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Original Article

Evaluation of Knowledge about Epilepsy among Undergraduate Health Students: A Cross-Sectional Study

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Abstract

Background Greater knowledge of undergraduate health students will provide quality care to patients with epilepsy. Most previous studies have targeted teachers, health care providers, and the general public. The purpose of this study was to assess the knowledge gaps of undergraduate health students on basic subjects of epilepsy, such as etiologies, symptoms, and treatment options.

Methods Our study conducted a cross-sectional survey among undergraduate health students. We collected data using a descriptive information form. The chi-square test was employed to compare knowledge of seizure between demographic and academic variables.

Results Of the total, 84.4% of students had read or heard about epilepsy. However, only 2.8% of students displayed good knowledge scores toward epilepsy. About 18.2 and 32% of students incorrectly identified that epilepsy could be due to possession by evil spirits and blood disorder, respectively. More than half of the students considered epilepsy to be nontreatable (52.1%) and a contagious disease (55.4%). Moreover, students in the advanced age group, medicine, and clinical years displayed significantly better knowledge scores than their peers ($p < 0.05$). All dental college students revealed poor scores in terms of knowledge about epilepsy's causes, symptoms, and treatment.

Conclusion Our findings concluded that most undergraduate health students demonstrated poor knowledge scores regarding epilepsy. Notably, students studying in dental college and preclinical years had a lower understanding of epilepsy than their peers. This finding suggests that introducing comprehensive epilepsy education in all health-related courses could improve patient care.

Keywords
- epilepsy
- knowledge
- Riyadh province

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Introduction

Epilepsy is a chronic neurological disease distressing more than 70 million people globally.[1,2] It has been reported that approximately 80% of epileptic cases are found in the populations of developing countries.[3] The prevalence of epilepsy in Saudi Arabia is projected at 6.54 per thousand inhabitants.[4,5] One study has discovered that the occurrence of seizures is higher in Saudi Arabia than in other Arab nations.[6]

Epilepsy affects people of all ages and genders and inflicts high physical, mental, financial, and social burdens on these individuals. In particular, social stigma is a significant burden that exposes patients to unnecessary social discrimination and hinders appropriate treatment.[4] In traditional Arab societies, for instance, women may choose to hide their seizure condition to preserve their marriage prospects, which could potentially contribute to the higher prevalence of seizures among females.[4] Furthermore, the belief that evil spirits cause seizures is another factor that shapes the perception of seizures. As a result, individuals affected by epilepsy may turn to religious healers or assistance rather than seeking medical care.[7]

Several studies have shown a lack of awareness regarding epilepsy among the general population and health care professionals.[8–10] There is a considerable demand for inclusive education and proper actions in response to seizures. Academic training of health care professionals, including health sciences students, is paramount and is part of the mission of the International League Against Epilepsy to understand, diagnose, and treat individuals with epilepsy in numerous settings.[11] Undergraduate health students may play a dynamic role in providing quality care to patients with epilepsy and are essential to any successful social health care program.[12] Higher knowledge of undergraduate health students will help prevent the adverse consequences of seizures in the community. However, only a few studies with a similar aim have been conducted among undergraduate health students. Therefore, the purpose of this study was to assess the knowledge gaps of undergraduate health students on basic subjects of epilepsy, such as causes, symptoms, and treatment options that could be useful in preparing training material for health sciences students.

Methods

Study Design and Participants

The cross-sectional study was conducted from May 16, 2023, to May 31, 2023, in Riyadh province, Saudi Arabia. The study participants included undergraduate health students, mainly from Shaqra University. The inclusion criteria were: (1) students of the undergraduate health colleges and (2) age $\geq$ 18 years. The exclusion criteria were as follows: (1) nonundergraduate students, (2) undergraduate students from courses other than health courses, (3) students in the preparatory year, and (4) age $<$ 18 years.

