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General Knowledge, Awareness and Attitude on Epilepsy among Students of Riyadh Elm University: A Cross-Sectional Study

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Abstract

Introduction: Across the globe, epilepsy impacts over 70 million individuals, contributing to 13 million disability-adjusted life years annually, as reported by the Global Burden of Epilepsy Report. The condition is associated with a yearly mortality rate of 125,000, with a significant 80% of these deaths occurring in low- and middle-income countries. Nurses are vital to the comprehensive care of epilepsy, offering more than just direct patient support. Their role encompasses psychosocial guidance, patient education, treatment administration, and risk management.

Methods: This cross-sectional study evaluated the general knowledge, attitudes, and awareness of epilepsy among 212 nursing students. The study aimed to identify demographic characteristics, determine knowledge and awareness levels, and assess attitudes towards epilepsy. A self-administered structured questionnaire was used for data collection, with ethical approval obtained from the Institutional Review Board (IRB).

Results: The majority of students demonstrated poor knowledge of epilepsy. Students' attitudes were predominantly neutral, characterized by a high prevalence of "I don't know" responses across social, legal, and lifestyle aspects of individuals with epilepsy. Misconceptions, such as believing people with epilepsy cannot get married, were also prevalent. However, a statistically significant difference in epilepsy knowledge was found across different nursing levels ($p=0.017$), indicating that students at higher nursing levels generally possess more knowledge than those at lower levels. Despite these findings, there was no statistically significant association between students' overall knowledge about epilepsy and their general attitude toward it ($p=0.394$).

Conclusion: Students exhibited poor knowledge and largely neutral attitudes regarding epilepsy. While academic progression through nursing levels positively influenced knowledge, knowledge alone did not correlate with more positive attitudes. These findings highlight the critical need for targeted educational interventions, including mandatory modules, public awareness campaigns, and experiential learning, to improve both knowledge and foster empathetic attitudes among future healthcare professionals.

Keywords: Awareness, Attitude, Epilepsy, General Knowledge, Nursing Students, Riyadh

1. Introduction

Epilepsy is a common chronic neurological disorder associated with recurrent seizures that caused by the excessive or hyper-synchronous activity of cortical neurons [1]. The symptoms will vary between patient according to the affected part in brain [2]. The incident rate of Epilepsy reported to be more than 70million people globally [3]. Based on the Global Burden of Epilepsy Report, epilepsy leads to 13 million disability-adjusted life years each year [4]. Yearly, the mortality rate reported to be 125,000 individuals, the major percentage near to 80% of these deaths reported in low- and middle-income nations. The death cause of epilepsy has to dimension (direct and indirect). The direct like status epilepticus, injuries, and sudden unexpected death in epilepsy and indirect like aspiration pneumonia, suicide, and drowning [4].

Epilepsy is effectively treated with anti-seizure medication 70% of patients [5]. Meanwhile, 30–40% of patients continue suffering from seizures despite medical treatment (Foster *et al*, 2019). The International League Against Epilepsy defined drug-resist- ant epilepsy as the persistence of seizures despite at least two syndrome-adapted anti-seizure drugs used at

efficacious daily dose"Patients with drug-resistant epilepsy usually suffering from a decline in neurocognitive and psychological function, and majority of them will never become seizure-free with medical management alone and require further management [6]. The alternative line of treatment for drug-resistant focal epilepsy is surgical intervention. In the United States, the analysis of attitudes toward epilepsy surgery reports showed that it takes up an average of 18 years of referral decisions reflecting a huge underutilization of surgical procedures in epilepsy [7].

Nurses have an imperative role in psychosocial support, education, treatment, and risk management in addition to delivering solutions to the challenges faced by patient through facilitating better organization of care and acting as a communication 'conduit' with other health and social care providers within and across systems [8]. Nurses are regarded as integral members of epilepsy management teams being ideally positioned to 'act as an expert resource and point of first contact' for epilepsy patient, families and health and social care providers [9].

Nurses also demonstrate leadership skills in advancing their role, driving practice and system change [10]. Therefore, students' knowledge and attitude toward this alternative management option are important to educating patients with drug-resist- ant focal epilepsy [11]. In Saudi Arabia, there is no evidence addressing the general knowledge of nursing students on epilepsy. Therefore, the present study aimed to evaluate the knowledge and awareness of epilepsy among nursing students in Riyadh-Elm University (REU).

Research Objectives

This study aims to evaluate the knowledge, attitude and awareness of epilepsy among students. Specifically, it sought to answer the following objectives:

1. Identify the demographic characteristics of the students as to:
   a. Age
   b. Gender
   c. Marital status
   d. Education level
2. Determine the knowledge and awareness of the students regarding epilepsy.
3. Assess the level of attitude of the students toward epilepsy

Hypotheses

H_1: There is no significant association between students' knowledge about epilepsy and their attitude toward epilepsy.

H_2: There is a no significant difference on the level of knowledge across age, gender and education level.

