

# Knowledge and Perception about Epilepsy and Its First Aid Response Among Family Medicine Residents in the Joint Program of Family Medicine 2018, Jeddah, Saudi Arabia

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## ABSTRACT

**Introduction:** Epilepsy is the most prevalent chronic neurological condition affecting developing countries more than developed countries. Several studies reported inadequate knowledge among health professionals regarding nature, causes, and management of the disease, thus the majority of epileptic patients did not receive the proper care for their disease.

**Aims:** This study aimed to assess the level of knowledge of family medicine residents about epilepsy and factors affecting this knowledge.

**Methods:** This was a cross-sectional study that targeted 138 family medicine residents in all training years, regardless of sponsorships, nationality have been recruited in this study. Data collected using A self-administered questionnaire which consisted of 3 sections, sociodemographic section, section assessing knowledge about definition and classification of epilepsy, the third section was designed to assess the level of knowledge about management of epilepsy. The questionnaire was piloted and revised by the expert including epidemiologist, neurologist and family medicine specialist. The resident which had  $\leq 60\%$  correct answers were considered low knowledge residents, and those who get  $\geq 60\%$  correct answers were considered high knowledge residents. Chi-squared test was used to evaluate the association between the predictor variable and the categories of knowledge about epilepsy. Any P-value  $< 0.05$  was considered as an indication for a statistically significant association or difference.

**Results:** A total of 130 residents completed the survey, of them 73.1 % were females and 43 % reported no clinical

experience before residency, and 47.7% had never treated or participated in treatment an epilepsy case. The most common sources of information about epilepsy were senior physicians and textbooks (37.7%). A high knowledge reported in some items investigating epilepsy definition and classification, while lower level of knowledge was found in items related to first aid response and management of epilepsy. Training level and source of information were significantly related to level of knowledge about epilepsy.

**Conclusions:** Generally, inadequate knowledge about epilepsy first aid and management, particularly, poor knowledge was reported about recommended first-line treatment in patients with seizures and best drug selection in pregnant women with epilepsy.

**Keywords:** Seizures, Awareness, Health Professions, Treatment, Knowledge.

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**Article History:**

**Received:** 22-09-2018, **Revised:** 16-10-2018, **Accepted:** 11-11-2018

Access this article online	
Website: <a href="http://www.ijmrp.com">www.ijmrp.com</a>	Quick Response code 
DOI: 10.21276/ijmrp.2018.4.6.004	

## INTRODUCTION

Epilepsy is the most prevalent chronic neurological condition affecting about 50 million persons globally, the majority of them in the developing countries according to WHO.<sup>1</sup> Epilepsy is often characterized by seizures, and without understanding of the first aid management of the seizures. Globally, the life time prevalence of epilepsy was 7.60 per 1,000 persons and did not vary according to age, sex or quality of the study. It was higher in the middle-income and low-income countries than that reported in the high-income countries.<sup>2</sup>

Although the attitudes and knowledge among general population towards people with epilepsy may have improved over the years in developed countries such as the United States, evidence shows that this is only applicable in some aspects.<sup>3</sup> The overall negative attitude towards people living with epilepsy is not only limited to the general public but also in some cases extends to the health professions. Several studies showed an overall lack of awareness on epilepsy among the health care professionals.<sup>4-6</sup> In Brazil, a study found healthcare professionals had no sufficient information

or practices on epilepsy during their undergraduate studies or training.<sup>4</sup> Cameroonian medical students and graduating physicians, did not have a clear understanding of the correct first aid for seizure and most of them had inadequate knowledge on epilepsy surgery.<sup>5,6</sup> In Sudan, a poor knowledge was reported with some of the health professionals believed that epilepsy was caused by spiritual creatures called Jinn, some believed epilepsy is contagious and the majority of them would not allow their child to play with a person living with epilepsy.<sup>5</sup>