Sample Size

The study assumes a prevalence of 50% of undergraduate health students having inadequate knowledge about epilepsy.[13] We can calculate the sample size as follows:

$$n = \frac{z^2 pq}{d^2}$$

where n is the sample size, Z is the level of confidence (95% confidence interval = 1.96), p is the prevalence (0.5), $q = 1–p$ (0.5), d is the margin of error (0.05), and the minimum sample size (n) is calculated as 384.

Data Collection Tools

The questionnaire tool used in this research is based on formerly similar studies.[14–20] The questionnaire was translated into Arabic. The Google Forms link was used to accumulate data about epilepsy from undergraduate health students through WhatsApp, Telegram, and email. The cover letter of the questionnaire tool emphasized the study's objectives and inclusion criteria. The questionnaire was structured into two sections. Section one encompassed demographic data of undergraduate health care students and included four questions such as gender, age, college of the study, and study academic year. Section two explored the knowledge of epilepsy etiology, symptoms, and treatment. This section was comprised of eight knowledge questions, and the total scores were 16. One point was awarded for the correct option and zero for the incorrect one, except for Q3 and Q4. Five points are awarded to Q3 and five to Q4 because there are five correct answers. An individual score $\leq$ 80% (1–12 score) and 81 to 100% (13–16 score) were considered poor and good knowledge, respectively.

Data Analysis

Data were analyzed using IBM SPSS (Statistical Package for the Social Sciences) software version 25.0.0.0 (SPSS Inc., Chicago, Illinois, United States). Descriptive statistics were used to describe the sociodemographic characteristics, presented as numbers and percentages for categorical variables. We used the chi-square test to compare demographic variables with knowledge of epilepsy. The p-values $<$ 0.05 were considered statistically significant.

Ethical Approval

The study protocol obtained ethical consent from the Institutional Ethics Committee at Shaqra University (HAPO-01-R-128) with approval number ERC_SU_20230023.

Results

Characteristics of the Respondents (►Table 1)

A total of 612 questionnaires were circulated, of which 528 (86.3% response rate) participants completed the online survey. However, 493 participants who fulfilled the inclusion criteria were included. Most participants were male (58%), studied applied medical sciences, and were in their second year.

Table 1 Characteristics of the study population ($n = 493$)

Variables		% (*n*)
Gender	Male	58 (286)
	Female	42 (207)
Age (y)	18 -20	27.2 (134)
	21–23	55.6 (274)
	24–26	17.2 (85)
College of the study	Medicine	13 (64)
	Dental	21.9 (108)
	Pharmacy	26.6 (131)
	Applied medical sciences	38.5 (190)
Year of the study	The first year	21.9 (108)
	The second year	38.9 (192)
	The third year	22.7 (112)
	The fourth year	8.7 (43)
	The fifth year	4.9 (26)
	Intern	2.4 (12)

Note: *n*, frequency; %, percentage.

Knowledge Scores of Study Participants (►Fig. 1)

Only 2.8% of students had good knowledge of epilepsy etiology, symptoms, and treatment, and 97.2% had poor knowledge.

Comparison of Knowledge Scores according to Demographic Variables (►Table 2)

Regarding good knowledge of epilepsy, advanced age group, medicine, and clinical year students displayed significantly better knowledge scores than their peers ($p < 0.05$). However, all the students of dental college revealed poor knowledge scores about epilepsy causes, symptoms, and treatment.

Students' Knowledge Level about Epilepsy by Different Colleges (►Table 3)

In the present study, 84.4% of the students reported that they had heard or read about seizures. However, 15.6% of the participants had never heard of epilepsy. Furthermore, a more significant proportion of medical students had heard about epilepsy than their peers. However, no statistically significant difference was observed between colleges ($p > 0.05$).

