

Public knowledge awareness and attitudes toward epilepsy in Al-Kharj Governorate Saudi Arabia

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ABSTRACT

Introduction: Epilepsy is one of the most stigmatizing disorders. Stigmas and negative attitudes associating epilepsy are due to poor public awareness and knowledge. This study evaluated Saudi public Knowledge, awareness, and attitude towards epilepsy. **Materials and Methods:** A cross-sectional study conducted during the period from September 16, 2014 to January 1st 2015. A 20-item questionnaire adapted from the literature was validated and distributed to 422 adults living in Al-Kharj governorate, and 22 participants were excluded as they have never heard or read about epilepsy. **Results:** About 94.79% of participants have heard or read about epilepsy, 63% of them knew someone with epilepsy, and 49.75% have witnessed a seizure attack. Seventy per cent of subjects thought that epilepsy is a neurological disease and 59% believed it is a brain disease. Almost 46.5% selected possession by demons or evil spirits and 51.25% cited envy or evil eye. More than half of subjects selected the medical treatment and follow-up as the most effective treatment of epilepsy. Rather, 41% believed in the faith healing. Most of respondents (81.5%) believed that epileptic children could be successful in normal classes. The vast majority agreed with that epileptic woman can get married and have children. Moreover, 65.25% would allow their offspring to play with epileptic persons and surprisingly, 59% would let their offspring marrying a person with epilepsy. As much as 82.75% agreed to work with epileptic persons and 85.5% would easily become a close friend of them. The equal job opportunity for epileptic and normal persons should be practiced to about 53.75% of subjects. The predictors of good knowledge, limited misconception, and positive attitudes were female gender, being a relative of an epileptic person, and having high educational level. **Conclusion:** The public knowledge, awareness of and attitudes toward epilepsy were acceptable with regard to this study. However, the negative attitudes and misconceptions still exist.

Keywords: Attitude, awareness, epilepsy, knowledge, Saudi Arabia

Introduction

Epilepsy is a common stigmatizing neurological disorder characterized by recurrent seizures.^[1] More than 50 million people worldwide are affected by epilepsy,^[2,3] and 85% of them were from developing countries.^[3,4] Among Arabian countries,

it was illustrated that around 724,500 persons had epilepsy.^[5] The prevalence of epilepsy in Saudi Arabia is 6.54 per 1000.^[5-7]

Even though it is one of the most common chronic diseases, epilepsy is usually beyond public knowledge and is usually associated with public erroneous beliefs.^[8] Patients with epilepsy suffer from the burden of the public stigmas and discrimination.^[9,10] Both stigmas and discrimination are due to inadequate public knowledge about epilepsy along with

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myths and misconceptions.^[11,12] As a consequence, patients with epilepsy keep on facing psychological and socioeconomic obstacles.^[13,14] Strictly speaking, they usually have difficulty in employment, education, socialization, and reproductive life.^[14-17]

The myths and misconceptions of epilepsy also exert a negative impact on the prognosis of the patients' own conditions. For instance, as a results of the perceived superstitions and supernatural power, patients are usually enforced on the religious healing and traditional remedies which may be to the detrimental of their conditions.^[18]

The healthcare services are to blame about their procrastination in delineating the right perception of epilepsy rendering patients more disappointed. Public awareness campaign and allotted disease day should be set into operation as being crucial in reducing the stigmas and misconceptions concerning epilepsy.^[19,20] In the Kingdom of Saudi Arabia, a public awareness campaign was conducted and found to exert a significant positive trend on the general knowledge of epilepsy reducing the misconceptions and negative attitudes.^[21] So as to confirm the efficiency of any educational strategy, it should be based on an extensive survey identifying its scope and target.^[22]

Consequently, it goes without saying that the assessment of the public knowledge, awareness, and attitudes toward epilepsy is the first step to get a grip on the psychosocial and economic problems surrounding epilepsy. The literature review revealed variable levels of public awareness, knowledge, and attitudes toward epilepsy among different societies.^[2,4,8,22-31] Despite an ongoing improvement, myths and negative attitudes toward epilepsy are still reported.^[2,8,12,22] In the Kingdom of Saudi Arabia, a number of studies investigated the public knowledge, awareness, and attitudes toward epilepsy were identified; two from the metropolis; Riyadh,^[2,22] one from Majmaah,^[7] one from Aseer,^[3] and one from Jeddah.^[4]

This study strives to evaluate the public knowledge, awareness, and attitudes toward epilepsy in Al-Kharj governorate. Besides, it identifies the predictors of good knowledge, awareness, and attitudes from sociodemographic data.