In Saudi Arabia, the prevalence of epilepsy stands at 6.54 per 1000.<sup>7</sup> The sociocultural issues of epilepsy could be regarded as important determinants of the attitudes among physicians and healthcare providers towards the disease and in turn limit access to appropriate treatment among most affected people.<sup>8</sup> A study aimed to assess the knowledge of epilepsy, as well as attitudes and practices toward individuals with epilepsy, among health-care professionals in Riyadh found 67% of the respondents did not know how to manage a patient with epilepsy episode.<sup>9</sup> Furthermore, the knowledge of medical students on epilepsy was found inadequate regarding nature, causes, and management of the disease.<sup>10</sup> The main implication of this was patients did not receive the care required to improve their quality of life and often end up stigmatized.<sup>8</sup> The result of this lack of knowledge is what called a treatment gap, since many studies reported that more than 90% of the patients with epilepsy did not receive the proper care for their disease.<sup>11,12</sup> This study aimed to evaluate the knowledge of family medicine residents about epilepsy and its management including first aid response with identification of factors that influencing this knowledge.

## METHODS

This was a cross-sectional study that was conducted family medicine residents of joint program in 2018, Jeddah city, Saudi Arabia. All residents in all training years, regardless of sponsorships, nationality have been invited to participate in the study. Out of 138 residents, 130 residents agreed to participate in the study with 94.2% response rate (Data source: joint program records). A self-administered questionnaire was constructed and distributed among the respondents. The questionnaire consisted of 3 main parts, starting with socio-demographic questions (8 questions) including gender, nationality, level of training, years of experience, residency, previous exposure with epilepsy case, source of information and sponsorship. These variables were used as independent variables for the level of knowledge of family medicine residents about epilepsy. Part 2 of the questionnaire contains questions about knowledge of epilepsy definition and classification by selecting the best available answer (8 questions). Part 3 contains questions of knowledge about first aid response and management (7 questions). Three consultants revised the questions (as face validity) one of them was a neurologist, one epidemiologist, and the third was a community and family medicine consultant. Then, the questionnaire was piloted by testing 10% of the calculated sample size, to validate the questionnaire by assessing clarity and estimating the time needed to complete the questionnaires.

The percentage of correct answers was calculated for each question to assess the level of knowledge among residents regarding each item. The resident which had less than 60% correct answers were considered as having low knowledge, and

those who get  $\geq 60\%$  correct answers were considered as having high knowledge. The data were entered and analyzed by Statistical Package of Social Science SPSS, version 21. The descriptive statistics such as frequencies, percentages were calculated to summarize nominal and ordinal data. Chi-squared test was used to evaluate the association between the predictor variable and the categories of knowledge about epilepsy. Any P-value  $< 0.05$  was considered as an indication for a statistically significant association or difference.

The author described the aim and objectives of the study for the residents and asked them to provide a written consent. No names required to assure confidentiality of data and all information were kept confidential only for this study purposes. The filled questionnaires were received by e-mails and residents who did not respond by e-mail, were reminded via phone call and text messages to ensure a high response rate. The study protocol was approved by the ethical committee of joint program of family and community medicine.

## RESULTS

A total of 130 residents completed the survey, of them 73.1% were females and all of them were Saudi residents, except one resident originating from Palestine. About 20% of the respondents reported they had a family member or friend with epilepsy. Most residents were nominated by the Saudi Ministry of Health (72.3%). Residents of all academic levels were represented in the sample, with second- and third-year residents constituting 64.6% and 90.0% of the respondents, respectively. About 43% of the residents reported no working experience before residency, and 47.7% had never managed or contributed in managing a case of epilepsy (Table 1).

The residents' most common sources of information on epilepsy included senior physicians and books (37.7%) or books alone (30.0%). A high level of knowledge reported in some questions related to epilepsy definition and classification where about 89% of the residents answered correctly on the question of "If patient had a seizure it means he has epilepsy" and the question of which is considered as a characteristic of a psychogenic or real attack". Furthermore, about 87% answered correctly that epilepsy is not a single occurrence of seizure, while 82.3% correctly classify the types of the seizures. However, a poor level of knowledge was found in question such as "A seizure is defined as two or more unprovoked seizures" where only 45.4% residents answered correctly to this question.