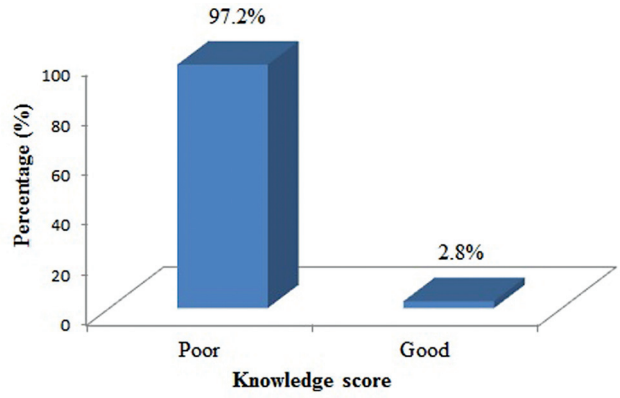

Fig. 1 Knowledge scores of study participants. Knowledge score ≤ 80% = poor knowledge, 81–100% score = good knowledge.

Of the total study participants, 35.7% of students correctly identified epilepsy as a neurological disorder and medicine students demonstrated a higher knowledge level than their peers. In contrast, 39.9, 13.8, and 9.9% of the students incorrectly identified epilepsy as a metabolic disorder, psychological disorder, and infectious disease, respectively. Moreover, a statistically significant difference in knowledge level was observed between participants from different colleges ($p < 0.004$).

Most of the students believed that epilepsy originated due to neurological problems (42%), genetic factors (39.7%), use of certain medications (38.9%), and brain infection (36.1%). On the other hand, 32 and 18.2% of students incorrectly identified blood disorders and possession by evil spirits are also causes of epilepsy, respectively. Furthermore, applied medical science students exhibited the lowest knowledge level with mental or emotional stress (10.5%) and hereditary (33.2%) than their peers. A statistically significant difference

Table 2 Comparison of knowledge scores according to sociodemographic variables

Variables		Poor knowledge % (*n*)	Good knowledge % (*n*)	Chi-square	*p*-Value
Age (y)	18 -20	99.3 (133)	0.7 (1)	7.693	0.021
	21–23	97.4 (267)	2.6 (7)		
	24–26	92.9 (79)	7.1 (6)		
College of the study	Medicine	81.2 (52)	18.8 (12)	67.902	0.000
	Dental	100 (108)	0		
	Pharmacy	100 (131)	0		
	Applied medical sciences	98.9 (188)	1.1 (2)		
Stages of the study	Preclinical year students (1st, 2nd, and 3rd year)	98.5 (406)	1.5 (6)	17.395	0.000
	Clinical year students (4th, 5th, and intern)	90.1 (73)	9.9 (8)		

Note: *n*, frequency; %, percentage; *p*-values were generated using the Persian chi-square test for comparing two groups. Significant at *p*-value ≤ 0.05. An individual score ≤ 80% (1–12 score) and 81–100% (13–16 score) were considered poor and good knowledge, respectively.

