

# The Beliefs and Attitudes among primary School Teachers towards Epilepsy in Children in Kirkuk City

Abbas Lateef Muhe-Aldeen<sup>1</sup>, Saja H. Mohammed<sup>2</sup>

<sup>1</sup>Psychiatric & Mental Health Nursing, University of Kirkuk/ College of Nursing / Kirkuk – Iraq

Email: [abbas\\_latif@uokirkuk.edu.iq](mailto:abbas_latif@uokirkuk.edu.iq)

<sup>2</sup>Psychiatric & Mental Health Nursing, University of Babylon, College of Nursing – Iraq

Email: [drgs54@yahoo.com](mailto:drgs54@yahoo.com)

## Abstract

**Background:** Epilepsy is considered the second most prevalent central nervous system condition; affecting 65 million people globally. Teachers' epilepsy attitude, knowledge, and beliefs were found to have an instant influence on learning outcomes among epileptic students, development of social skills, also making friends.

**Objective:** The aims of this study are to assess beliefs and attitudes among primary school teachers toward epilepsy in children; in addition, to identify the relationship between the teachers' beliefs & attitudes and some demographical characteristics such as (age, gender, educational level, and years' experience).

**Methodology:** A descriptive study has been carried out at primary schools for teachers in Kirkuk city from the period 24th October 2020 to 30th May 2022. A non-probability "Convenient sample" had been consisted of (40) primary schools' teachers. The instruments of the study consist from four parts; Assessment of the subject's characteristics that include (8) items; General information of teacher regarding epilepsy: This part consists of (3) items; Specific information of teacher regarding epilepsy: This part consists of (6) items; and Adult Version of the Epilepsy Beliefs and Attitudes Scale (EBAS) was developed to assess teachers' beliefs and attitudes regarding epileptic children which include (41) items. The data are collected through the (self-administered) interview with the study sample. Data were analyzed by using the Statistical Package for the Social Sciences (SPSS) version (22). The descriptive statistical measures (Frequency, Percentage, & Mean), the inferential statistics (t. test and Analysis of Covariance (ANCOVA) were applied.

**Results:** The majority of the studied group according to age group is between (40-49 years), most of them were female, graduation from teachers preparing institution, most of them were married, and having more than 16 years of experience as a school teacher, and most of them were from urban residency. All of them hadn't any participated previously in a training course about epilepsy.

**Conclusions:** According to the study's findings, the most of primary school teachers hold negative attitudes and beliefs toward epilepsy in children; and there was no significant relationship between teachers' beliefs and attitudes toward children with epilepsy and socio-demographic characteristics were chosen.

**Recommendations:** The study recommends a comparative study should be design in urban and rural areas on beliefs and attitudes of primary school teachers concerning epilepsy in children.

**Keywords:** Beliefs, Attitudes, Primary School Teachers, Epilepsy

## 1. Introduction

Epilepsy is a universal condition and one of the most prevalent serious brain disorders, affecting more than 60 million individuals worldwide, regardless of age, race, nationality, or geography, with serious physical, psychological, and social implications. Misconceptions and prejudice lead to rejection, denial of education, and social isolation, whereas seizures can induce misunderstanding, fear, secrecy, stigmatization, and social isolation. Seizures can be categorized into partial or generalized depending on where they occur in the brain, and partial seizures can be further classified as simple or complicated <sup>(1)</sup>. However, some partial seizures may start off as partial and subsequently progress to generalized seizures. Generalized seizures are classified as

absence, atonic, tonic, myoclonic, and tonic clonic <sup>(2)</sup>. Seizures have a significant impact on student academic performance in children with refractory epilepsy (epilepsy that does not respond to several medications) <sup>(3)</sup>. The distribution of seizure types in children appears to change with age of onset; however focal seizures are common in all age groups. Epilepsy in children has a different pattern of recognized causes than epilepsy in adults, and the etiology is more commonly unknown <sup>(4)</sup>. Teachers' attitudes and beliefs about epilepsy are crucial to examine because their knowledge, attitudes, and beliefs have a substantial impact on learners with epilepsy (LWE) and their classmates. Teachers can pass on their expertise to their students and, in turn, to the community, reducing epilepsy discrimination <sup>(5)</sup>.