2. Methods

Study design

This study utilized a cross-sectional research design to assess the general knowledge, attitude, and awareness of epilepsy among students at Riyadh Elm University (REU). A self-administered structured questionnaire was used as the primary data collection tool to obtain relevant information from participants. This design was chosen as it allows for the collection of data at a single point in time, enabling the identification of patterns and associations between variables such as demographic characteristics and levels of knowledge or attitudes toward epilepsy.

Study sample

Participants were selected based on specific inclusion and exclusion criteria. To be eligible for participation, students were required to be currently enrolled in an undergraduate program at REU, and willing to voluntarily participate in the study. Students were also required to be capable of understanding and completing the questionnaire in either English or Arabic. Those who were postgraduate students, faculty or administrative staff, or who had previously participated in similar epilepsy awareness programs were excluded from the study. Additionally, responses that were incomplete or inconsistent were excluded from the final analysis.

The sample size was calculated using Cochran's formula for estimating sample size in cross-sectional studies. Assuming a 95% confidence level (Z = 1.96), an anticipated population proportion (p) of 0.5, and a margin of error (e) of 5%, the minimum required sample size was determined to be 212 participants. This represents the total sample of the study.

A purposive sampling technique was employed to ensure accurate representation of students. This approach is based on eligibility criteria intended to select study participants which are reflection of the broader student population at REU. This carefully structured sampling method was chosen to ensure that the study would capture a comprehensive and representative understanding of students' knowledge, attitudes, and awareness regarding epilepsy across different educational and demographic backgrounds.

Data Collection Tools

Two tools were utilized in this study. Each participant was given approximately 10 to 15 minutes to complete the survey. The first tool, referred to as Tool I, included questions related to demographic characteristics, such as age, gender, marital status, education level, and GPA. The second tool, Tool II, consisted of three major domains: awareness, knowledge, and attitude toward epilepsy. Each item in this instrument was scored on a scale from 0 to 2, where "yes" = 2, "no" = 1, and "no idea" = 0. The awareness domain contained 2 items, with a total possible score ranging from 0 to 4. The awareness score was interpreted as follows: 0–0.6 = low, 0.7–1.3 = moderate, and 1.4–2.0 = high. The knowledge domain consisted of 11 items, with a total score ranging from 0 to 22. The knowledge level was interpreted similarly: 0–0.6 = low, 0.7–1.3 = moderate, and 1.4–2.0 = high. The attitude domain included 5 items, with total scores ranging from 0 to 10. Attitude scores were interpreted as follows: 0–0.6 = negative, 0.7–1.3 = indifferent, and 1.4–2.0 = positive. Finally, the total AKA (Awareness, Knowledge, and Attitude) score was generated by summing the scores of the three domains, resulting in a possible total score ranging from 0 to 36. The interpretation of the overall AKA score was as follows: 0–0.6 = poor, 0.7–1.3 = moderate, and 1.4–2.0 = good.

Data Gathering Process

Prior to conducting the study, ethical approval was obtained from the Institutional Review Board (IRB) at Riyadh Elm University. All ethical considerations were strictly adhered to throughout the research process. The data collection instruments were developed by the researchers based on an extensive review of recent and relevant literature related to

epilepsy knowledge, awareness, and attitudes. The questionnaires were translated into simple, accessible Arabic to ensure clarity and ease of understanding for all participants.

To ensure the validity and reliability of the instruments, the tools were reviewed by a panel of experts in the fields of medicine and nursing. Feedback and recommendations from the expert jury were used to revise and refine the tools accordingly, with necessary modifications implemented before data collection.

A pilot study was conducted using 10 students to test the applicability of the developed instruments. Respondents in the pilot study were excluded from the actual study sample. Based on the pilot results, additional adjustments were made to improve clarity, structure, and response accuracy.

Following these steps, data collection commenced. Students from all academic levels who expressed willingness to participate were included in the study. Participation was entirely voluntary, and informed consent was obtained from each respondent prior to inclusion.

Data collection was carried out by the researcher using the finalized instruments. Tool I was used to collect demographic profile, while Tool II assessed the participants' levels of awareness, knowledge, and attitudes regarding epilepsy.

Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee at Riyadh Elm University. Written informed consent was obtained from each participant after providing comprehensive information about the nature, purpose, and benefits of the study. The investigator emphasized that participation was entirely voluntary. Participants were informed of their right to refuse participation or to withdraw from the study at any time without any consequences or impact on their academic standing. Throughout the study, anonymity, privacy, safety, and confidentiality were strictly maintained and ensured.

Statistical Analysis

The collected data were coded, analyzed, and tabulated using the Statistical Package for the Social Sciences (SPSS), version 22.0 (IBM Corp., Armonk, NY, released in 2013). Appropriate statistical tests were applied based on the type and distribution of the data. Prior to analysis, the data were reviewed for completeness and accuracy, and then tested for normality of distribution. For normally distributed data, continuous variables were expressed as mean ± standard deviation, while categorical variables were presented as frequencies and percentages. Comparisons between groups for continuous variables were conducted using the chi-square test was used to examine associations between categorical variables. Statistical significance was set at $p < 0.05$. Results with p-values below this threshold were considered statistically significant.