Table 3 Students knowledge level of epilepsy by different colleges

Variables		Total % (*n*) 100 (493)	Medicine % (*n*) 13 (64)	Dental % (*n*) 21.9 (108)	Pharmacy % (*n*) 26.6 (131)	Applied medical sciences % (*n*) 38.5 (190)	*p*-Value
Q1. Have you heard or read about epilepsy?	Yes	84.4 (416)	92.2 (59)	85.2 (92)	84.7 (111)	81.1 (154)	0.202
	No	15.6 (77)	7.8 (5)	14.8 (16)	15.3 (20)	18.9 (36)	
Q2. What is epilepsy?	Neurological disease[a]	35.7 (176)	60.9 (39)	27.8 (30)	32.8 (43)	33.7 (64)	0.004
	Metabolic disease	39.9 (197)	26.5 (17)	46.3 (50)	39.7 (52)	41.0 (78)	
	Psychological disease	13.8 (68)	7.8 (5)	14.8 (16)	12.2 (16)	16.3 (31)	
	Infectious disease	9.9 (49)	4.7 (3)	10.2 (11)	15.3 (20)	7.9 (15)	
	I do not know	0.6 (3)	0	0.9 (1)	0	1.1 (2)	
Q3. What are the etiologies of epilepsy?	Mental or emotional stress[a]	14.6 (72)	28.1 (18)	13.9 (15)	14.5 (19)	10.5 (20)	0.008
	Genetic factors[a]	39.7 (196)	43.7 (28)	48.1 (52)	40.5 (53)	33.2 (63)	0.069
	Neurological problems[a]	42.0 (207)	62.5 (40)	34.3 (37)	41.9 (55)	39.5 (75)	0.003
	Brain infection[a]	36.1 (178)	32.8 (21)	43.5 (47)	33.6 (44)	34.7 (66)	0.336
	Use of certain medications[a]	38.9 (192)	43.7 (28)	44.4 (48)	35.1 (46)	36.8 (70)	0.368
	Blood disorder	32.0 (158)	20.3 (13)	36.1 (39)	30.5 (40)	34.7 (66)	0.131
	Possession by evil spirits	18.2 (90)	14.1 (9)	20.4 (22)	17.5 (23)	18.9 (36)	0.757
Q4. What are the symptoms of epilepsy?	Loss of consciousness[a]	20.5 (101)	45.3 (29)	10.2 (11)	19.1 (25)	18.9 (36)	0.000
	Secretion from the mouth[a]	43.2 (213)	54.7 (35)	37.9 (41)	38.2 (50)	45.8 (87)	0.089
	Tongue biting[a]	42.8 (211)	51.5 (33)	33.3 (36)	48.1 (63)	41.6 (79)	0.056
	Convulsion of the body[a]	44.8 (221)	53.1 (34)	39.8 (43)	42.7 (56)	46.3 (88)	0.351
	Urine incontinence[a]	17.8 (88)	40.6 (26)	14.8 (16)	9.9 (13)	17.4 (33)	0.000
Q5. What are the usual treatments for epilepsy?	Medical treatment[a]	25.3 (125)	57.8 (37)	9.2 (10)	23.7 (31)	24.7 (47)	0.000
	Herbal medicine	38.9 (192)	26.5 (17)	50.9 (55)	42.0 (55)	34.2 (65)	
	Cauterization	23.9 (118)	9.4 (6)	26.8 (29)	24.4 (32)	26.8 (51)	
	Surgical intervention[a]	6.9 (34)	1.5 (1)	7.4 (8)	6.9 (9)	8.4 (16)	
	No need for treatment	2.6 (13)	0	5.5 (6)	2.3 (3)	2.1 (4)	
	I do not know	2.2 (11)	4.7 (3)	0	0.7 (1)	3.7 (7)	
Q6. Can epilepsy be treated? Yes[a]		47.9 (236)	57.8 (37)	48.1 (52)	43. 5 (57)	47.4 (90)	0.314
Q7. Is epilepsy a long duration treatment course? Yes[a]		49.5 (244)	68.7 (44)	46.3 (50)	43. 5 (57)	48.9 (93)	0.008
Q8. Do you think epilepsy is contagious? No[a]		55.4 (273)	67.2 (43)	50.0 (54)	51.9 (68)	56.8 (108)	0.128

Note: *n*, frequency; %, percentage; *p*-values were generated using the Persian chi-square test for comparing two groups. Significant at *p*-value $\leq$ 0.05.
[a]Denotes correct option.

in knowledge level was observed between the participants of different colleges ($p < 0.05$), only with neurological problems and emotional stress.

Note that 44.8% of students claimed that convulsion of the body was the most common symptom of epilepsy, followed by secretion from the mouth (43.2%) and tongue biting (42.8%).

Note that 25.3% of the students believed that medical treatment was a mainstay approach for epilepsy, followed by surgical intervention (6.9%). However, 38.9% of the students incorrectly identified that epilepsy can be treated by herbal medicine, followed by cauterization (23.9%). Furthermore, dental students exhibited the lowest knowledge of medical treatment (9.2%) compared with their peers. However, medical students demonstrated the lowest knowledge level with surgical intervention (1.5%). A statistically significant difference was observed between participants from different colleges ($p < 0.001$).