Subjects and Methods

It is a cross-sectional survey-based study carried out in the period from September 16, 2014, to January 1, 2015. Its main objective was to investigate the knowledge, awareness, and attitude toward epilepsy among Saudi general population living in Al-Kharj governorate. Al-Kharj is a small region located at about 80 miles south from Riyadh; the metropolis of the Kingdom of Saudi Arabia. Previously, it was considered an inalienable part of Riyadh, but nowadays, it is independent region, which has its own governmental agencies. Its residents are approximately 376,325 people including natives and extirpates.

Male and female Saudi adults who were competent to give informed consent (i.e., individuals who aged 18 years and more) were specified as the study population. According to the Raosoft online sample calculator, out of all Al-Kharj inhabitants (376,325 residents), almost 385 individuals should be sampled so that 95% confidence level and 5% margin of errors are accomplished. The sampled individuals were taught about the study from the ground up. They were able to suggest which is the best way to save the privacy of their responses from each other and from interviewers. Excluded from this study were admitted patients, healthcare personals, extirpates, and people who were younger than 18 years of age.

The questionnaire was adapted from a literature review of previous pertinent studies conducted in several countries.^[2,9,22-26,29,30] It is a 20-item structured questionnaire which underwent a forward and backward translation from English to Arabic and the reverse by two professional translators. A pilot study was conducted on 50 individuals who were not included in the main study, and they were asked to give their critiques and feedbacks based on their cultures and beliefs. Accordingly, we omitted out some senseless questions and modified some adjustable ones to have a final easily understood form. The final form of questionnaire is divided into four sections. The first section is composed of six elements about the sociodemographic data including sex, age, educational level, marital status, monthly income of family, and occupation. The second section is composed of five yes/no questions assessing the awareness or familiarity with epilepsy. The third section consists of 4 multiple choice questions and one close-ended question with three answers (yes, no, and I do not know) evaluating the knowledge of causes, manifestations, first aid measures of epileptic seizures, management of epilepsy, and the role of surgical intervention in treating epilepsy. The last section was designed to assess the respondents' attitudes toward epilepsy and persons living with epilepsy that is composed of 10 questions with the following answers: agree, disagree, and neutral.

The data entry and statistical analysis were completed by using Statistical Package for Social Sciences (SPSS) version 20 (IBM Corporation, Armonk, New York, US). The association between the responses and sociodemographic variables was evaluated by Chi-square test. $P < 0.05$ was considered statistically significant.

The Ethics Committee of the Medical School of Prince Sattam Bin Abdulaziz University approved the study proposal. The participation was voluntary, and privacy of responses was practiced.

Results

Table 1 presents the sociodemographic features of respondents. Out of 422 individuals, 22 were excluded based on their negative response to the first awareness question; "have you ever heard or read about epilepsy?" This point was modified during data entry for statistical analysis. Out of the remaining 400 respondents, 217 (54.25%) were males and 183 (45.75%) were females with

female to male ratio of 1:1.2. The mean age of respondents was 32.46 years with ages ranging from 18 to 59 years.

Table 2 shows the responses of familiarity or awareness questions. In the region, 94.79% of respondents have heard or read about epilepsy, 63% of them knew someone with epilepsy, and 49.5% have witnessed an acute seizing attack. About 14% of individuals have been previously educated on epilepsy, and this was significantly correlated with having a family member with epilepsy ($P = 0.004$).