3. Results and Discussion

Table 1: Demographic characteristics of the students (n=212)

Variables	Frequency	percentage	Variables	Frequency	percentage
Age			**Education level**		
18-20 years old	19	8.96%	Level 1	17	8.00%
21-28 years old	145	68.39%	Level 2	30	14.20%
29-39 years old	48	22.64%	Level 3	60	28.30%
Gender			Level 4	21	9.90%
Male	36	17.00%	Level 5	13	6.10%
Female	175	82.50%	Level 6	21	9.90%
Marital Status			Level 7	30	14.20%
Single	119	56.10%	Level 8	20	9.40%
Married	66	31.10%			
Widow	23	10.80%			
Divorced	4	1.90%			

Table 1 provides a comprehensive overview of the demographic characteristics of the 212 nursing students. The distribution across age, gender, marital status, and academic year level highlights specific characteristics of the study population that warrant detailed consideration for the interpretation and generalizability of the study's results.

In terms of age, the age demographics reveal a significant concentration of participants within early adulthood. The largest proportion of students (68.39%, or 145 individuals) falls within the 21-28 years old category. This segment, largely made up of university students in higher education, represents the fundamental component of the sample. A smaller but substantial segment (22.64%, or 48 individuals) is aged 29-39 years old, representing a more mature student demographic, potentially including graduate students or those returning to education. The youngest cohort, 18-20 years old, constitutes a minor portion at 8.96% (19 individuals). This age distribution suggests that the study primarily surveyed young to middle-aged adults, making the findings most directly relevant to populations within these age brackets, particularly those engaged in higher education. The presence of more mature students (29-39 years old) also suggests a potential for varied life experiences that could influence their knowledge and perceptions. In gender, in can be seen that females overwhelmingly dominating the participant pool at 82.50% (175 individuals). Males, conversely, account for only 17.00% (36 individuals). This significant disproportion is a critical consideration for the study's generalizability. It implies that the research findings, particularly those pertaining to knowledge, awareness or attitude may be more representative of female students than their male counterparts. Any conclusions drawn should therefore be cautiously extrapolated to broader populations without a similar gender distribution.

Meanwhile, the marital status shows that the majority of the students are single (56.10%, or 119 individuals), which is often characteristic of a young adult student population. However, a substantial portion is married (31.10%, or 66

individuals), suggesting a significant number of participants who may have established families or different life responsibilities compared to their single peers. Furthermore, the divorced individuals constitute a small minority (1.90%, or 4 individuals). The varied marital statuses within the sample could influence the perspectives and priorities of the students, potentially affecting their engagement with health-related information, including that concerning epilepsy. In terms of academic year levels from Level 1 to Level 8, the level 3 emerges as the most represented cohort, encompassing 28.30% (60 individuals) of the sample. Levels 2 and 7 also show considerable representation, both at 14.20% (30 individuals each). The remaining levels (1, 4, 5, 6, and 8) contribute varying, but smaller, proportions. This broad distribution across year levels is advantageous as it captures the perspectives of students with potentially differing levels of academic exposure, subject-specific knowledge, and general maturity, which could all influence their understanding of complex health topics. The concentration in mid-levels (e.g., Level 3) might suggest that these students are beyond their foundational courses but not yet fully specialized, offering a balanced perspective.

Table 2: Level of knowledge and awareness of the students regarding epilepsy

Variable/s	Items	Yes	%	No	%	I don't know	%
Knowledge	Do you think your epileptic seizures are under control?	40	18.9	83	39.2	89	42
	Do you think the timing of the antiepileptic drug is important?	8	3.8	98	46.2	106	50
	Do you know which medications affect seizure frequency?	4	1.9	46	21.7	162	76.4
	Do you think there is a relationship between sleep pattern and epilepsy?	27	12.7	25	11.8	160	75.5
	Do you think people with epilepsy can drink soft drinks containing caffeine?	27	12.7	34	16	151	71.2
	Do you think there are restrictions on alcohol consumptions for people with epilepsy?	2	0.9	45	21.2	165	77.8
	Do you think there are restrictions on smoking for people with epilepsy?	26	12.3	71	33.5	115	54.2
Awareness	Have you attended the lecture or seminar about epilepsy?	38	17.9	67	31.6	107	50.5
	Have you read or heard about epilepsy?	0	0.00	39	18.4	153	72.2

The above table presents the students' knowledge and awareness concerning various aspects of epilepsy. It provides crucial insights about epilepsy which are categorized by specific items under varying levels of accurate knowledge, misconceptions, and significant gaps in awareness. The knowledge section comprises seven specific questions designed to gauge students' understanding of epilepsy management, triggers, and lifestyle considerations.

Predominantly, only few students (18.9%, n=40) believe that epileptic seizures are under control. A substantial proportion (39.2%, n=83) believe they are not, and a significant 42% (n=89) are unsure. This indicates a general lack of understanding regarding the treatability and management potential of epilepsy, potentially perpetuating misconceptions about the chronic and uncontrollable nature of the condition. These findings are highly consistent with current research indicating persistent knowledge gaps and misconceptions about epilepsy, particularly regarding its manageability and the potential for seizure control, even among educated populations like students. Previous study have found that "more than half of the students considered epilepsy to be nontreatable (52.1%) and a contagious disease (55.4%) [12]. While this study focuses on health students, it directly mirrors the current finding of a significant proportion believing epilepsy is "not under control" or being "unsure," highlighting a fundamental misunderstanding of treatability. It also notes that "only 2.8% of students displayed good knowledge scores toward epilepsy. This underscores the widespread nature of the knowledge deficit.

