



Original Research / Orijinal Araştırma

Nursing students' knowledge and attitudes toward the management of epileptic seizures in pediatric patients: A cross-sectional study

Pediyatrik hastalarda epileptik nöbet yönetiminde hemşirelik öğrencilerinin bilgi ve tutumlarının değerlendirilmesi

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Abstract

Aim: This study aimed to assess nursing students' knowledge and attitudes regarding the management of epileptic seizures in pediatric patients and to examine the variables associated with knowledge and attitude scores.

Method: This descriptive, correlational, and cross-sectional study included 155 first-, second-, third-, and fourth-year nursing students from a state university. Data were collected using a Socio-Demographic Information Form, a Pediatric Epileptic Seizure Management Knowledge Test, and the Epilepsy Attitude Scale.

Results: The nursing students' mean knowledge score for pediatric epileptic seizure management was 10.47 ± 3.13 , which may be considered a relatively moderate level of knowledge within the context of this study group. Their attitudes toward epilepsy were generally positive, with mean scores of 59.92 ± 6.60 for the total scale, 45.32 ± 4.65 for the negative and discriminatory attitudes subscale, and 14.60 ± 2.94 for the positive attitudes subscale. Regression analysis showed that the examined variables explained 49% of the variance in knowledge scores. Knowledge levels were significantly associated with academic year, with first-year students demonstrating lower scores compared to students in higher years. Female students demonstrated slightly higher knowledge levels than male students; the negative beta coefficient ($\beta = -0.14$) reflected the coding of the sex variable in the regression model. Regarding attitudes, the examined variables explained 22% of the variance in positive attitude scores. Although male students had lower knowledge scores, they exhibited significantly more positive attitudes toward epileptic seizure management than female students ($p < 0.05$).

Conclusion: The findings suggest that nursing students had knowledge gaps in pediatric epileptic seizure management despite generally positive attitudes. Academic year and gender were associated with knowledge scores, gender was associated with positive attitude scores. These findings may inform curriculum planning by highlighting the need to reinforce pediatric seizure management content and experiential learning opportunities, particularly in the early years of nursing education.

Keywords: Pediatrics, Nursing student, Epileptic seizure, Knowledge, Attitudes

Özet

Amaç: Bu çalışmanın amacı, hemşirelik öğrencilerinin pediyatrik hastalarda epilepsi nöbetlerinin yönetimine ilişkin bilgi ve tutumlarını değerlendirmek ve bilgi ve tutum puanlarıyla ilişkili değişkenleri incelemektir.

Gereç ve Yöntem: Tanımlayıcı, korelasyonel ve kesitsel tipte bir çalışmadır. Çalışma, bir devlet üniversitesinin hemşirelik bölümünde okuyan birinci, ikinci, üçüncü ve dördüncü sınıf 155 öğrenci ile yürütülmüştür. Araştırmada öğrencilere Sosyo-Demografik Bilgi Formu, Pediyatrik Epileptik Nöbet Yönetim Bilgi Testi ve Epilepsi Tutum Ölçeği uygulanmıştır.

Bulgular: Hemşirelik öğrencilerinin pediyatrik epilepsi nöbeti yönetimi konusundaki ortalama bilgi puanı 10.47 ± 3.13 olup, bu puan kesme değeri bulunmayan bu ölçüm aracı kapsamında çalışma grubu içinde görece orta düzeyde yorumlanabilir. Epilepsiye yönelik tutumları genel olarak olumlu olup, toplam ölçekte ortalama puan 59.92 ± 6.60 , olumsuz ve ayrımcı tutumlar alt ölçeğinde 45.32 ± 4.65 ve olumlu tutumlar alt ölçeğinde 14.60 ± 2.94 'tür. Regresyon analizi, incelenen değişkenlerin bilgi puanlarındaki varyansın %49'unu açıkladığını göstermiştir. Bilgi düzeyleri akademik yıl ile anlamlı düzeyde ilişkili bulunmuş olup, birinci sınıf öğrencileri daha üst sınıflardaki öğrencilere kıyasla daha düşük puanlar göstermiştir. Kız öğrencilerin bilgi düzeyleri erkek öğrencilere göre biraz daha yüksekti; negatif beta katsayısı ($\beta = -0.14$), regresyon modelinde cinsiyet değişkeninin kodlanmasını yansıtmaktadır. Tutumlar için, değişkenler olumlu tutumlar alt ölçeğindeki varyansın %22'sini açıklamıştır. Erkek öğrencilerin bilgi puanları daha düşük olmasına rağmen, epilepsi nöbeti yönetimine yönelik olumlu tutumları kadın öğrencilere göre anlamlı derecede daha yüksektir ($p < 0.05$).