Table 3 displays the responses of the knowledge questions. In general, the current study showed an acceptable level of knowledge about epilepsy. Concerning the cause of epilepsy, 70% of the respondents thought epilepsy is a neurological disease. This was significantly associated with having a family member with epilepsy ($P = 0.03$), being of higher educational level ($P = 0.019$), and undergoing a previous educational courses on epilepsy ($P = 0.016$). In addition, as much as 46.5% of individuals chose possession by demons or evil spirits and more than half of responders cited envy or evil eye. Individuals who were previously educated on epilepsy were less likely to choose possession by evil spirits and evil eye as the causes of epilepsy (P values were 0.005 and 0.002, respectively). Respondents with university degree were also found

less likely to believe in demonic role ($P = 0.047$). Pertaining to the manifestations of epilepsy, the highest proportion of responders selected convulsions (66%), which was the most correct answer. Individuals who were previously educated on epilepsy were found more likely to cite convulsion as the most frequent symptom of epilepsy ($P = 0.004$). With regard to the immediate management of acute seizing episode, 51.5% would take seizing patient away from danger and 50.5% would place the patient on one side and hold his/her head down. Individuals who underwent a previous education on epilepsy were more likely to take a seizing patient away from dangerous sites ($P = 0.000$) and more likely to place him/her on one side and hold his/her head down ($P = 0.007$). As for the long-term management of epilepsy, 54.75% of respondents chose medical treatment and follow-up, however, 41% picked religious healing (reading Quran), 6.5% selected herbals, 9% selected cauterization, 6% think that epilepsy is untreatable, 7.5% said no need for treatment, and 5% have no idea. Individuals with university degree were more likely to choose medical therapy and follow-up as the preferred method of treatment ($P = 0.000$). Furthermore, individuals who were educated on epilepsy were less likely to confide in the role of herbals ($P = 0.002$).

Table 4 illustrates the respondents' attitudes toward epilepsy. This study showed a generally positive attitude toward epilepsy and persons with epilepsy. About 72.25% disagreed with the statement that epilepsy is contagious and 69% disagreed with the claim that it is a form of insanity or madness. Approximately 77% and 65.3% of individuals, respectively, agreed with the statements that epileptic woman can get married and can have their own children. Individuals who have a family member with epilepsy were found more likely to believe epileptics can get married ($P = 0.001$) and those with higher education were found more likely to agree that epileptics can have children ($P = 0.001$). About 81.5% agreed with that epileptic child can be successful in normal classes, and this was significantly correlated with having university degree ($P = 0.001$), having an epileptic family member ($P = 0.034$), and female gender ($P = 0.002$). Surprisingly, 59% of respondents would allow their offspring to marry someone with epilepsy and this was significantly correlated with having a family member with epilepsy ($P = 0.02$). Approximately, 83% agreed to work with epileptics and this was significantly associated with having an epileptic family member ($P = 0.015$) [Table 4].

Table 1: Sociodemographic characteristics

	Frequency	Percentage
Sex		
Male	217	54.30
Female	183	45.80
Age (in years)		
18-30	221	55.25
31-49	143	35.75
50 or more	36	09.00
Marital Status		
Single	180	45.00
Married	205	51.00
Others	15	04.00
Educational level		
Primary	11	02.80
Intermediate	53	13.30
Secondary	81	29.30
University	219	54.75
Postgraduate	36	09.00
Occupation		
Students	80	20.00
Self-employed	82	20.50
Professional	107	26.75
Unemployed	45	11.25
Housewife	76	19.00
Retired	10	02.50
Family monthly Income		
0-5,000 ^s	97	24.25
5,001-10,000 ^s	145	36.25
10,001-15,000 ^s	111	27.75
15,001-20,000 ^s	28	07.00
More than 20,000 ^s	19	04.75

Table 2: Awareness of epilepsy

	Answer	Frequency	Percentage
1-Have you ever heard or read about epilepsy?	Yes	400	94.79
	No	22	05.21
2-Do you have an acquaintance with epilepsy?	Yes	252	63.00
	No	38	09.50
3-Do you have a family member diagnosed with epilepsy?	Yes	52/388	13.40
	No	336/388	86.598
4-Have you ever attended a course on controlling an epileptic seizures?	Yes	56	14.00
	No	344	86.00
5-Have you ever witnessed a patient experiencing seizure attack?	Yes	198	49.50
	No	202	50.50