Regarding knowledge about first aid response and management of epilepsy, poor knowledge was reported in question of "What is the safest drug of choice in a pregnant epileptic patient?", as only 33.1% answered correctly to this question. Moreover, only 52.3% respond correctly to question "When do you consider a seizure attack as an emergency?" and 50% for question "If you witnessed a patient seizing what first-line medication will you choose?". Other percentages of correct answers for the remaining questions of part 2 were presented in table 2 and 3.

A chi-square test showed that gender did not differ significantly with level of knowledge (p-value = 0.278). Conversely, we found a statistically significant difference between training level and knowledge level, with 59.5% at first and second-year of training had a high knowledge in comparison to 87.0% of those at third and fourth-year of training (p-value=0.001). While residents who

had more clinical experience appeared to be more knowledgeable than their peers with less experience, the difference in knowledge was not statistically significant ( $p$ -value = 0.392). Having attended a course or conference about epilepsy did not also appear to be beneficial in improving residents' knowledge levels of epilepsy ( $p$ -value = 0.344).

Likewise, no significant difference in knowledge levels was found between residents who had managed and those who had never

managed a case of epilepsy. Those who cited relatives as their source of information were significantly less likely to have a high level of knowledge than those who did not achieve knowledge from relatives ( $p$ -value = 0.017). A chi-square test also showed that residents who achieved knowledge from physicians were significantly more likely to have a high level of knowledge than those who did not cite physicians as their source of information ( $p$ -value = 0.004). (table 4).

**Table 1: Socio-demographic characteristics of the residents (n=130)**

Variables	Frequency	Percent
<b>Gender</b>		
Female	95	73.1
Male	35	26.9
<b>Nationality</b>		
Saudi	129	99.2
Palestinian	1	0.8
<b>Affiliation</b>		
Ministry of Health	94	72.3
Others	36	27.7
<b>Training level</b>		
Year 1	37	28.5
Year 2	47	36.2
Year 3	33	25.4
Year 4	13	10.0
<b>Years of experience before residency</b>		
0	56	43.1
1-2 years	43	33.1
3- 4 years	22	16.8
≥ 5 years	9	7.0
<b>Family member or friend with epilepsy</b>		
Yes	26	20.0
No	104	80.0
<b>Ever managed or contributed in managing a case of epilepsy</b>		
Yes	62	47.7
No	68	52.3
<b>Source of knowledge about epilepsy</b>		
Books	39	30.0
Books and senior physicians	49	37.7
Others (previous experience with cases, conferences, courses)	26	32.3

**Table 2: Proportion of correct answers to questions assessing residents' knowledge about epilepsy and its first aid response and management**

Questions	Correct Answers
<b>Knowledge about nature, causes, classification of epilepsy</b>	<b>Frequency (%)</b>
Epilepsy is a single occurrence of seizure	113 (86.9%)
A seizure is defined as two or more unprovoked seizures	59 (45.4%)
If patient had a seizure it means he has epilepsy	116 (89.2%)
Status epilepticus definition	97 (74.6%)
Seizures classification	107 (82.3%)
Which of the following is considered as a characteristic of a psychogenic or real attack?	79 (60.8%)
Which of the following may be indicated for evaluation after an initial seizure?	116 (89.2%)
Differentiate between causes and triggers of epilepsy	101 (77.7%)

**Table 3: Proportion of correct answers to questions assessing residents' knowledge about epilepsy first aid response and management**

First aid response and management	Frequency (%)
When do you consider a seizure attack as an emergency?	68 (52.3%)
What is your first aid response if you see a seizing patient?	89 (68.5%)
Is the first-line management of epilepsy different between the adult and pediatric age group?	83 (63.8%)
If you witnessed a patient seizing what first-line medication will you choose?	65 (50.0%)
What should an epileptic patient avoid?	86 (66.2%)
What is the safest drug of choice in a pregnant epileptic patient?	43 (33.1%)
If the patient is epileptic and becomes pregnant, what is the best action to follow?	74 (56.9%)