Nearly half of the students acknowledged that epilepsy can be treated (47.9%) and believed in a long-duration treatment course (49.5%). More than half of the students (55.4%) correctly affirmed that epilepsy is not contagious. Additionally, medicine students displayed higher knowledge levels than their peers.

Students' Knowledge Level of Epilepsy by Different Study Stages (►Table 4)

Over two-thirds of clinical year students correctly identified neurological problems as the leading cause of epilepsy. However, 58% of the basic year students correctly identified genetic factors as a primary cause of epilepsy. In contrast, a higher number of basic year students incorrectly believed that blood disorders (37.1% vs. 18.5%) and possession by evil spirits (19.4% vs. 12.3%) are a cause of epilepsy than clinical year students. However, a statistically significant difference in knowledge level was observed between participants of different study stages ($p < 0.05$) only with the blood disorders, neurological problems, and emotional stress.

Basic year students displayed significantly lower knowledge levels than clinical year students toward epilepsy symptoms such as loss of consciousness (14.6% vs. 50.6%; $p < 0.001$), convulsion of the body (40.8% vs. 69.1%, $p < 0.001$), and urine incontinence (14.3% vs. 34.8%, $p < 0.001$). However, more clinical students correctly identified tongue biting as a symptom of epilepsy than basic year students (64.2% vs. 39.3%, $p < 0.001$).

Clinical year students correctly identified medical treatment as a mainstay approach for epilepsy and exhibited significantly higher knowledge levels than basic year students (61.7% vs. 18.2%, $p < 0.001$). Additionally, clinical year students demonstrated better knowledge than basic year students about epilepsy, which is treatable (66.7% vs. 44.2%, $p < 0.001$), long-duration treatment course (65.4% vs. 46.4%, $p < 0.01$), and not contagious (66.7% vs. 53.1%, $p < 0.05$), and a statistically significant difference in knowledge level was observed between participants of different study stages ($p < 0.05$).

Discussion

The incidence of seizures in Saudi Arabia has been reported as substantial, highlighting the urgent need for comprehensive education on seizures.[6] High awareness and knowledge about seizures are of the utmost importance in preventing many harmful measures that could affect the community.[21] However, there is a lack of knowledge about how to deal with someone having a seizure. Therefore, this study aimed to explore undergraduate health students' awareness and knowledge of epilepsy, including causes, symptoms, and treatment options.

In our study, 84.4% of students had heard or read about epilepsy. This figure is comparable to the findings of the previous study of Saudi Arabia[22] (80%) and Sudan[23] (85.4%). However, we found that our figure was lower than Germany[19] (96.7%), China[24] (94.7%), and India[25] (92.5%). On the other hand, the percentage of clinical students who reported awareness of epilepsy was significantly higher than that of preclinical students (93.8% vs. 82.5%, $p < 0.01$), which is consistent with previous studies in Saudi Arabia.[26,27]

Regarding the overall knowledge of seizure etiology, symptoms, and treatment, only 3.2% of the students demonstrated good knowledge scores, much lower than studies conducted in China[24,28] and India.[29] This difference is primarily attributed to study setting variations, population, and educational curriculum.

