due to the difference of the study population (11).

The results which reported that teachers with different nationalities have the same attitude was expected. This may be the effect of good attitude that is mainly influenced by morals and character. As a result, there is no effect of nationality on the attitude of teachers. However, there was no specific study that focuses on the relation between nationality and level of attitude and we hope to see that in future studies. In conclusion, nationality has no effect on the attitude of teachers towards epilepsy.

The results which reported people with high educational level have good attitude toward students with epilepsy, were expected. In addition, we can infer that teachers with high educational level have a better perception of life, and can deal better with different manners of students which in turn reflected on their good attitude. According to a study conducted by Abulhamail in Saudi Arabia in 2014 teachers with higher education were more likely to have good knowledge when compared to those with less education. Overall, teacher's attitudes correlated highly with their knowledge. Those with good knowledge were less likely to mind having a child with epilepsy in their class. To sum up, teachers with high educational level have a better attitude (8).

The correlation between the level of practice and age groups was not significant. It may be because teachers who were less than thirty tried to practice hard. The opposite finding was in a study conducted in Saudi Arabia (9). The results showed that practice toward epilepsy had no significant effect comparing the age groups. The teachers should practice more to improve how to deal with epilepsy.

The findings are that teachers who had more than nine years of experience had better attitude toward epilepsy than the ones who had less years. It may be due to longer years of experience. This finding in this regard is different from a study done in Sudan (4). Years of experience have a significant effect on the attitude of teachers. This can be verified by further studies.

The findings of this study showed that most of the teachers, whether they are males or females had poor practice level, which was expected. The reason for this finding could be that there are not enough educational courses given to teachers in schools. This finding is different from a study conducted in Sudan in 2017 by Elhassan which showed that females have a better practice level than males (4). The majority of both Saudi and non-Saudi teachers had poor practice level which was expected. This finding could be due to the lack of adequate instructions given to teachers about epilepsy. This finding is similar to a study conducted in Saudi Arabia in 2015 by Alqahtani which illustrated that there's a lack of proper plan of action to deal with epileptic students (9).

The finding that the teachers had master and doctorate had better practice toward epilepsy than the lesser educational levels like high school and Bachelor's degree could be due to more information and knowledge. A study in Saudi Arabia shows 66% have a college or university degree. Only 17% of the teachers felt very well informed about epilepsy on the Likert scale, with information mostly from the media, relatives, and personal experience. However, teachers with higher education (college or university degrees) were more likely to have good knowledge (moderate or very well on the Likert scale) when compared to those with less education (57% vs. 21%). Overall, teacher's attitudes correlated highly with their knowledge (8). According to this study educational level proved to be a factor in acquiring knowledge. This can be verified by future studies.

Another finding was that the teachers who had more years of experience had better practice toward epilepsy than those who had less years of experience. This could be due to more knowledge and practice toward epileptic students and more cases that they may face. In a study in South Korea the knowledge scores accounted for 50.1% of the variance in the attitude scores, and experience teaching a student with epilepsy accounted only for 1.0%. In contrast, teachers' knowledge was the most important factor influencing teacher's attitudes toward epilepsy (12).

According to this study teacher's practice proved to be a factor in acquiring knowledge, not the years of experience. Further study should be conducted.

Limitations

A major limitation of this study was the difficulty in taking permission from some schools to distribute our questionnaire to their teachers.

Conclusion

This study revealed that there is a relatively high level of knowledge, especially regarding the age and years of experience of the teachers, which result in a better attitude toward epileptic students. Female teachers had better knowledge and attitude than the male teachers. There was significant poor practice among teachers toward epilepsy. Based on the results of this study, health education programs about epilepsy should be directed to all teachers. Future research on larger samples, and older age groups should be done and cover other aspects of epilepsy such as psychological aspects.

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