In 60% of cases, epilepsy begins in childhood, and the majority of the clinically relevant elements of the condition occur during childhood <sup>(6)</sup>. According to Sudanese studies, 10% of children with epilepsy have attention deficit hyperactivity disorder (ADHD) <sup>(7)</sup>. The annual incidence rates of epilepsy differ by country. Annual incidence rate in Norway are 11 per 100,000, 33 per 100,000 in Italy, and 48 per 100,000 in United Kingdom. The highest incidence rates have been seen in developing country populations, ranging from 140 to 230 per 100,000 per year <sup>(8)</sup>. Data from Arab countries found prevalence rates of 0.9 per 1000 in Sudan, 2.3 per 1000 in Libya, and 6.5 per 1000 in Saudi Arabia <sup>(9)</sup>.

## 2. Methodology

### Design of the Study

A non-probability "Convenient Sample" had been consisted of (40) teachers at primary schools in Kirkuk city, have been selected to obtained represent and accurate data, which extends from 24th October 2020 to 30th May 2022. The data are collected through the (self-administered) interview-face to face with the study sample.

### Study Instruments

- **Socio-demographic characteristics:** Assessment of the subject's characteristics that include (8) items about primary school teachers' which include: age, gender, educational level, and marital status, years of experience as a school teacher, residential area, school name.
- **General information of teacher regarding epilepsy:** This part consists of (3) items which

include: Do you have any information regarding epilepsy, have you participated in a training course on epilepsy, Have Epileptic children in your school.

- **Specific information of teacher regarding epilepsy:** This part consists of (6) items which include: Have you ever seen epileptic seizure; Did you teach an epileptic student; Have you given a first aid for student during epilepsy attack or a fit; Do you have enough information about epilepsy; Do you think need to learn first aid for an epileptic seizure; and do you need to learn about epilepsy?

- **Adult Version of the Epilepsy Beliefs and Attitudes Scale (EBAS):** [10] this questionnaire was developed to assess teachers' beliefs and attitudes regarding epileptic children. This part includes (41) items as follows:

There are three subscales in the (41) items: neurological, metaphysical, and environmental/psycho. There are fifteen statements—items—on the neurological subscale. 1, 5, 7, 8, 11, 13, 14, 15, 19, 20, 21, 22, 23, 27, and 35; the metaphysical subscale contains four items—items 2, 3, 18, and 39; the environmental/psychological scale consists of twenty two statements—items 4, 6, 9, 10, 12, 16, 17, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 40, and 41 (Zanni, Matsukura and Maia, 2009).

Researcher adopted translation for the study scales (EBAS); some modifications are needed to complete the study instrument as the experts' suggestions. The items were chosen for their ability to express these ideas in the target group after the scale was adjusted to Iraqi culture.

## 3. Results

**Table 1: Distribution of the Study Sample (N=40) According to the Socio- Demographical Characteristic**

Variables	Classes	No.	%
Type of School	Special School	20	50
	Regular School	20	50
Age	20 – 29	3	7.5
	30 – 39	7	17.5
	40 – 49	24	60
	50 – 59	6	15
Gender	Male	14	35
	Female	26	65
Level of Education	Teacher Preparing Institution	25	62.5
	Bachelor's degree	15	37.5
Marital status	Single	6	15
	Married	29	72.5
	Divorced	2	5
	Widowed	3	7.5
Years of experience as a school teacher	1 - 5 years	1	2.5
	6 - 10 years	1	2.5
	11 - 15 years	10	25
	> 16 years	28	70
Residency	Urban	37	92.5
	Rural	3	7.50

Table (1) shows that the primary school teachers with

regard to the type of school, it consist of regular

school 20(50%) and special education 20(50%), most of teacher's age group is between (40-49) years and constitute 24 (60%), Respect to the gender variable refers that female are more than male and constitute 26 (65%), the most of them graduated from teacher preparing institution and they are accounted 25

(62.5%), married subjects has recorded the highest percentage are accounted that 29 (72.5%), the most of them has more than 16 years' experience as a school teacher 28 (70%), and most of study subjects were from urban residency.