Table 3: Knowledge about epilepsy

	Frequency	Percentage
6-The cause of epilepsy is: (You can select more than one answers)		
Possession by demons or an evil spirit	186	46.50
Evil or envious eye	205	51.25
Mental or emotional stress	113	28.25
Psychiatric disease	43	10.75
Hereditary disease	42	10.50
Blood disease	32	08.00
Neurological disease	280	70.00
Drugs and toxins	137	34.25
Brain disease	236	59.00
Infection	60	15.00
I do not know	34	08.50
7-What do you think is the manifestation of epilepsy? (You can select more than one answers)		
Foaming from the mouth	189	47.25
Brief loss of consciousness	223	55.75
Screaming	69	17.25
Changes in behavior	86	21.50
Convulsion	264	66.00
I do not know	40	10.00
8-If you find someone having an acute seizing attack, what would you do? (You can select more than one answers)		
Take them away from danger	206	51.50
Put a spoon or cloth in the patients mouth	116	29.00
Force some medicine down the patients throat	76	19.00
Put their head in a toilet hole	29	07.25
Place him/her on one side and hold his/her head down	202	50.50
Run away	32	08.00
I do not know	88	22.00
9-The best treatment of epilepsy is? (You can select more than one answers)		
Medical treatment and follow up	219	54.75
Therapeutic Quran	164	41.00
Herbal remedies	26	06.50
Cauterization	36	09.00
epilepsy is untreatable	24	06.00
No need for treatment	30	07.50
I do not know	20	05.00
10-has it ever come to your notice that surgery is available option for treating medically uncontrollable cases of epilepsy?		
Yes	188	47.00
No	198	49.50
Uncertain	14	03.50

Table 4: Attitudes towards epilepsy

For each of the following statement determine your attitude if you agree, disagree or neutral	Frequency	Percentage
11-Epilepsy is contagious		
Agree	45	11.25
Disagree	289	72.25
Neutral	66	16.50
12-Epilepsy is a form of insanity or madness		
Agree	51	12.75
Disagree	276	69.00
Neutral	73	18.25
13-Women with epilepsy can get married		
Agree	308	77.00
Disagree	55	13.75
Neutral	37	09.25
14-Woman with epilepsy can have their own children		
Agree	261	65.25
Disagree	59	14.75
Neutral	80	20.00
15-Children with epilepsy can be successful in regular classes		
Agree	326	81.50
Disagree	37	09.25
Neutral	37	09.25
16-Epileptic patient should have the same employment opportunity as normal person		
Agree	215	53.75
Disagree	145	36.75
Neutral	38	09.50
17-I would allow any of your offspring or family member to marry a person who has epilepsy		
Agree	236	59.00
Disagree	127	31.80
Neutral	37	09.30
18-I would allow any of your offspring or family member to play with a person who has epilepsy		
Agree	260	65.00
Disagree	60	15.00
Neutral	80	20.00
19-I would accept to work with an epileptic person		
Agree	332	83.00
Disagree	36	09.00
Neutral	32	08.00
20-I would accept to become a close friend of epileptic person		
Agree	342	85.50
Disagree	37	09.25
Neutral	21	05.25

Discussion

This study was conducted in Al-Kharj governorate, which is a lightly populated small rural region in the central province of Saudi Arabia. Thus, a 400 sample size can be representative of the target population, but it is inadequate to be generalized to

general population of Saudi Arabia. The individuals of this survey were sampled through simple convenience sampling method, and interviewers targeted some of them in their working

atmospheres. This may have allowed for large flow of similar age, education level, and other sociodemographic features that may indicate some sorts of selection. In addition, one of the inclusion criteria was adult competent respondents aged 18 years and more. This may have excluded a dozen of individuals who have education levels less than high school. As a consequence of these critical points of the methodology, the preponderance of respondents was married, and aged between 18–30 years of age, and having university degree.

