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# Epilepsy; what do Saudi's living in Riyadh know?

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ABSTRACT

*Purpose:* Epilepsy is very common in the Kingdom of Saudi Arabia, with a prevalence of 6.54 per 1000. The present study was conducted to investigate the level of public awareness, and the attitudes and knowledge regarding epilepsy in the Saudi population in Riyadh – capital city of Saudi Arabia.
*Methods:* A survey consisting of 19 questions pertaining to epilepsy awareness was distributed to Saudi citizens living in Riyadh older than 15 years of age in malls, supermarkets, health clubs, mosques, universities and schools.
*Results:* Of the 7078 respondents who completed the questionnaire, 6756 (95.5%) had heard about epilepsy, 3024 (42.7%) had witnessed what they believed to be a seizure and 5164 (73%) would allow their children to interact with an individual who had epilepsy. However, 5382 (76%) respondents would not want their children to marry an individual with epilepsy, 1004 (14.2%) believed that epilepsy was infectious and 574 (8.1%) believed that epilepsy was a type of mental illness.

A total of 1509 (21.3%) respondents were not aware of a single potential cause of epilepsy, 3493 (50.6%) would not seek medical advice if one of their relatives had epilepsy, 2221 (31.4%) did not know how to deal with an individual experiencing an epileptic episode and 6554 (92.6%) did not know that surgery was a treatment option for individuals with epilepsy in Saudi Arabia. Of the 7078 respondents, 3237 (45.7%) would not abide by a physician's advice not to operate a motor vehicle because of their illness, of whom 1631 (50.4%) cited problems with the public transportation system as a reason for disregarding the doctor's advice. The effect of age and level of education were statistically significant on most of the study variables.
*Conclusion:* The level of epilepsy awareness in the Saudi population needs improvement.


## 1. Introduction

Epilepsy is one of the most common neurological diseases and is very prevalent worldwide, affecting more than 50 million people.[1] In the kingdom of Saudi Arabia, the prevalence of epilepsy is 6.54 per 1000.[2] The incidence of epilepsy is substantially greater in developing countries compared with developed countries.[3]

Several international studies have demonstrated a lack of awareness regarding epilepsy among the general population and even among health care professionals.[4,5] Individuals with epilepsy experience problems with employment, education and social relationships.[6,7] Misguided and false beliefs about epilepsy affect the social acceptance of individuals with epilepsy.[8]

Previous work has shown that cultural background and level of education influence one's attitude toward epilepsy.[9] For example, some believe that epilepsy is the result of contamination.[10] A study from Saudi Arabia included 398 participants showed that most of the Saudi society still believes that Jinn possession is a cause for epilepsy.[11]

Public awareness and attitudes toward epilepsy have been studied in several countries including the United States (USA),[12] China,[13] Austria,[9] Italy,[14] Istanbul,[15] Greece,[16] New Zealand,[17]Kuwait[18] and the United Arab Emirates.[19] In Saudi Arabia, no formal studies have been conducted to examine the attitudes and knowledge of its citizens with regard to epilepsy and individuals living with epilepsy.

Several reports in the literature have shown that epileptic drivers are at a greater risk for traffic accidents compared with the general population.[20,21] Currently, there is no clear legislation in Saudi Arabia restricting individuals with active epilepsy from driving.

The objective of the present study was to assess, within the Saudi Arabian general population living in Riyadh, the knowledge and level of public awareness regarding epilepsy and attitudes and

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practices toward individuals with epilepsy. In addition, the degree of adherence to medical instructions, particularly with respect to individuals with uncontrolled epilepsy not being allowed to drive, and the reasons behind noncompliance, were assessed.

## 2. Methods

### 2.1. Respondents

Ethics approval for the present study was obtained from the Institutional Review Board at King Fahad Medical City (Ministry of Health, Riyadh, Saudi Arabia). One hundred and twenty medical students were trained to administer a standardized questionnaire to Saudi citizens older than 15 years of age who were randomly selected using information provided by the Saudi national census. Identification numbers were assigned to all of the malls, large supermarkets (more than 3000 sq ft), health clubs, mosques, universities and schools in Riyadh that were identified in the census; from these identification numbers, 10 malls, large supermarkets, health clubs, mosques, universities and schools were randomly chosen in which to distribute questionnaires.

### 2.2. Survey setting and questionnaire

The present study was a cross-sectional analysis of a random sample taken from the population of Riyadh, which is the capital city of Saudi Arabia and is home to 5.8 million residents, comprising 24.1% of the country's population.[22] The present study was conducted during a two-week period in November 2011 to identify the educational needs of the Saudi population with regard to epilepsy, which are to be addressed in an upcoming epilepsy awareness campaign. One hundred and twenty medical students (53 men, 67 women) in their first, second or third year of medical school at King Saud University (Riyadh, Saudi Arabia) were trained to administer the questionnaire and to assure the uniformity of interviewing.