**Table 2: Descriptive Statistics & Assess level for (Epilepsy's Questionnaire's Items) of study sample (N=40) with comparisons significant**

Teacher Beliefs & Attitudes toward Children with Epilepsy's Questionnaire's items	Study Sample						
	MS	SD	RS%	Ass.	Z-value	P-value	C.S
1. Epilepsy is caused by a genetic defect.	1.75	0.44	43.75	L	-5.521	0.000	HS
2. The prayers can heal a child having epilepsy.	2.05	0.60	51.25	M	-4.353	0.000	HS
3. Epilepsy is caused by a child's destiny.	2.88	0.52	72.00	L	-5.528	0.000	HS
4. Epilepsy can be transmitted by touching someone who is having a fit.	1.30	0.46	32.50	H	-0.243	0.808	NS
5. Children can get epilepsy as a result of a medical condition such as (measles, malaria, high fever, meningitis, as well as other).	1.77	0.53	44.25	L	-5.181	0.000	HS
6. When an epileptic child spends too much time in the sun, he may get seizures.	1.38	0.63	34.50	L	-5.245	0.000	HS
7. Seizure medication should only be used when an epileptic child is suffering a seizure.	2.97	0.58	74.25	M	-5.443	0.000	HS
8. Epilepsy does not have a definitive cure.	3.35	0.83	83.75	L	-5.435	0.000	HS
9. It is God's will that a child develop epilepsy.	3.08	0.57	77.00	L	-5.152	0.000	HS
10. A child's seizures can be triggered by unexpected changes in the weather (such as becoming extremely hot/ cold/ wet).	2.90	0.63	72.50	M	-5.368	0.000	HS
11. A physician is the best person to help an epileptic child.	2.90	0.63	72.50	M	-3.870	0.000	HS
12. Epilepsy is transmitted from parents (father or mother) to offspring	3.02	0.62	75.50	H	-1.177	0.239	NS
13. When a child is extremely angry about doing something, he gets seizures.	1.85	0.53	46.25	L	-5.459	0.000	HS
14. A child's epilepsy can be caused by a birth trauma.	1.40	0.59	35.00	L	-5.394	0.000	HS
15. In epileptic children, inadequate blood circulation in the brain can trigger seizures.	3.05	0.50	76.25	H	-3.355	0.001	HS
16. When an epileptic child does not get enough sleep, he may have more seizures.	1.77	0.48	44.25	L	-5.610	0.000	HS
17. Traveling in a closed car (with no airflow) can trigger seizures in an epileptic child.	1.23	0.53	30.75	H	-3.860	0.000	HS
18. People may look down (inferior) on an epileptic child.	3.00	0.55	75.00	L	-5.531	0.000	HS
19. A spiritual leader (for example, a priest or pastor) can help an epileptic child more than any other.	2.60	0.63	65.00	M	-5.148	0.000	HS
20. Epilepsy can make a child appear confused.	2.98	0.66	74.50	M	-4.000	0.000	HS
21. The seizures of an epileptic child are caused by mood swings.	1.87	0.61	46.75	L	-5.655	0.000	HS
22. An anomaly in the brain may be the cause of epilepsy in a child.	3.03	0.58	75.75	H	-4.100	0.000	HS
23. Epilepsy is a mental illness.	3.03	0.58	75.75	L	-5.549	0.000	HS
24. Nobody actually knows what causes epilepsy in children.	1.95	0.64	48.75	H	-4.405	0.000	HS
25. When an epileptic child suffers a seizure, should call the ambulance.	2.93	0.66	73.25	M	-5.483	0.000	HS
26. The parents of an epileptic child live in a constant state worry that their child will have a seizure at any moment.	2.95	0.64	73.75	M	-0.876	0.381	NS
27. School can be difficult for a child with epilepsy, for example (he was rejected by his peers in school).	3.40	0.67	85.00	L	-5.420	0.000	HS
28. An epileptic child who takes a lot of anticonvulsant medicine may experience more seizures.	1.90	0.55	47.50	H	-4.310	0.000	HS
29. The parents of an epileptic child are hurt, because their son has epilepsy.	2.83	0.71	70.75	M	-4.995	0.000	HS
30. When an epileptic child is tired or restless with nothing else to do, he experiences seizures.	3.18	0.78	79.50	L	-5.494	0.000	HS
31. Epileptic students are distinguished from other students by their low IQ.	3.48	0.60	87.00	L	-5.641	0.000	HS
32. The epileptic child can swim, whenever accompanied by their parents.	3.08	0.62	77.00	H	-2.998	0.003	HS
33. Parents of epileptic children often find it hard to accept their child's condition.	2.00	0.55	50.00	M	-2.711	0.007	HS
34. All physical activities at school should be done by an epileptic child.	1.95	0.60	48.75	L	-5.334	0.000	HS
35. Epilepsy is a scary disease.	3.03	0.66	75.75	L	-5.370	0.000	HS
36. The epileptic child should discontinue taking anticonvulsants, because his seizures are controlled.	3.42	0.71	85.50	L	-5.554	0.000	HS
37. To avoid negative effects on other students, children with epilepsy should be kept in a special classroom.	3.10	0.59	77.50	L	-5.422	0.000	HS
38. A child with epilepsy should be isolated from others.	1.40	0.50	35.00	H	-1.414	0.157	NS
39. When an epileptic child has a lot of homework, he gets seizures.	1.92	0.69	48.00	H	-3.641	0.000	HS
40. Certain meals and drink can cause seizures in an epileptic child.	1.38	0.67	34.50	L	-5.343	0.000	HS
41. Herbs or plants are the best health care for an epileptic child (natural medicine).	2.98	0.70	74.50	M	-5.578	0.000	HS