**Table 4: Association between gender and training level and residents' knowledge level of epilepsy**

Variables	Knowledge Level		p-value
	Low	High	
<b>Gender</b>			
Female	28 (29.5%)	67 (70.5%)	0.278
Male	12 (34.3%)	23 (65.7%)	
<b>Training level</b>			
Year 1 and 2	34 (40.5%)	50 (59.5%)	0.001*
Year 3 and 4	6 (13.0%)	40 (87.0%)	
<b>Clinical experience</b>			
Yes	25 (33.8%)	49 (66.2%)	0.392
No	15 (26.8%)	41 (73.2%)	
<b>Attended a course or conference about epilepsy</b>			
Yes	2 (18.2%)	9 (81.8%)	0.344
No	38 (31.9%)	81 (68.1%)	
<b>Managed or contributed in managing a case of epilepsy</b>			
Yes	17 (27.4%)	45 (72.6%)	0.624
No	23 (33.8%)	45 (66.2%)	
<b>Family member or friend with epilepsy</b>			
Yes	7 (26.9%)	19 (77.1%)	0.635
No	33 (31.7%)	71 (68.3%)	
<b>Got information from personal experiences</b>			
Yes	3 (17.6%)	14 (82.4%)	0.635
No	37 (32.7%)	76 (67.3%)	
<b>Got information from relatives</b>			
Yes	5 (71.4%)	2 (28.6%)	0.017*
No	35 (28.5%)	88 (71.5%)	
<b>Got information from physicians</b>			
Yes	26 (30.6%)	59 (69.4%)	0.004*
No	14 (31.1%)	31 (68.9%)	

\*Significant difference

## DISCUSSION

This study assessed family medicine residents' knowledge regarding definition, causes and nature of epilepsy. Additionally, it evaluated the level of knowledge about first aid and management of epileptic patients. The findings suggested some limitations in family medicine residents' understanding of seizures and epilepsy. The result of this lack of knowledge is what called a treatment gap. Although some improvement on theoretical aspects was observed among the residents, knowledge deficits on practical aspects, such as the management of epilepsy, were observed among the residents. These deficits were observed across training level, although fourth-year residents appeared to have a significantly higher level of knowledge than their counterparts in the lower levels. Njamnshi et al.<sup>3</sup> and Agarwal et al.<sup>13</sup> found that familiarity with epilepsy and seizures were significantly more likely

to improve with residents' level of medical education. Similar knowledge gap of seizures and epilepsy was found among pediatric residents.<sup>13</sup> Additionally, gaps in knowledge have been reported across various areas and specialties, including among physicians and other health professionals outside of the neurology field.<sup>14</sup>

In this study, practical aspects of the management of epilepsy posed difficulty to junior residents. Specific areas where residents apparently found most testing through their residency training included selecting the recommended first-line treatment in patients with seizures (50% of correct responses were received for the question on the first-line treatment of patients with seizures) and responding to the specific needs of pregnant patients (only 33.1% of residents knew the safest anti-epileptic medication in pregnant women). Our findings are consistent with those reported by

Agarwal et al.<sup>13</sup>, who found that senior residents performed better than junior residents on questions pertaining to the treatment of epilepsy. In their survey, Agarwal et al. reported improvements in the correct responses of senior pediatric residents versus junior residents with respect to the following questions "dose phenytoin a drug of choice for epileptics?" (69.7% versus 35.1% respectively,  $p$ -value = 0.005) and correct drug route for anti-epileptic medications (81.8% versus 56.8% respectively,  $p$ -value = 0.038). Primary care providers have self-reported doubts on their knowledge, skill set, and comfort in diagnosing and treating patients with epilepsy.<sup>15,16</sup> As their counterparts in other specialties, family medicine physicians were expected to acquire most of their knowledge pertaining to epilepsy during undergraduate and graduate medical training through lectures and clinical experiences, such as neurology clerkships. However, investigators found that medical students and residents reported feeling inadequate when managing cases of patients with neurological disorders in general.<sup>16</sup> It may be partly due to their insufficient exposure to neuroscience subjects and neurological patients during their training. In additions, students may have negative attitudes toward the neurosciences and neurology, specifically. For example, in one survey that included six medical schools across Saudi Arabia, many medical students were reported to have a negative perception of neurology, approximately 85.5% of the medical students surveyed reported neurology as a difficult topic.<sup>17</sup>