The current study presented a high public awareness level as about 94.79% have ever heard or read about epilepsy, 63% knew someone with epilepsy, and 49.5% have once witnessed an acute seizure. These values are very close to what were reported from Riyadh,^[2] Jordan,^[26] and Uganda,^[32] but apparently lower than the study performed in Aseer,^[3] Cameroon,^[8] and more preferable than what were reported by similar studies conducted in Majmaa,^[7] Jeddah,^[4] Riyadh,^[22] Turkey,^[30] Konya,^[33] the United Arab Emirates,^[23] Thailand,^[20] Konya,^[33] and Ethiopia.^[34] Strange as it may be improving over time, the public awareness about epilepsy is influenced by the region of individuals but not the time. Accordingly, to follow the progression of the public knowledge about epilepsy, there is a need to take one of two actions. The first one is to estimate the current level for the entire Saudi population by stratified sampling technique and follow it thereafter. The second strategy is to study each region independently.

In spite of the good level of the public knowledge about the cause and treatment of epilepsy, misconceptions and myths were largely reported here. The good level of knowledge of epilepsy was implied by the proportion of individuals who cited neurological or brain disease for the cause question and the medical treatment and follow-up for the treatment question. On the other hand, the myths or misconceptions were represented by the amount of individuals who selected the possession by demons or evil spirits and envy or evil eye as the cause of epilepsy as well as the spiritual rituals or religious healing as the most effective treatment of epilepsy. About 70% and 59% of individuals, respectively, cited neurological disease and brain disease as the cause of epilepsy. These are nearly similar to the pertinent reports from Ethiopia^[34] (as about 40.6% cited brain disease) and Majmaah^[7] (as about 47.5% cited brain disease). Meanwhile, about 46.5% of respondents in the current sample chose possession by demons or evil spirits and more than half selected envy or evil eye. These results are apparently higher than the results reported from Riyadh,^[2,22] Ethiopia,^[34] and Jeddah.^[4] Although 54.75% of individuals believed in the medical treatment and follow-up, as much as 41% of respondents cited the religious healing. This is in alignment with the results of the previous studies conducted in Riyadh,^[2,22] the United Arab Emirates,^[23] Aseer,^[3] and Ethiopia.^[34] Rather, a worse result showed by an Ugandan Study as only 5.6% of their respondents agreed to take an epileptic to hospital.^[32] The reported supernatural culprits and religious healing represent perfect target for the future epilepsy awareness campaigns planned for this population.

Compared to the similar study from Riyadh,^[2] this study reported a larger quantity of respondents who were up to date regarding the role of surgery in treating epilepsy. This indicates improvement in the knowledge about the surgical option in the treatment of epilepsy.

This study showed generally positive attitudes toward epilepsy and patient with epilepsy. Yet, 11.25% agreed with that epilepsy is contagious. This is comparable with the previous study from Jeddah^[4] and Majmaah,^[7] yet more preferable than the results from the previous study from Riyadh,^[2] Cameroon,^[8] Ethiopia,^[34] Uganda,^[32] and Aseer.^[3] Nevertheless, it is more negative than the results reported from China,^[9] Jordan,^[26] and Kuwait.^[28] In the current study, 12.75% agreed with that epilepsy is a form of insanity and madness. This is worse than the results of the previous studies conducted in Riyadh,^[2] China,^[9] Jordan,^[26] and Kuwait.^[28] Thus, it is conclusively obvious that the stigmas surrounding epilepsy still exist.

In this study, 77% agreed with that woman with epilepsy can get married. This is markedly lower than what was reported by the Chinese study as 94.1% of respondents were positive to this point.^[9] Rather, it is obviously better than the result of the Nigerian study (61%).^[31] In the current study, 65.25% agreed with that epileptic can have their own children. This is slightly lower than the results from other studies conducted in Jordan (71%)^[26] and China (72.5%),^[9] but far better than the Nigerian study. These findings may prove worse circumstances of reproductive lives of epileptic patients residing Al-Kharj except if they were compared with the Nigerian study. On contrary, the current study demonstrated that about 59% would allow their offspring to marry an epileptic person. This is more gladsome than the findings of the previous studies from Riyadh,^[2,22] Jeddah,^[4] Majmaah,^[7] the United Arab Emirates,^[23] Jordan,^[26] Turkey,^[33] and Nigeria^[31] verifying a comparatively favorable reproductive status of epileptic persons in Al-Kharj community.