(\*)HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; NS: Non-Sig. at P>0.05; Testing based on repeated Measurement test; Assess: Assessment, Evaluation Intervals Scoring Scales of Relative Sufficiency Coefficient (RS %): [L: Low (0.00 – 33.33)]; [M: Moderate (33.34 – 66.66)]; [H: High (66.67 – 100)]. Testing is based on McNemar Test. If the RS % option is selected negatively, red color items are given a reverse improvement

Table (2) presents summary statistics for epilepsy items in the questionnaire, the levels of beliefs and

attitudes of primary school teachers was (low – moderate) toward epilepsy in children

**Table 3: Descriptive Statistics for (Epilepsy's Questionnaire's Main Domains) of study group (N=40) with comparisons significant**

Main Domains	Study Group								
	Ass.	No.	%	PGMS	PPSD	Assess <sup>(*)</sup>	Z-value	P-value	CS*
Neurological	L	0	0.00	42.333	9.251	M	-5.520	0.000	HS
	M	40	100						
	H	0	0.00						
Metaphysical	L	3	7.50	41.094	4.525	M	-5.518	0.000	HS
	M	37	92.5						
	H	0	0.00						
Environmental/Psycho	L	0	0.00	54.881	5.366	M	-5.502	0.000	HS
	M	40	100						
	H	0	0.00						
Overall	L	0	0.00	46.103	3.915	M	-5.511	0.000	HS
	M	40	100						
	H	0	0.00						

(\*)HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; NS: Non-Sig. at P>0.05; Assess: Assessments Intervals Scoring Scales of Percentile Grand Mean of Score (PGMS): [L: Low (0.00 – 33.3)]; [M: Moderate (33.34 – 66.66)]; [H: High (66.7 – 100)]. C.S.: Comparison Significant, (PPSD) Pooled Standard Deviation. Testing based on Wilcoxon Signed Ranks Test

Table (3) shows the main domains that came from scored items of studied questionnaire (Epilepsy's Questionnaire's Main Domains), which were represented by (Neurological, Metaphysical, and Environmental/Psycho) in addition to the an overall

(The global mean of score) are also explained a very high degree of coincidence stat s at P<0.01, the assess of study group beliefs and attitudes was (low –moderate) in the all domains

**Table 4: Relationships Neurological Main Domain among the study group with SDCv: Analysis of Covariance for Dependent Variable**

The Sources	Type III Sum of Squares	d.f.	Mean Square	F Statistic	Sig. Levels	C.S
Type of Schools	3.969	1	3.97	0.12	0.734	NS
Age Groups	21.307	3	7.10	0.21	0.888	NS
Gender	8.794	1	8.79	0.26	0.613	NS
Education Level	3.066	1	3.07	0.09	0.765	NS
Marital Status	78.258	3	26.09	0.78	0.518	NS
Years of Experience	110.288	3	36.76	1.09	0.369	NS
Residency	10.4	1	10.40	0.31	0.583	NS

(\*) Non Sig. at P>0.05; C.S.: Comparison Significant, d.f.= degree of freedom, F. Statistics: Fisher, R-Squared: Determination Coefficient, Statistical hypothesis based on Analysis of Covariance (ANCOVA), SDCv: Socio-Demographic Characteristics Variables

Table (4) shows that there is so no significant associations between beliefs & attitudes in Neurological main domain score regarding epilepsy

in children and sociodemographic characteristics of primary schools' teachers are account with at P>0.05.