In the areas of importance of antiepileptic drug timing, it can be seen on the result a deficit in knowledge is observed. A mere 3.8% (n=8) recognize its importance, while the vast majority either believe it's not important (46.2%, n=98) or are unaware (50%, n=106). This particular finding is alarming, as adherence to medication timing is fundamental to effective seizure control and patient safety. Similarly, one study have found that "although most participants were generally aware of epilepsy, considerable gaps persisted in knowledge about prevalence, causes, and proper seizure management [13]. Notably, over half of the participants were unsure how to manage an epileptic episode, and misconceptions about the effects of antiepileptic drugs on learning and behavior were prevalent. While focused on teachers, this highlights that even within an educational context, those interacting with students often lack complete understanding, which can trickle down to students. The "unsure how to manage" directly aligns with the current "unsure" category of students.

On the other hand, the awareness part signifies a limited engagement with epilepsy information. This means that the need to attend lectures or seminar in order to increase awareness is recommended. Based on the table, minority of students (17.9%, n=38) reported having attended a lecture or seminar about epilepsy. A significant portion (31.6%, n=67) have not, and roughly half (50.5%, n=107) are unsure or cannot recall. This suggests that formal educational exposure to epilepsy topics through structured academic or public health events is limited for this student population. Alarmingly, no students (0.00%, n=0) reported having read or heard about epilepsy, while 18.4% (n=39) stated they had not, and a vast 72.2% (n=153) were unsure. This finding, particularly the zero percentage for "Yes," is highly concerning and could indicate either an extreme lack of general media/informal exposure to epilepsy or a misunderstanding of the question. If accurate, it highlights a profound lack of incidental learning about epilepsy from various sources, making the student body largely unexposed to the topic outside of formal, potentially specialized, education. Educating school nurses, teachers, staff, and students about epilepsy and its treatment, including seizure first aid is an important way of increasing awareness. The emphasis on the need for this education, rather than noting its widespread implementation, implicitly indicates that it is often lacking. The existence of guidance for schools further supports the notion that standardized, formal education is often not a given [14].

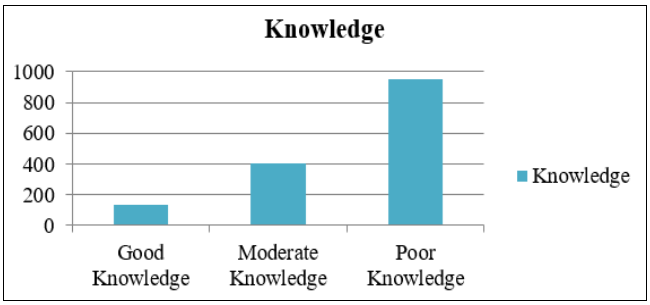

Fig 1: Knowledge level of nursing students regarding epilepsy

The Fig 1 illustrates the knowledge level of nursing student's regarding epilepsy. Based on the graph, majority of the students have poor knowledge on epilepsy. It shows almost two-third of the total study sample as compared to the students with good knowledge which composed of about only 10 percent. This relates with the study regarding knowledge and awareness about epilepsy. They have found that while many teachers had a moderate level of knowledge, "only a 9.2% had first-aid training, which suggests that knowledge and practice of epilepsy first aid needs to be improved via public awareness campaigns and first-aid training courses in schools." [15] This speaks to the practical aspect of management and control, where a lack of training signifies a broader lack of understanding about how to effectively respond and manage seizures. Yet, the World Health Organization focuses on patients' safety and outcomes. They emphasizes that adequate knowledge about epilepsy among nurses is essential for accurate diagnosis, appropriate acute seizure management, effective medication adherence counseling, patient education, and prevention of complications and status epilepticus [16].

Table 3: Level of attitude of the students toward epilepsy

Variable	Items	Yes	%	No	%	I don't know	%
Attitude	Do you think people with epilepsy can play sports?	6	2.8	46	21.7	160	75.5
	Do you think there are restrictions on people with epilepsy getting a driver's license?	16	7.5	47	22.2	149	70.3
	Do you think men with epilepsy can perform military service?	2	0.9	17	8.0	193	91
	Do you think people with epilepsy can get married?	8	3.8	83	39.2	121	57.1
	Do you think epilepsy affects social life?	46	21.7	16	7.5	150	70.8

Table 3 provides a critical assessment of the attitudes held by the student participants regarding various social and life aspects of individuals with epilepsy. Based on the results, a concerning prevalence of uncertainty, which collectively underscore a significant need for targeted educational interventions. The students' attitudes, particularly their "I don't know" responses, suggest a profound lack of informed perspective on the capabilities and challenges faced by people living with epilepsy or a neutral attitude toward epilepsy. It can also be seen that across all five attitude items, majority of students consistently selected "I don't know," ranging from 57.1% to a staggering 91%. This finding indicates that most students lack a definitive and informed stance on the social integration, personal freedoms, and realistic limitations associated with epilepsy. It may also be due to their neutral attitude that tend to answer the I don't know responses of the instrument.