According to this study, there was a significant association between positive attitude toward marrying an epileptic person and having a family member with epilepsy. This may indicate the effective role of patients' association to the public in reducing the negative attitudes toward them. Rather, this could be contributed by a family sympathy or a family fear of being discriminated against as reported by a previous Chinese study.^[9]

A previously speculated factor affecting the public acceptance to marrying an epileptic patient is the concern that epilepsy may be inherited.^[2,26] In this study, only 10.5% of respondents think that epilepsy is a hereditary disorder and such a relatively low proportion has possibly caused such a positive trend of the public attitude toward marrying an epileptic person here.

With reference to this study, approximately 81.5% believed that epileptic could be successful in normal classes. It is more positive than the results of the pertinent study from Riyadh (76.4%).^[2] This verified a sort of amelioration in educational hurdles that

may be encountered by epileptic patients in the Kingdom of Saudi Arabia.

About 65% of individuals reported their willingness to let their offspring playing with epileptic patients compared to 15% who objected to this point. The latter is almost twice the amount of objections reported from the United Arab Emirates (7%).^[23] However, it is more delightful than the studies performed in Riyadh,^[2,22] Jeddah,^[4] Jordan,^[26] and Nigeria.^[31] In this study, about 53.75% of respondents agreed with that an epileptic patient should have employment opportunity like normal candidates. This is greater than the results of the relevant studies conducted in Riyadh,^[2] and Jordan,^[26] but lower than that from the United Arab Emirates.^[23] These figures pointed out a better socioeconomic status of epileptic persons among the study population as compared to the above samples but the United Arab Emirates.

Respondents who underwent a previous education about epilepsy were significantly more knowledgeable concerning the first aid management of seizing patients. This evinces the valuable benefit resulting from an educational campaign focusing on first aid management of seizure, as recommended by the Cameroonian study.^[8] In the same time, this study concluded that individuals with a family member who has epilepsy have attended a previous course on epilepsy more frequently and this relation was statistically significant. This was also concluded by a previous pertinent Turkish study.^[35] According to previous studies, persons who have witnessed a seizure attack were more acquainted with the first aid management of seizing patient.^[35,36] It is a logic deduction that people who have a family member with epilepsy are more likely to observe seizure attack. As a result, we can reach a conclusion that being a family member of an epileptic and observing seizure attack are strongly correlated factors predicting good knowledge of the first aid measure of epileptic episode. These two factors should be precisely analyzed in future to rule out their possible confounding effects on each other.

According to the current study, female gender, having a family member with epilepsy, having university degree, and undergoing a previous course on epilepsy were significantly associated with positive attitudes. Besides, it has concluded that high education level, being a relative of an epileptic person, and receiving a previous course on epilepsy were significantly associated with good knowledge about the cause, symptoms, treatment, and the first aid measure for saving seizing patient. Furthermore, it demonstrated that high educational level and previous course on epilepsy were significantly associated with limited myths and misconceptions. However, no significant effects of age, marital status, monthly income, or occupation were proved in this study. In an alignment with these outcomes, there was previously reported significant association between high education level and knowledge about epilepsy cause.^[22,26] On contrast, younger age was previously confirmed to be a significant association of good knowledge about epilepsy cause.^[26] Moreover, negative attitudes were previously found to be significantly associated with female

gender^[8,33] and high educational level.^[2,8] These contradictions may stem from the fact that each sociodemographic feature is a two-edged sword concerning different debated aspects of knowledge and attitude. To clarify, previous studies showed that negative attitude toward marrying an epileptic person was significantly associated with education level^[2] and male gender.^[2,22] On the other hand, both male and higher education were addressed as positive predictive factors of attitudes toward occupational opportunity.^[2] In the view of the present study and the pertinent study from Jordan,^[26] the good knowledge about the epilepsy cause was explained by the percentage of respondents who cited neurological disease. Consequently, the two studies concluded that high educational level is significantly associated with good knowledge about the etiology of epilepsy. To wrap up, each sociodemographic feature should be addressed as a predictor for only single aspect of either knowledge or attitude. Otherwise, apart from comparing between sociodemographic variables in each single statement of knowledge and attitudes, a scoring system should be established for both knowledge and attitude before the comparison.