**Table 5: Relationships Metaphysical Main Domain among the study group with SDCv: Analysis of Covariance for Dependent Variable**

The Sources	Type III Sum of Squares	d.f.	Mean Square	F Statistic	Sig. Levels	C.S
Type of Schools	7.532	1	7.53	0.18	0.673	NS
Age Groups	209.393	3	69.80	1.69	0.194	NS
Gender	7.591	1	7.59	0.18	0.672	NS
Education Level	17.337	1	17.34	0.42	0.523	NS
Marital Status	11.66	3	3.89	0.09	0.963	NS
Years of Experience	162.79	3	54.26	1.31	0.292	NS
Residency	14.011	1	14.01	0.34	0.566	NS

Table (5) shows that there is so no significant associations between beliefs & attitudes in metaphysical main domain score regarding epilepsy

in children and sociodemographic characteristics of primary schools' teachers are account with at P>0.05.

**Table 6: Relationships Environmental/Psycho Main Domain among the study group with SDCv: Analysis of Covariance for Dependent Variable**

The Sources	Type III Sum of Squares	d.f.	Mean Square	F Statistic	Sig. Levels	C.S
Type of Schools	16.218	1	16.22	0.92	0.347	NS
Age Groups	48.889	3	16.30	0.92	0.443	NS
Gender	43.737	1	43.74	2.48	0.127	NS
Education Level	12.577	1	12.58	0.71	0.406	NS
Marital Status	8.704	3	2.90	0.16	0.919	NS
Years of Experience	35.465	3	11.82	0.67	0.578	NS
Residency	6.896	1	6.90	0.39	0.537	NS

Table (6) shows that there is so no significant associations between beliefs & attitudes in

Environmental/Psycho main domain score regarding epilepsy in children and sociodemographic

characteristics of primary schools' teachers are account with at  $P>0.05$ .

**Table 7: Relationships concerning an Overall Main Domain among the study group with SDCv: Analysis Covariance for Dependent Variable**

SDCv.	Type III Sum of Squares	d.f.	Mean Square	F Statistic	Sig. Levels	C.S
Type of Schools	8.533	1	8.53	0.76	0.392	NS
Age Groups	37.577	3	12.53	1.12	0.361	NS
Gender	5.172	1	5.17	0.46	0.504	NS
Education Level	9.946	1	9.95	0.89	0.355	NS
Marital Status	22.037	3	7.35	0.65	0.588	NS
Years of Experience	8.534	3	2.85	0.25	0.858	NS
Residency	0.493	1	0.49	0.04	0.836	NS

Table (7) shows that there is so no significant associations between beliefs & attitudes in Overall main domain score regarding epilepsy in children and sociodemographic characteristics of primary schools' teachers are account with at  $P>0.05$

#### 4. Discussion

The data obtained was analyzed and interpreted in accordance with the study's objectives. Table (1) shows the analyses of primary school teacher's demographic characteristic. Findings show most of the teacher's ages were between (40-49 years) among the study sample, this finding agree with the study conducted in Lebanon who reported that more than one third of the study sample aged were less than 39 years. This is due to the lack of recruitment of teachers were established at late. Respects to the gender, the female teachers were more than male in the study sample, because women prefer to work in the educational field. This finding is in agreement with Christian et al. (2015) <sup>(11)</sup> they found that the majority of participants (68.6%) were female's teachers due to that females prefer working in the field of education. In regard with education qualification, most of the teachers in the study sample were graduation from teacher preparing institution. These findings agree with the study " teachers' knowledge about epilepsy and their attitudes toward students with epilepsy: A Niger cross-sectional survey " done by Moussa and Abdoul Kadir (2020) <sup>(12)</sup>, who found that the majority of teachers were married. It is obvious from the findings that the teachers in the study sample had more than 16 years of experience, due to the age of participants more than 40 years. These findings supported and agree with the study done by Jobran (2015) <sup>(13)</sup>, who found that teachers had more than 20 years of experience.