A high rate of awareness of epilepsy has been reported among residents in previous studies.<sup>13,18</sup> In the study conducted by Ezeala-Adikaibe et al.<sup>18</sup>, 94.5% of the medical students surveyed correctly defined seizures, which is higher than the percentage in our residents where 86.9% correctly defined epilepsy. While we found that residents' most common sources of information included physicians and books (37.7%) and books alone (30.0%), Ezeala-Adikaibe et al. found that most residents acquired information from family/friends (55.8%) and radio/television (11.8%).<sup>18</sup>

Additionally, we observed significant differences in knowledge based on residents' sources of information, with residents who cited relatives as their source of information being significantly less likely to have a high level of knowledge and those who learned from physicians being more likely to have a high level of knowledge. It is plausible that the quality of information residents received from relatives may not be comprehensive and may potentially be of poor quality. This may explain why these residents were significantly less knowledgeable than their peers who did not cite relatives as sources of information. We also found that residents who learned from physicians were significantly more knowledgeable. This result was expected, as medical and health workers are recognized as the most reliable sources of accurate information on epilepsy.<sup>19</sup>

Epilepsy and other seizure disorders are not uncommon in Jeddah. While no study has formally reported the average number of actively seizing patients that public or private practices receive annually, one survey including 1122 people living in Jeddah found that 514 respondents (46%) had witnessed an epileptic seizure during their lifetime.<sup>20</sup> About 20.0% of the residents in this survey knew a family member or friend with epilepsy, and less than half (47.7%) had ever managed or contributed in managing a case of epilepsy. In another study conducted on medical and graduating

students in Cameroon, Njamshi et al.<sup>3</sup>, found that although the level of epilepsy knowledge was expectantly very high among their respondents, students' rate of acquaintance with people with epilepsy was 66.0% and the rate of observation of seizures was 78.9%.

Benzodiazepines constitute the first-line therapy for patients with acute seizures according to the guidelines of the National Institute for Health and Care Excellence for Health<sup>21</sup>, intravenous lorazepam should be administered as first-line therapy in children and adults with convulsive status epileptics. In this study, only 50% of the students were aware of the first-line therapy for epilepsy. We believed it is unlikely for senior residents to did not managed or, at least, participated in the management of a case of status epileptics during their training. Although 43.1% of the sample had not had any working experience, the lack of experience alone may not explain the gap in knowledge observed in our respondents. Is also plausible that many residents were familiar with other anti-epileptic drugs other than lorazepam, especially as inconsistencies exist in the use of the anti-epileptic agents for the management of status epileptics following failure of benzodiazepines.<sup>22</sup> Although investigators have reported a close agreement between the Neurocritical Care Society Status Epileptics Guidelines and a survey of status epileptics experts, there is a lack of consensus among experts.<sup>22</sup> It may benefit residents if medical school and hospital administrators create standardized institutional guidelines, as these may promote the proper utilization of anti-epileptic drugs for emergency cases.