On the table above, it is noticeable that only few of students (2.8%, n=6) affirmed that people with epilepsy can play sports, while a notable proportion (21.7%, n=46) believed they cannot. The vast majority (75.5%, n=160) were uncertain. This finding reveals lack of awareness regarding physical activity for individuals with epilepsy. Current medical guidelines and advocacy groups strongly support participation in most sports for individuals with medical conditions. They emphasize that with individualized precautions, the significant health and psychosocial benefits of sports far outweigh potential risks [17, 18]. The low positive response and high uncertainty suggest that pervasive myths about physical vulnerability or overprotective tendencies persist, potentially limiting opportunities for those with epilepsy. Moreover, the Epilepsy Foundation consistently publishes information aiming to correct misconceptions. Their recent updates on Staying Safe With Exercise and Sports emphasize that "Being active and exercising, in recreational activities or sports can improve mental, emotional and physical health. It's important for everyone and should be encouraged for people with epilepsy." They specifically state that "Contact sports such as football, rugby, basketball, soccer, and ice hockey are generally safe for people with seizures." [19] This suggests that people with epilepsy can perform exercise.

On the other hand, with regards to the restrictions on people with epilepsy getting a driver's license, the results revealed that only a small fraction (7.5%, n=16) recognized the existence of driving restrictions, while 22.2% (n=47) believed there were none. The highest proportion (70.3%, n=149) remained unsure. This means that there is a considerable lack of specific knowledge regarding legal and safety regulations for driving with epilepsy. Most places have specific rules about when people with epilepsy can drive, like requiring them to be seizure-free for a certain period. These rules aim to balance an individual's right to drive with the need to keep the public safe. The high "I don't know" rate indicates that students are largely uninformed about a critical aspect of independence for people with epilepsy, potentially leading to ill-informed judgments or advice in future professional roles [20]. Current Medical Research and Opinion noted that "complex interplay of local regulations" and the "need for patients to understand and adhere to driving restrictions" should followed medication adherence and driving in epilepsy [21]. While focused on patients, this complexity contributes to the general public's confusion; it's highly probable that students with no direct connection to the condition would be largely unaware or unsure. This agreed with one study which concluded drug adherence is positively correlated with quality of life (0.67), and therefore epilepsy patients must adhere to their medications [22].

Lastly, a concerning 39.2% (n=83) believed people with epilepsy cannot get married, while only 3.8% (n=8) affirmed they can. Over half (57.1%, n=121) were unsure while 21.7% (n=46) correctly identified that epilepsy affects social life, 7.5% (n=16) believed it does not, and the majority (70.8%, n=150) were uncertain. The presence of this misconception directly reflects deeply ingrained social

stigma. The right to marry and form a family is a fundamental human right, and epilepsy has no biological impediment to marriage [16]. This reflects findings in various cultures where social stigma impacts marriage prospects for people with epilepsy [23, 24] In social life, acknowledging that epilepsy affects social life reflects a realistic understanding of the challenges posed by stigma, seizure unpredictability, and medication side effects, which can lead to social withdrawal or isolation [25].

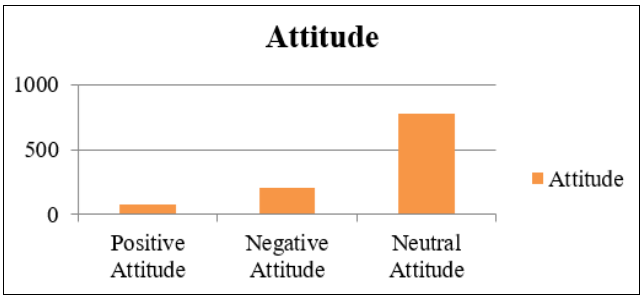

Fig 2: Attitude Levels of Nursing Students toward Epilepsy

The Fig 2 presents the attitude levels of nursing students toward epilepsy. Based on the graph, there is a complex attitudinal landscape of the students about attitudes categories. It reveals that a significant predisposition towards neutrality, alongside notable proportions of negative and positive attitudes. This distribution highlights critical areas for educational intervention aimed at fostering more informed and empathetic perspectives towards individuals living with epilepsy.

The figure clearly indicates that the predominant attitude among the nursing students is neutral attitude. Correspondingly, a neutral stance implies a lack of definitive, informed opinion rather than a balanced perspective. Such neutrality can be problematic in healthcare, as it may reflect an insufficient understanding that prevents advocating for patients or challenging existing stigmas. As studies suggest, a lack of knowledge often correlates with uncertainty, which can inadvertently perpetuate misconceptions if not addressed through education [24, 26]. Meanwhile, the positive attitude garnered the smallest category which suggests that the majority of students may not yet possess the comprehensive and empathetic understanding necessary to effectively support individuals with epilepsy in various life domains. A truly positive attitude in healthcare involves not only empathy but also accurate knowledge to challenge misconceptions and advocate for patients' rights and capabilities [17].