Regarding the students' knowledge scores, our study displayed a significant difference in age group, consistent with a study conducted in Turkey[16] and Croatian.[30] Similarly, our study observed a significant difference in knowledge scores between the students of different colleges and study stages. Moreover, we found a high percentage of good knowledge in medicine and clinical year students, which matched the Palestine study.[31,32] The possible reason for the better knowledge of medicine students is that they are trained with new teaching models, such as problem-based learning methods, and spend more time with patients in clinical settings than other student groups.[20,33]

In the current study, around 35.7% of the students believed that epilepsy is a neurological disease. This percentage is much lower than that of previous studies of Saudi Arabia 86.5[34] and 82.7%.[35] The difference might be due to the study on a different population. Moreover, our findings have revealed that the most common causes of epilepsy were neurological problems (42%), hereditary (39.7%), and use of certain medications (38.9%). However, medical students from Sudan and previous studies in Saudi Arabia reported that brain diseases, genetic factors, and mental or emotional stress disorders were the most common causes of epilepsy.[8,22,25] Contrarily, epilepsy has been supposed to be a disease that results from evil spirits.[9] In the present study, 18.2% of students believed that the evil spirit could cause epilepsy. This percentage is similar to a previous study of Riyadh[36] (15%) and Sudan[23] (15.7%). However, a higher percentage was reported in Jordan[33] (31.5%), Libya[37] (37.5%), and Kuwait[38] (24.6%). These findings suggest an

Table 4 Students' knowledge level of epilepsy by different study stages

Variables		Total % (*n*) 100 (493)	Preclinical year students (1st, 2nd, and 3rd year) % (*n*) 83.6 (412)	Clinical year students (4th, 5th, and interns) % (*n*) 16.4 (81)	*p*-Value
Q1. Have you heard or read about epilepsy?	Yes	84.4 (416)	82.5 (340)	93.8 (76)	0.010
	No	15.6 (77)	17.5 (72)	6.2 (5)	
Q2. What is epilepsy?	Neurological disease[a]	35.7 (176)	29.4 (121)	67.9 (55)	0.000
	Metabolic disease	39.9 (197)	44.4 (183)	17.3 (14)	
	Psychological disease	13.8 (68)	14.1 (58)	12.3 (10)	
	Infectious disease	9.9 (49)	11.4 (47)	2.5 (2)	
	I do not know	0.6 (3)	0.6 (3)	0	
Q3. What are the etiologies of epilepsy?	Mental or emotional stress[a]	14.6 (72)	12.4 (51)	25.9 (21)	0.002
	Neurological problems[a]	40.5 (200)	34.9 (144)	69.1 (56)	0.000
	Genetic factors[a]	56.2 (277)	58.0 (239)	46.9 (38)	0.066
	Use of certain medication[a]	39.7 (196)	38.8 (160)	44.4 (36)	0.346
	Brain infection[a]	29.0 (143)	30.3 (125)	22.2 (18)	0.141
	Blood disorder	34.1 (168)	37.1 (153)	18.5 (15)	0.001
	Possession by evil spirits	18.3 (90)	19.4 (80)	12.3 (10)	0.132
Q4. What are the symptoms of epilepsy?	Loss of consciousness[a]	20.5 (101)	14.6 (60)	50.6 (41)	0.000
	Secretion from the mouth[a]	43.2 (213)	42.0 (173)	49.4 (40)	0.220
	Tongue biting[a]	43.4 (214)	39.3 (162)	64.2 (52)	0.000
	Convulsion of the body[a]	45.4 (224)	40.8 (168)	69.1 (56)	0.000
	Urine incontinence[a]	17.8 (88)	14.3 (59)	35.8 (29)	0.000
Q5. What are the usual treatments for epilepsy?	Medical treatment[a]	25.3 (125)	18.2 (75)	61.7 (50)	0.000
	Herbal medicine	38.9 (192)	43.4 (179)	16.0 (13)	
	Cauterization	23.9 (118)	26.9 (111)	8.6 (7)	
	Surgical intervention[a]	6.9 (34)	6.8 (28)	7.4 (6)	
	No need for treatment	2.6 (13)	2.7 (11)	2.5 (2)	
	I do not know	2.2 (11)	1.9 (8)	3.7 (3)	
Q6. Can epilepsy be treated? Yes[a]		47.9 (236)	44.2 (182)	66.7 (54)	0.000
Q7. Is epilepsy a long duration treatment course? Yes[a]		49.5 (244)	46.4 (191)	65.4 (53)	0.002
Q8. Do you think epilepsy is contagious? No[a]		55.4 (273)	53.1 (219)	66.7 (54)	0.025

Note: *n*, frequency; %, percentage; *p*-values were generated using the Persian chi-square test for comparing two groups. Significant at *p*-value ≤ 0.05.
[a]Denotes correct option.

improvement in the knowledge and awareness among undergraduate health students.