Table (2) shows that the majority of teachers had negative beliefs & attitudes regarding epileptic child. The beliefs and attitude of a teacher about epilepsy in children plays a significant influence in this condition, since if the teacher react with fear, it will create terror in the students, but this will be how they deal to epilepsy if it happens. According to Goronga et al. (2013) <sup>(14)</sup>, if a teacher has negative beliefs and attitudes about children with epilepsy, the schoolmates or classmates among those children are doing the same. The study revealed that most of the samples had negative beliefs & attitudes regarding

epilepsy, which was similar to the findings of Karakis et al. (2014) <sup>(15)</sup> in Greece. Palli et al. (2015) <sup>(16)</sup>.

Table (3) illustrates the most important domains that came from scored items of studied questionnaire (epilepsy's questionnaire's main domains), which were represented by (neurological, metaphysical, and environmental/psycho) in addition to the overall (The global mean of score) are also explained a very high degree of coincidence status at  $P<0.01$ . The assess of study group beliefs and attitudes was (low –moderate) in the all domains. This study showed that minorities of the studied sample had positive beliefs and attitudes. These results agree with Abulhamail et al., (2014) <sup>(17)</sup>. According to the study, a minority of teachers seemed to have a positive attitude. Previous study conducted in Iraq, teachers were convinced that children having epilepsy exhibited more criminal behavior compared to students who are not epileptic. They also believe that children with epilepsy also couldn't live a normal life span and that children with epilepsy should be isolated from in the class because they have a negative impact on the other students (Abdulla, 2014) <sup>(18)</sup>.

The tables (4, 5, 6 and 7) shows the relationships between Beliefs, and Attitudes" assessments concerning " Neurological, Metaphysical, Environmental/Psycho and Overall" main domain with socio-demographical characteristics variables of studied primary school teachers toward epilepsy in children in compact form, based on grand mean of score, so that no significant relationships were accounted for it (P. value more than 0.05). This study disagreement with the study conducted by Magda et al. (2017) <sup>(19)</sup>, there was a strong significant correlation between teachers' knowledge about epilepsy and their level of education and their income, because to the present study there is no significant correlation between teachers' beliefs and attitudes regarding epilepsy in children and their SDCv.

#### 5. Conclusion And Recommendations

The majority of the study sample according to age group is between (40-49 years), most of them were female, and graduation from teachers preparing institution, most of them were married, having more than 16 years of experience as a school teacher, and most of them were from urban residency. The levels

of beliefs and attitudes of primary school teachers was (low – moderate) toward epilepsy in children. There was no significant relationship between teachers' beliefs and attitudes toward children with epilepsy and chosen socio-demographic characteristics. The study recommends a comparative study should be design in urban and rural areas on beliefs and attitudes of primary school teachers concerning epilepsy in children. As well as evaluation of teachers' beliefs and attitudes toward epilepsy in children should be update periodically

## References

Wilmshurst, J. M., Gaillard, W. D., Vinayan, K. P., Tsuchida, T. N., Plouin, P., Van Bogaert, P., Carrizosa, J., Elia, M., Craiu, D., Jovic, N. J., Nordli, D., Hirtz, D., Wong, V., Glauser, T., Mizrahi, E. M. and Cross, J. H. (2015) Summary of recommendations for the management of infantile seizures: Task Force Report for the ILAE Commission of Pediatrics", *Epilepsia*, 56(8), pp. 1185–1197. doi: 10.1111/epi.13057.

Berg, A. T. and Millichap, J. J. (2010) „The 2010 Revised Classification of Seizures and Epilepsy ", *Continuum journal*, pp. 571–597.

Frueh and Eileen. "Epilepsy Fdn.-Back to School: Seizure Mgmt." Epilepsy Foundation-Epilepsy Foundation-trusted, Reliable Information for People with Seizures, and Their Caregivers. Web. (2011).[http://www.epilepsyfoundation.org/epilepsy\\_usa/magazine](http://www.epilepsyfoundation.org/epilepsy_usa/magazine).