Table 4: Significant association between students' knowledge about epilepsy and their attitude toward epilepsy

Knowledge level	N	Chi-Square (χ^2)	*p*-value	Significance level	Results	Interpretation
Knowledge vs Attitude	212	6.638	0.394	0.05	Accept the null hypothesis (H_1)	Not statistically significant

The table above presents the findings of a statistical analysis investigating the association between students' overall knowledge and their general attitude toward epilepsy. It can be observed that the Chi-Square test of independence was being used using the sample size of N=212, yielded a $\chi 2$ value of 6.638 and a p-value of 0.394. Utilizing a conventional significance level (α) of 0.05, the observed p-value (0.394) is substantially greater than the set alpha level. Consequently, the null hypothesis, which posits no statistically significant association between students' knowledge about epilepsy and their attitude toward epilepsy, is accepted. The results indicate that the observed relationship is not statistically significant.

It is interesting that there is no clear link between how much students know about epilepsy and their attitudes toward it. This goes against what we often assume: that simply teaching people more about a topic will make them feel more positive about it. However, the non-significant finding in this study suggests a more complex relationship. Previous study reported that attitude formation is a multifaceted process influenced not solely by factual knowledge but also by personal experiences, cultural background, media portrayals, social norms, and emotional responses [23, 27]. Having knowledge alone does not always break down deeply ingrained biases or shift mindsets fueled by fear, incorrect data, or an absence of compassion and real-world experience. Interventions that promote empathy, provide direct contact with individuals with epilepsy, and actively challenge stereotypes are often more effective in shifting attitudes than knowledge dissemination alone [28].

Table 5: Significant difference on the level of knowledge when grouped according to demographic profile

Variables	N	Chi-Square (χ^2)	*p*-value	Significance level	Results	Interpretation
Age	**212**	**29.136**	**0.682**	**0.05**	Accept the null hypothesis (H_1)	Not statistically significant
Gender	**212**	**2.398**	**0.677**	**0.05**	Accept the null hypothesis (H_1)	Not statistically significant
Nursing Level	**212**	**38.949**	**0.017**	**0.05**	Reject the null hypothesis (H_2)	Statistically significant

The Table 5 shows the chi-square analysis to examine the potential influence of key demographic variables namely age, gender, and nursing level on the students' overall level of knowledge about epilepsy. It can be seen on the results that in terms of age, the chi-square test for age and knowledge yielded a $\chi 2$ value of 29.136 with a p-value of 0.682. As this p-value (0.682) is greater than the pre-established significance level of 0.05, it indicates that there is no statistically significant difference in the level of knowledge about epilepsy across different age groups of the students. The null hypothesis is therefore accepted. This means that the researchers found no evidence that a student's age affects their level of knowledge about epilepsy and the differences observed in epilepsy knowledge across different age groups in student sample are very likely just due to random variation, not because age genuinely influences knowledge levels. In essence, the study found no statistical support for the idea that older students know more (or less) about epilepsy than younger students. Their knowledge levels appear to be similar regardless of their age group. This aligns with statistical principles where a p-value exceeding the significance level indicates insufficient

evidence to conclude a relationship beyond random variation [29]. While some studies observe age-related differences in health knowledge, particularly with wider age ranges or specific educational exposures [30], which found advanced age groups/clinical years had better knowledge, current results suggest that for the specific age groupings and context of this study, other factors might be more influential than chronological age in determining epilepsy knowledge levels among students."

For gender and knowledge, the chi-square test produced a $\chi 2$ value of 2.398 and a p-value of 0.677. Given that $0.677 > 0.05$, this result signifies no statistically significant difference in epilepsy knowledge between male and female students. The null hypothesis of no association is accepted. This means that the researchers found no evidence that a student's gender affects their level of knowledge about epilepsy. Simply, looking whether male knew more or less about epilepsy than female, it found no meaningful difference. Any small variations in knowledge between genders observed in the study's sample are likely just random fluctuations and not an indication that gender actually plays a role in how much a student knows about epilepsy. This finding is consistent with the statistical principle that a p-value greater than the significance level suggests insufficient evidence to conclude a true difference beyond what might occur by random chance [29]. While some studies on health knowledge reported gender-related disparities, the current study results align with other research that has found no significant influence of gender on overall knowledge regarding specific health conditions among university student population [31]. This suggests that within this student cohort, both male and female students exhibit comparable levels of epilepsy knowledge.