The standardized questionnaire involved 19 questions, translated into Arabic, which have been used in several studies in the USA,[12] China,[13] Austria,[9] Italy,[14] Istanbul,[15] Greece,[16] New Zealand[17] and the United Arab Emirates[19] pertaining to epilepsy awareness and knowledge, the attitude and practices toward individuals with epilepsy and driving for individuals with epilepsy. The accuracy of the translated questions was tested among 80 subjects, who were not included in the study, for comprehension and readability.

### 2.3. Data analysis

SPSS version 17 (IBM Corporation, USA) was used to perform the statistical analysis, and $p < 0.05$ was considered to be statistically significant. $x^2$ test to evaluate the association of interview responses with age, gender and education.

## 3. Results

Of the 8352 questionnaires distributed, 7078 (84.7%) were completed with a response rate of 85%. The demographic variables of the population surveyed are presented in Table 1. There were 3474 (49.1%) men and 3604 (50.9%) women. Of the 7078 respondents, 6756 (95.5%) had heard or read about epilepsy, 4246 (60%) knew someone with epilepsy and 3024 (42.7%) had witnessed what they believed to be a seizure. Using $x^2$ test; the oldest age groups (>45 years and >60 years) were significantly less aware of epilepsy than the youngest age group. Individuals with a lower level of education were significantly less aware of epilepsy than individuals who were more educated ($p < 0.01$).

**Table 1**
Socio-demographics of study sample ($n = 7078$).

| Demographic variable | Distribution | Percentage (%) |
|---|---|---|
| Age (year) | 15–30 | 74.2 |
| | 30–45 | 18.9 |
| | 45–60 | 4.6 |
| | >60 | 2.3 |
| Sex | Male | 49.1 |
| | Female | 50.9 |
| Marital status | Married | 29.6 |
| | Single | 62.8 |
| | Divorce | 7.6 |
| Educational level | Never went to school | 0.1 |
| | Primary School | 2.8 |
| | Secondary School | 5.1 |
| | Tertiary School | 25.4 |
| | University | 60.5 |
| | Post graduate studies | 5.1 |
| Occupation | Professional | 16.7 |
| | Supportive | 5.2 |
| | Self employed | 7.6 |
| | House wife | 10.3 |
| | Retire | 2.2 |
| | Student | 55 |
| | Unemployed | 3 |
| Family income | 5000SR and below (1333USD and below) (1030€ and below) | 20.9 |
| | 5001–10000SR (1334–2666USD), (1031–2061€) | 29.4 |
| | 10001–15000SR (2667–4000USD), (2062–3092€) | 13.6 |
| | 15001–20000SR (4001–5333USD), (3093–4122€) | 26 |
| | >20001SR (>5334USD), (>4123€) | 10.5 |

Moreover, 5164 (73%) respondents would approve of their children interacting with individuals with epilepsy; however, 5382 (76%) would object to their children marrying an individual with epilepsy, with men and those with a higher education level being more likely to object ($p < 0.01$) (Table 2).

When asked if individuals with epilepsy should have the same employment opportunities as the general population, 4091 (57.8%) respondents reported that individuals with epilepsy should not, compared with 2987 (42.2%) participants who believed that individuals with epilepsy should have the same employment opportunities as the general population. Using $x^2$ test; those in favor were more likely to be male and to be more educated ($p < 0.01$) (Table 2).

Of the 7078 respondents, 1004 (14.2%) believed that epilepsy was infectious, 574 (8.1%) believed that epilepsy was a type of insanity or mental illness and 5408 (76.4%) believed that a child with epilepsy could be successful in school. When respondents were asked how they would react if they discovered that someone they know had epilepsy, 3166 (44.7%) reported that they would treat them as before, while 2901 (41%) reported that they would feel awkward. Regarding social relationships with an individual with epilepsy, 5255 (74.2%) respondents reported that they would have no problem with it and 3822 (54%) would become a close friend of an individual with epilepsy (Table 3).

With regard to the respondents knowledge of epilepsy, approximately one-half (3869 [54.7%]) believed that epilepsy was a brain disease, with hereditary (36.1%), mental or emotional stress disorders (24%), birth defects (6.2%), blood disorders (10.1%) and other (1.4%) being the next most common answers, while 21.3% of respondents were uncertain about what caused epilepsy. When respondents were asked what the manifestation of an epileptic episode included, most reported convulsions (72.4%),