A poor level of knowledge regarding the management of epilepsy in pregnant women was reported in our residents, as 76.9% did not know the safest drug of choice in an epileptic patient during pregnancy. A previous survey showed that other health care practitioners such as pharmacists were unaware of the needs of women with epilepsy.<sup>23</sup>

Moreover, these investigators found major gaps in physicians' knowledge of the effects of anti-epileptic medications on pregnant and breastfeeding women. Some investigators further reported that < 50% of neurologists could correctly identify drugs that were potentially unsafe in pregnancy, although guidelines had been developed by the American Academy of Neurology and the American Epilepsy Society.<sup>24</sup>

Epileptic patients are reported to have a high rate of accidents and injuries.<sup>25</sup> These accidents are more frequent in children, who present a high risk of drowning in tubs and swimming pools. It is therefore necessary that epileptic patients limit their activities for their well-being and that of their relatives. Nevertheless, it might not be beneficial to impose strict restrictions, especially in children, as these may negatively impact the child's social development and accentuate the child's reported condition.<sup>26</sup> In patients whose symptoms are well-controlled, some activities such as swimming may be allowed, although the patient should be directly supervised. Likewise, an epileptic patient may be allowed to shower as a better and safer alternative to swimming. However, there are no scientifically-backed data that strictly recommend one activity over the other. In our survey, questions on the activities that epileptic patients should avoid received incorrect answers. It is very likely that residents encounter patients with neurological conditions during their clinical rotations, albeit they might not have the opportunity of providing counsel directly to these patients because the neurology consultant typically drafts the care plan.

## CONCLUSIONS

Overall, family medicine residents have a good knowledge of nature and classification of seizures, but they appear to lack a strong knowledge in management and first aid response. We identified specific areas of concern such as family medicine residents' poor understanding of the management of epilepsy, including the recommended first-line treatment in patients with seizures and best drug selection in pregnant women with epilepsy. More medical educational programs are needed to be designed and implemented to increase the level of knowledge of epilepsy among family medicine residents in addition more training programs should also be considered to encourage the resident participation in mock codes of status epileptics. This may subsequently help in reinforcing treatment protocols.

## ACKNOWLEDGEMENT

Praise be to Allah, the Merciful, the compassionate for all countless gifts we have been offered. One of this gift is to accomplishing this research work, with the help of those who gave us a precious hand to finish this work. They all deserve more than our appreciation. We would like to express our sincere thanks and deepest gratitude to Dr. Bakr Albakry, Dr. Ayman Sanosi and Dr. Jihad Muglan for their fruitful directions, useful advice, professional cooperation, our families and friends for their support. We would like to express our sincere thanks and deepest gratitude to all colleagues participated in this study for their kind help and cooperation.