Lastly, the Chi-Square test for nursing level and knowledge showed a $\chi 2$ value of 38.949 with a p-value of 0.017. Critically, as $0.017 < 0.05$, this indicates a statistically significant difference in the level of knowledge about epilepsy across different nursing levels. Therefore, the null hypothesis is rejected. This means that higher nursing levels generally possess more knowledge about epilepsy than lower nursing levels. This result suggests that nursing education progression, or specific curricula at different levels, influences students' understanding of epilepsy. This finding signifies that a student's progression through different nursing levels is associated with a statistically significant variation in their epilepsy knowledge. The present study result aligns with established principles in health professions education, which posit that knowledge and understanding of specific health conditions deepen as students advance through their curriculum and gain more specialized theoretical and clinical exposure [29]. Studies focusing on nursing students' knowledge about various health conditions, including epilepsy, have similarly reported significant improvements in knowledge as students' progress through their academic years or attain higher educational levels [12]. This suggests that the structured educational content and clinical training integrated into the different nursing levels effectively contribute to the accumulation of specialized knowledge regarding epilepsy among students.

4. Conclusion

This study concluded that participants demonstrated a poor knowledge and considerable gaps regarding various aspects of epilepsy, including its treatability, management, and lifestyle considerations. The students' attitudes toward epilepsy were predominantly neutral, marked by a high prevalence of "I don't know" responses regarding social, legal, and lifestyle aspects of individuals with epilepsy. A substantial portion also held misconceptions, such as believing people with epilepsy cannot get married. The study found no statistically significant difference in epilepsy knowledge across different age groups or between male and female students. Crucially, the study revealed a statistically significant difference in epilepsy knowledge across different nursing levels. This indicates that students at higher nursing levels generally possess more knowledge about epilepsy than those at lower levels. Despite the findings on knowledge and attitudes, the study found no statistically significant association between students' overall knowledge about epilepsy and their general attitude toward it. This suggests a more complex relationship where increased factual knowledge alone does not necessarily translate into more positive attitudes, indicating that other factors like personal experiences, cultural background, and direct contact are crucial for attitude formation.

5. Recommendations

Based on the findings of this study, the following recommendations are proposed to address deficiencies and foster a more informed and supportive environment for individuals with epilepsy:

1. Develop and implement a mandatory, age-appropriate epilepsy education module within existing university curricula to ensure systematic learning and addresses a broad range of common misconceptions.
2. Initiate focused public health campaigns specifically targeting student populations to dispel common myths and promote accurate information about epilepsy.
3. Incorporate experiential learning opportunities and foster direct or indirect positive interactions with individuals with epilepsy to influence attitudes, even in the absence of increased factual knowledge.
4. Provide specific training for educators and healthcare professionals by collaborating with professional bodies to integrate epilepsy training into continuing education requirements.
5. Conduct further qualitative and mixed-methods research to explore the underlying reasons for "I don't know" responses and persistent misconceptions, particularly regarding the disconnect between knowledge and attitudes.

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7. Author Contribution

All authors contributed to the study conception and design. Material reparation, data gathering and analysis were performed by all authors. All authors read and approved the final manuscript.

8. Compliance with ethical standards

Disclosure of conflict of interest

All authors declare that they have no conflict of interest.