Conclusion

Public knowledge awareness and attitudes toward epilepsy were generally acceptable with regard to this study. Higher educational degree, female gender, being a relative of epileptic person, and undergoing an educational session on epilepsy were the positive predictors of knowledge and attitudes. Negative attitudes and myths are existing among the Saudi population. The epilepsy awareness campaigns should be set into effect to come over the public conceptual barriers faced by epileptic patients in Saudi Arabia. Supernatural belief and faith healing are effective targets for any future awareness elevation plan.

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Conflicts of interest

There are no conflicts of interest.

References

1. Jacoby A, Austin JK. Social stigma for adults and children with epilepsy. *Epilepsia* 2007;48 Suppl 9:6-9.
2. Alaqeel A, Sabbagh AJ. Epilepsy; what do Saudi's living in Riyadh know? *Seizure* 2013;22:205-9.
3. Alhazzani AA, Alqahtani AM, Abouelyazid A, Alqahtani AM, Alqahtani NA, Asiri KM, *et al.* Public awareness, knowledge, and attitudes toward epilepsy in the aseer region, Saudi

- Arabia - A community-based cross-sectional study. *Epilepsy Behav* 2016;63:63-6.
4. 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 Genom* 2014;15:P61.
 5. Benamer HT, Grosset DG. A systematic review of the epidemiology of epilepsy in Arab countries. *Epilepsia* 2009;50:2301-4.
 6. Al Rajeh S, Awada A, Bademosi O, Ogunniyi A. The prevalence of epilepsy and other seizure disorders in an Arab population: A community-based study. *Seizure* 2001;10:410-4.
 7. Almutairi AM, Ansari T, Sami W, Baz S. Public knowledge and attitudes toward epilepsy in Majmaah. *J Neurosci Rural Pract* 2016;7:499-503.
 8. Bain LE, Awah PK, Takougang I, Sigal Y, Ajime TT. Public awareness, knowledge and practice relating to epilepsy amongst adult residents in rural cameroon - Case study of the fundong health district. *Pan Afr Med J* 2013;14:32.
 9. Fong CY, Hung A. Public awareness, attitude, and understanding of epilepsy in Hong Kong special administrative region, China. *Epilepsia* 2002;43:311-6.
 10. Sanya EO, Salami TA, Goodman OO, Buhari OI, Araoye MO. Perception and attitude to epilepsy among teachers in primary, secondary and tertiary educational institutions in middle belt Nigeria. *Trop Doct* 2005;35:153-6.
 11. Abduekarem AR. Societal problems that patients with epilepsy are facing in Sharjah, UAE. *Epilepsy Behav* 2016;59:142-6.
 12. Ghanean H, Jacobsson L, Nojomy M. Self-perception of stigma in persons with epilepsy in Tehran, Iran. *Epilepsy Behav* 2013;28:163-7.
 13. Bandstra NF, Camfield CS, Camfield PR. Stigma of epilepsy. *Can J Neurol Sci* 2008;35:436-40.
 14. Dantas FG, Cariri GA, Cariri GA, Ribeiro Filho AR. Knowledge and attitudes toward epilepsy among primary, secondary and tertiary level teachers. *Arq Neuropsiquiatr* 2001;59:712-6.
 15. Ak PD, Atakli D, Yuksel B, Guveli BT, Sari H. Stigmatization and social impacts of epilepsy in Turkey. *Epilepsy Behav* 2015;50:50-4.
 16. Danesi MA, Odusote KA, Roberts OO, Adu EO. Social problems of adolescent and adult epileptics in a developing country, as seen in Lagos, Nigeria. *Epilepsia* 1981;22:689-96.