## REFERENCES

- Cicero W. Epilepsy in the WHO African region: bridging the gap. The Global Campaign Against Epilepsy: Out of the Shadows. World Health Organization 2004.
- Fiest KM, Sauro KM, Wiebe S, Patten SB, Kwon C-S, Dykeman J et al. Prevalence and incidence of epilepsy: a systematic review and meta-analysis of international studies. *Neurology* 2017;88(3):296-303.
- Njamshi AK, Angwafo SA, Baumann F, Angwafo III FF, Jallon P, Muna WF. Knowledge, attitudes, and practice of Cameroonian medical students and graduating physicians with respect to epilepsy. *Epilepsia* 2009; 50(5): 1296-9.
- Vancini RL, Benedito-Silva AA, Sousa BS, da Silva SG, Souza-Vancini MI, Vancini-Campanharo CR et al. Knowledge about epilepsy among health professionals: a cross-sectional survey in Sao Paulo, Brazil. *BMJ open* 2012;2(2):e000919.
- Alsherif R. Knowledge, Attitude & Practice Towards Epilepsy Among Sudanese Doctors, Khartoum State, 2014 (P1. 063). *Neurology* 2016;86(16 Supplement):P1. 063.
- Pan A. Public awareness, understanding and attitudes toward epilepsy in Singaporean Chinese. *Neurol J Southeast Asia* 2000;5:5-10.
- Khan SA. Epilepsy awareness in Saudi Arabia. *Neurosciences* 2015;20(3):205-7.
- Muthaffar OY, Jan MM. Public awareness and attitudes toward epilepsy in Saudi Arabia is improving. *Neurosciences (Riyadh)* 2014;19(2):124-6.
- Alaqeel A, Alebdi F, Sabbagh AJ. Epilepsy: what do health-care professionals in Riyadh know? *Epilepsy & Behavior* 2013;29(1):234-7.
- Ezeala-Adikaibe B, Okpara T et al. Knowledge of medical students about epilepsy: Need for a change. *Nigerian journal of clinical practice* 2017;20(7):884-91.
- Diop AG, de Boer HM et al. The global campaign against epilepsy in Africa. *Acta tropica* 2003;87(1):149-59.
- Diop A, Hesdorffer D, Logroscino G, Hauser W. Epilepsy and mortality in Africa: a review of the literature. *Epilepsia* 2005;46:33-5.
- Agarwal RL, Agarwal RR, Sivaswamy L. How well are we preparing pediatricians to manage seizures and epilepsy? A single-center questionnaire-based pilot study. *Clinical pediatrics* 2014;53(7):682-8.
- Meyer A-C, Dua T, Ma J, Saxena S, Birbeck G. Global disparities in the epilepsy treatment gap: a systematic review. *Bulletin of the World Health Organization* 2010;88:260-6.
- Minshall I, Smith D. Unmet needs in patients with epilepsy, following audit, educational intervention and the introduction of the New General Practice Contract. *Primary health care research & development* 2012;13(1):85-91.
- Elliott J, Shneker B. Patient, caregiver, and health care practitioner knowledge of, beliefs about, and attitudes toward epilepsy. *Epilepsy & Behavior* 2008;12(4):547-56.
- Abulaban AA, Obeid TH et al. Neurophobia among medical students. *Neurosciences* 2015;20(1):37.
- Ezeala-Adikaibe BA, Achor JU et al. Knowledge, attitude and practice of epilepsy among community residents in Enugu, South East Nigeria. *Seizure* 2014;23(10):882-8.
- Snape D, Wang W, Wu J, Jacoby A, Baker G. Knowledge gaps and uncertainties about epilepsy: findings from an ethnographic study in China. *Epilepsy & Behavior* 2009;14(1):172-8.
- Haneef DF, Abdulqayoum HA, Sherbeni AA, Faheem M, Chaudhary AG, Al-Qahtani MH et al. Epilepsy: knowledge, attitude and awareness in Jeddah Saudi Arabia. *BMC genomics* 2014;15(S2):P61.
- Dua T, Barbui C, Clark N, Fleischmann A, Poznyak V, van Ommeren M et al. Evidence-based guidelines for mental, neurological, and substance use disorders in low-and middle-income countries: summary of WHO recommendations. *PLoS Medicine* 2011;8(11):e1001122.
- Riviello JJ, Claassen J et al. Treatment of status epilepticus: an international survey of experts. *Neurocritical care* 2013;18(2):193-200.
- McAuley JW, Casey J, Long L. An evaluation of pharmacists' knowledge of women's issues in epilepsy. *Epilepsy & Behavior* 2009;14(1):243-6.
- Roberts JI, Metcalfe A, Abdulla F, Wiebe S, Hanson A, Federico P et al. Neurologists' and neurology residents' knowledge of issues related to pregnancy for women with epilepsy. *Epilepsy & Behavior* 2011;22(2):358-63.
- Van Den Broek M, Beghi E, Group R. Accidents in patients with epilepsy: types, circumstances, and complications: a European cohort study. *Epilepsia* 2004;45(6):667-72.
- Wirrell EC. Epilepsy-related injuries. *Epilepsia* 2006;47:79-86.

**Source of Support:** Nil.

**Conflict of Interest:** None Declared.

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**Cite this article as:** Maha Mohammed Behairi, Yahya Mohammed Makhdoom. Knowledge and Perception about Epilepsy and Its First Aid Response Among Family Medicine Residents in the Joint Program of Family Medicine 2018, Jeddah, Saudi Arabia. *Int J Med Res Prof.* 2018 Nov; 4(6):21-26. DOI:10.21276/ijmrp.2018.4.6.004