9. References

1. Agboola HA, Susu AA. A Review of Epileptic Seizure Prediction: Physiological Mechanism and Data Based Attempts. Journal of Neurology Research Reviews & Reports. 2021; 3:135. Doi: doi.org/10.47363/JNRRR
2. Royer J, Bernhardt BC, Larivière S, Gleichgerrcht E, Vorderwülbecke BJ, Vulliémoz S, *et al*. Epilepsy and brain network hubs. Epilepsia. 2022; 63(3):537-550. Doi: https://doi.org/10.1016/j.nrleng.2020.06.016
3. Gupta N, Singh R, Seas A, Antwi P, Kaddumukasa MN, Mwesige AK, *et al*. Epilepsy among the older population of sub-Saharan Africa: Analysis of the global burden of disease database. Epilepsy & Behavior. 2023; 147:p109402. Doi: https://doi.org/10.1016/j.yebeh.2023.109402
4. Singh G, Sander JW. The global burden of epilepsy report: Implications for low-and middle-income countries. Epilepsy & Behavior. 2020; 105:p106949. Doi: https://doi.org/10.1016/j.yebeh.2020.106949
5. Watkins L, O'Dwyer M, Shankar R. New anti-seizure medication for elderly epileptic patients. Expert Opinion on Pharmacotherapy. 2019; 20(13):1601-1608. Doi: https://doi.org/10.1080/14656566.2019.1618272
6. Guery D, Rheims S. Clinical management of drug resistant epilepsy: A review on current strategies. Neuropsychiatric Disease and Treatment, 2021, 2229-2242. Doi: https://doi.org/10.2147/NDT.S256699
7. Lamberink HJ, Otte WM, Bluemcke I, Braun KP, Aichholzer M, Amorim I, *et al*. Seizure outcome and use of antiepileptic drugs after epilepsy surgery according to histopathological diagnosis: A retrospective multicentre cohort study. The Lancet Neurology. 2020; 19(9):748-757. Doi: https://doi.org/10.1016/S1474-4422(20)30220-9
8. Algahtani R, ALhothaly Q, Alabdullah R, Fatani O, Alsaeigh A, Alamri A, *et al*. Knowledge and awareness toward surgical treatment of epilepsy among medical students at Umm Al-Qura University. SAGE Open Medicine. 2022; 10:p20503121221146065. Doi: https://doi.org/10.1177/20503121221146065
9. Hutchinson K, Ryder T, Coleman H, Nullwala R, Herkes G, Bleasel A, *et al*. Determining the role and responsibilities of the community epilepsy nurse in the management of epilepsy. Journal of Clinical Nursing. (2023); 32(13-14):3730-3745. Doi: https://doi.org/10.1111/jocn.16582
10. Heinen M, Van Oostveen C, Peters J, Vermeulen H, Huis A. An integrative review of leadership competencies and attributes in advanced nursing practice. Journal of advanced nursing. 2019; 75(11):2378-2392. Doi: https://doi.org/10.1111/jan.14092
11. Zupan G, Lorber B. Knowledge and awareness of epilepsy surgery among medical students. Journal of Epilepsy Research. 2017; 7(1):p50. Doi: 10.14581/jer.17009
12. Alshahrani AM, Alotaibi N, Rashikh MA. Evaluation of Knowledge about Epilepsy among Undergraduate Health Students: A Cross-Sectional Study. International Journal of Epilepsy. 2024; 10(01/02):20-27. Doi: 10.1055/s-0044-1790287
13. Pitta S, Papadopoulos A. Tsiamaki E, Tsapanou A, Trimmis N, Michou E, *et al*. Teachers' and School Professionals' Knowledge and Attitudes Towards Epilepsy in Greece: Misconceptions and Management Options for Affected Students: A Survey Study. Education Sciences. 2025; 15:591. Doi: 10.3390/educsci15050591
14. Center for Disease Control [Internet]. Managing Epilepsy in Schools. [Cited 2025 July 14]. Available from: https://www.cdc.gov/school-health-conditions/chronic/epilepsy.html
15. Alyoubi R, Alwadai N, Bushaghab G, Alharbi K, Asiri S, Aljuaid A, *et al*. School teachers' knowledge, awareness and attitude toward students with epilepsy in Saudi Arabia, 2024. Doi: 10.6084/m9.figshare.26207066
16. World Health Organization [Internet]. Epilepsy. [Cited 2025 July 14]. Available From: https://www.who.int/news-room/fact-sheets/detail/epilepsy.
17. Smith R, Di Iorio MJ. Promoting physical activity in people with epilepsy: A review. Seizure. 2020; 77:30-36.
18. International League Against Epilepsy (ILAE) [internet]. Epilepsy and Sports. ILAE Task Force on Sports and Epilepsy. [Cited 2025 July 14]. Available from: https://www.ilae.org/guidelines/guidelines-and-reports
19. Epilepsy Foundation. [Internet]. Staying Safe With Exercise and Sports. [Cited 2025 July 14]. Available from: https://www.epilepsy.com/preparedness-safety/staying-safe/exercise-sports.
20. Devinsky O, Perucca E, Trost B. Driving with epilepsy. The Lancet Neurology. 2020; 19(3):196-197.
21. Current Medical Research and Opinion. Medication adherence and its implications for driving safety in individuals with epilepsy, 2023.
22. Pallavi VR, Gupta R, Shafqat N, Phalswal U. A study to assess medication adherence and quality of life among epilepsy patients seeking treatment at AIIMS Bhopal. Journal of Family Medicine and Primary Care. 2024; 13(8):3292-3297. Doi: 10.4103/jfmpc.jfmpc_155_24
23. Ding D, Song Y, Wang P, Li X, Wang Y, Zhang W, Li S. The prevalence of stigma and its associated factors among people with epilepsy in China: A cross-sectional study. Epilepsy & Behavior. 2021; 118:107877.
24. Ali A, Muhammad T, Khan M. Knowledge and attitudes toward epilepsy among medical students: A cross-sectional study from Pakistan. Epilepsy & Behavior Reports. 2022; 17:100494.
25. Baker GA, Di Iorio MJ. Quality of life in epilepsy: A focus on social participation and stigma. Epilepsia. 2023; 64(1):S15-S24.
26. Tedrus GM AS, Fonseca LC, Souza IPD. Attitudes toward epilepsy among undergraduate students from health sciences courses in Brazil. Epilepsy & Behavior. 2020; 103:106852.
27. Ryan BB, Di Iorio MJ. Interventions to reduce stigma in epilepsy: A systematic review. Epilepsy & Behavior. 2018; 86:164-171.
28. Rostami R, Mohammadi E, Abedi HA. Knowledge, attitude and practices of Iranian nurses toward patients with epilepsy: A descriptive cross-sectional study. Epilepsy & Behavior. 2019; 92:25-30.
29. Field A. Discovering Statistics Using IBM SPSS Statistics (5th ed.). Sage Publications, 2018.
30. Abbas H, Abas H, Al-Malki WS, Alshehri AM,

Alzahrani, AA, Abid MI, *et al*. Evaluation of Knowledge about Epilepsy among Undergraduate Health Students: A Cross-Sectional Study. Thieme Connect, 2024.
31. Al-Ramahi H, El-Khoury M. Knowledge, Attitudes, and Practices towards Epilepsy among University Students in Palestine. Journal of Epilepsy Research. 2018; 8(2):114-120.