 17. Adoukonou T, Tognon-Tchegnonsi F, Gnonlonfoun D, Djidonou A, Sego-Sounon D, Gandaho P, *et al.* Socio-cultural aspects of epilepsy in a rural community in Northern Benin in 2011. *Bull Soc Pathol Exot* 2015;108:133-8.
 18. Zainy LE, Atteyah DM, Aldisi WM, Abdulkarim HA, Alhelo RF, Alhelali HA, *et al.* Parents' knowledge and attitudes toward children with epilepsy. *Neurosciences (Riyadh)* 2013;18:345-8.
 19. Iivanainen M, Uutela A, Vilkkumaa I. Public awareness and attitudes toward epilepsy in Finland. *Epilepsia* 1980;21:413-23.
 20. Saengpatrachai M, Srinualta D, Lorlertratna N, Pradermduzzadeeporn E, Poonpol F. Public familiarity with, knowledge of, and predictors of negative attitudes toward epilepsy in Thailand. *Epilepsy Behav* 2010;17:497-505.
 21. Alaqeel A, Kamalmaz H, Abou Al-Shaar H, AlZahrani I, Alaqeel A, Aljetaily S, *et al.* Evaluating the initial impact of the riyadh epilepsy awareness Campaign. *Epilepsy Behav* 2015;52:251-5.
 22. Muthaffar OY, Jan MM. Public awareness and attitudes toward epilepsy in Saudi Arabia is improving. *Neurosciences (Riyadh)* 2014;19:124-6.
 23. Bener A, al-Marzooqi FH, Sztrihla L. Public awareness and attitudes towards epilepsy in the United Arab Emirates. *Seizure* 1998;7:219-22.
 24. Chung MY, Chang YC, Lai YH, Lai CW. Survey of public awareness, understanding, and attitudes toward epilepsy in Taiwan. *Epilepsia* 1995;36:488-93.
 25. Ali A, Ali TE, Kerr K, Ali SB. Epilepsy awareness in a Jamaican community: Driven to change! *Epilepsy Behav* 2011;22:773-7.
 26. Daoud A, Al-Safi S, Otoom S, Wahba L, Alkofahi A. Public knowledge and attitudes towards epilepsy in Jordan. *Seizure* 2007;16:521-6.
 27. Pupillo E, Vitelli E, Messina P, Beghi E. Knowledge and attitudes towards epilepsy in Zambia: A questionnaire survey. *Epilepsy Behav* 2014;34:42-6.
 28. Awad A, Sarkhoo F. Public knowledge and attitudes toward epilepsy in Kuwait. *Epilepsia* 2008;49:564-72.
 29. Diamantopoulos N, Kaleyias J, Tzoufi M, Kotsalis C. A survey of public awareness, understanding, and attitudes toward epilepsy in Greece. *Epilepsia* 2006;47:2154-64.
 30. Demirci S, Dönmez CM, Gündoğar D, Baydar CL. Public awareness of, attitudes toward, and understanding of epilepsy in Isparta, Turkey. *Epilepsy Behav* 2007;11:427-33.
 31. Ezeala-Adikaibe BA, Achor JU, Nwabueze AC, Agomoh AO, Chikani M, Ekenze OS, *et al.* Knowledge, attitude and practice of epilepsy among community residents in Enugu, South East Nigeria. *Seizure* 2014;23:882-8.
 32. Kaddumukasa M, Kakooza A, Kayima J, Kaddumukasa MN, Ddumba E, Mugenyi L, *et al.* Community knowledge of and attitudes toward epilepsy in rural and urban Mukono district, Uganda: A cross-sectional study. *Epilepsy Behav* 2016;54:7-11.
 33. Kartal A, Akyıldız A. Public awareness, knowledge, and practice relating to epilepsy among adults in Konya. *Epilepsy Behav* 2016;59:137-41.
 34. Deresse B, Shaweno D. General public knowledge, attitudes, and practices towards persons with epilepsy in South Ethiopia: A comparative community-based cross-sectional study. *Epilepsy Behav* 2016;58:106-10.
 35. Kiyak E, Dayapoglu N. An evaluation of knowledge and attitudes toward epilepsy in Eastern Turkey. *Epilepsy Behav* 2017;75:241-5.
 36. Baxendale S, O'Toole A. Epilepsy myths: Alive and foaming in the 21st century. *Epilepsy Behav* 2007;11:192-6.