In our study, 44.8% of the participants indicated that convulsions are the foremost manifestations of epilepsy. The present finding result is much lower than the previous study of Taif[21] (97%), Riyadh[25] (92.3%), and China[27] (97%). However, the clinical year students who knew the symptoms and causes of epilepsy displayed significantly higher knowledge than preclinical year students, which is consistent with previous studies in Saudi Arabia.[26]

The seizures of most people can be adequately controlled with appropriate medication regimens. However, 20 to 30% of people with epilepsy are refractory to all forms of medical therapy and may require surgical interventions.[39] Note that 25.3% of students believed that medical treatment is the mainstay approach for epilepsy. This finding is similar to Libya[37] (31.8%) but lower than the Taif[21] (77.7%). On the other hand, only 6.9% of students think that surgical intervention could be a treatment choice for epilepsy. This percentage is much lower than the previous study of Saudi Arabia[8] (44%), Turkey[40] (25.2%), and Slovenia[41] (74.5%). Moreover, nearly half of the students (47.9%) acknowledged that epilepsy can be treated. This finding is higher than the previous study of Riyadh[25] (36.6%) and Sothern China[42] (37.7%) but lower than Sudan[43] (90.4%). Of note, a significantly higher number of clinical students believed that epilepsy is a treatable disorder compared with preclinical students, which is consistent with the Palestine study[44] and a previous study of Saudi Arabia.[26]

Additionally, 49.5% of students believed that epilepsy treatment is typically a long-duration process, consistent with the Sudan study conducted on first-year medical students.[22] Moreover, 55.4% of the students correctly affirmed that epilepsy is not contagious. This percentage is much lower than the previous study of Makkah[35] (94.9%) and Sudan[22] (98.3%). However, our study result is better than that of the Aseer region of Saudi Arabia; 95.8% of the participants acknowledged that epilepsy is a contagious illness.[45] The difference might be due to the study conducted on different populations.

The present study has certain limitations. First, our study used convenience sampling, which may only be representative of some populations of undergraduate health college students. Second, this study utilizes a cross-sectional design, which could disclose the associations between variables but does not institute causal relationships. Third, this study did not include questions such as paroxysmal events with and without impaired awareness, brief events, and stereotypes.

Conclusion

The results of our study revealed that most undergraduate health students in Riyadh province had inadequate knowledge about epilepsy, evidenced by the deficient percentage of good knowledge of epilepsy. Furthermore, it was observed that the advanced age group, students studying in medical college, and clinical years, had a better understanding of epilepsy than younger age, other undergraduate health students, and preclinical students. The study recommends introducing epilepsy education from the primary training stage in all health-related courses, which is crucial to enhancing students' knowledge of epilepsy. It emphasizes the importance of increasing epilepsy awareness among the general public, orienting medical students to emergency neurological conditions at the early stages of their education, and educating epilepsy in applied medical sciences and pharmacy. Further comparison study on the knowledge of seizure between undergraduates and postgraduate health students is recommended.

Availability of Data and Materials

All the data supporting this study's findings are available in the manuscript.

Consent for Publication

Not applicable.

Authors' Contributions

A.M.A.: Supervision, conceptualization, designed the study and questionnaire, collected the data, and critically reviewed the manuscript; N.A.: Designed the study and critically reviewed and edited the manuscript. M.A.R.: Collected the data, analyzed the data, interpreted the results, and prepared the original draft of the manuscript.

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None.

Conflict of Interest

None declared.

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