Dahl-Hansen, E., Koht, J., Syvertsen, M., (2019). Epilepsy at different ages-Etiologies in a Norwegian population. *Epilepsia open* 4, 176-181.

Akpan et al., Akpan, M.U., Ikpeme, E. E., Utuk, E-OE. Teachers' knowledge and attitudes towards seizure disorder: A comparative study of urban and rural school teachers in Akwa Ibom State, Nigeria. *Nigerian Journal of Clinical Practice*. (2013), 16 (3), 365-70.

Neville BG: Epilepsy in childhood. *BMJ* (2009); 315: 924-30.

Ahmed EE, Mohamed IN, Mohammed N. Spectrum of attention deficit hyperactivity disorders (ADHD) among Sudanese children with epilepsy. (2015), Vol. 15, S. Sudan Association of Pediatricians.

Ngugi et al., 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.

Mohammed IN, and Babikir HE. Traditional and spiritual medicine among Sudanese children with epilepsy. *Sudan J Paediatr* (2013); 13:31-7.

Zanni KP, Matsukura TS, Maia Filho HDS. Adaptação Transcultural para o Português Brasileiro do Instrumento. The epilepsy beliefs and attitudes scale (EBAS)—adult version. *Journal of Epilepsy and Clinical Neurophysiology*. (2009);15(4):152–164.

Christian et al., Christian N. Eze, Olufunke M. Ebuehi , Francesco Brigo , Willem M. Otte , Stanley C. Igwe. Effect of health education on trainee teachers' knowledge, attitudes, and first aid management of

epilepsy: An interventional study. *Epub* (2015) Nov 1; 33:46-53. doi: 10.1016/j.seizure.2015.10.014.

Moussa and Abdoul Kadir, Moussa Toudou-Daouda , Abdoul Kadir IbrahimMamadou. Teachers' Knowledge About Epilepsy and Their Attitudes Toward Students with Epilepsy: A Cross-Sectional Survey in the City ofTahoua (Niger)*Neuropsychiatric Disease and Treatment*: (2020).16 2327–2333.

Jobran M. Alqahtani. Knowledge and practice of schoolteachers towards students with epilepsy in Khamis Mushate, Southern Saudi Arabia. *Journal of Family and Community Medicine*. (2015). Vol. 22, Issue 3.

Gorongona et al., Gorongona, P., Gatsi, R., Gatahwi, L., Dozva, M. (2013). Primary School teacher's attitudes towards pupils with epilepsy: The Zimbabwean experience and implications for Practice. *American Based Research Journal* 2(4), 41-50. ISSN (2304-7151).

Karakis et al., Karakis I, Cole AJ, Montouris GD, San Luciano M, Meador KJ, Piperidou C. Caregiver burden in epilepsy: Determinants and impact. *Epilepsy Res Treat*. (2014):808421. doi: 10.1155/2014/808421.

Palli et al., Palli A, Kontoangelos K, Richardson C, Economou MP. Effects of Group Psychoeducational Intervention for Family Members of People with Schizophrenia Spectrum Disorders: Results on Family Cohesion, Caregiver Burden, and Caregiver Depressive Symptoms. *Int J Ment Health*. (2015); 44(4):277–89. doi: 10.1080/00207411.2015.1076291.

Abulhamail et al., Abulhamail, A.S., Al-Sulami, F.E., Alnouri, M.A., Mahrous, N.M., Joharji, D.G., Albogami, M.M., Jan, M.M.: Primary school teacher's knowledge and attitudes toward children with epilepsy, in Saudi Arabia. *Seizure*; (2014) 23: 280-283.

Abdulla, S.A. Primary School Managers' Knowledge of and Attitude towards Epilepsy among Children in Erbil City, Iraq Sultan Qaboos University Medical Journal. (2014), 14(2): e218-22. <http://europepmc.org/abstract/MED/24790745>.

Magda et al., Magda Aly Mohamed, Omaima Mohamed Elalem & Mona Abd-Elsabour Hassan. Effect of Health Educational Program on Knowledge about Epilepsy and Its Management among Primary Schools' Teachers. *Port Said Scientific Journal of Nursing*. (2017), Vol.4, No. 1, June.