Sonuç: Bulgular, hemşirelik öğrencilerinin genel olarak olumlu tutumlarına rağmen pediyatrik epilepsi nöbeti yönetimi konusunda bilgi eksiklikleri olduğunu göstermektedir. Akademik yıl ve cinsiyet bilgi puanlarıyla ilişkili bulunurken, cinsiyet olumlu tutum puanlarıyla ilişkili bulunmuştur. Bu bulgular, özellikle hemşirelik eğitiminin ilk yıllarında pediyatrik nöbet yönetimi içeriğinin ve deneyimsel öğrenme fırsatlarının güçlendirilmesi ihtiyacını vurgulayarak müfredat planlamasına katkıda bulunabilir.

Anahtar Kelimeler: Pediatri, Hemşirelik öğrencisi, Epileptik nöbet, Bilgi, Tutumlar

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Introduction

Epilepsy is a common chronic neurological disorder in childhood that can negatively impact the physical, psychological, and social well-being of children and their families. Globally, it affects about 50 million people, including 10.5 million children under 15.^{1,2} Societal stigma and negative attitudes can lead children with epilepsy to withdraw socially and academically, often resulting in low self-esteem, social exclusion, reduced academic achievement, and emotional distress.³⁻⁵ Epilepsy has both medical and social impacts, and public education can help change misconceptions and reduce stigma.^{6,7} Negative attitudes often result from a lack of knowledge, sometimes even among current or future healthcare professionals.^{8,9} Thus, healthcare workers play a key role in addressing and improving societal perceptions of epilepsy.¹⁰

Nurses play a central role in pediatric epilepsy care, providing education and support to children and their families and promoting community awareness.^{11,12} Adequate knowledge is essential, making comprehensive epilepsy education crucial for nursing students. Studies show that increased knowledge among nurses and students is associated with more positive attitudes toward epilepsy.^{8,13-16} Epilepsy is unique among chronic diseases due to the unpredictability of seizures, making proper intervention essential.^{17,18} Nurses must have sufficient knowledge to manage seizures effectively and support children and families, minimizing potential trauma.^{10,17,18} Nursing students should gain and retain knowledge of epilepsy to respond effectively during seizures, applying theory and skills to make timely decisions.¹⁹ Developing a positive attitude toward epilepsy is crucial for achieving these outcomes.^{10,19} Insufficient knowledge and negative attitudes toward pediatric epilepsy can compromise nursing students' quality of care.^{10,20} As future nurses, students must be well-informed and demonstrate positive attitudes to provide effective care and counter societal stigma.^{13,19}

A review of the literature revealed that studies on nursing students' knowledge and attitudes regarding epileptic seizures in pediatric patients are limited.^{19,20} Accordingly, this study aimed to assess nursing students' knowledge and attitudes regarding the management of epileptic seizures in pediatric patients and to examine the variables associated with knowledge and attitude scores.⁶⁻¹⁸

Materials and Methods

Study design

This study was descriptive, correlational, and cross-sectional in design.

Population and sample

The target population consisted of 200 first- to fourth-year nursing students at a state university in eastern Türkiye. Of these, 155 students participated in the study (participation rate: 77.5%). An a priori power analysis ($\alpha = 0.05$, power = 0.80, 11 predictors, medium effect size) indicated that at least 123 participants were required, and the final sample exceeded this number. Data were collected using the convenience sampling method. Participants were included if they were first- to fourth-year undergraduate nursing students enrolled in the nursing program, volunteered to participate, and provided electronic written informed consent. Students working as nurses or those who had suspended their enrollment during the academic term were excluded. Students take these courses theoretically and practically in their second year as part of the Internal Medicine Nursing course.

Data collection tools

Data were collected between June and October 2025 using an online survey administered via Google Forms, which included the Socio-Demographic Information Form, the Pediatric Epileptic Seizure Management Knowledge Test, and the Epilepsy Attitude Scale. Survey links were distributed to students through email and WhatsApp.

Socio-Demographic Information Form

This form included 11 items assessing demographics and epilepsy-related experiences, including age, school year, gender, income, parental education, prior exposure to individuals with seizures, familiarity with epilepsy, caregiving experience, previous seizure care training, and perceived adequacy of undergraduate education on epilepsy management.^{10,13,14,20}

Pediatric Epileptic Seizure Management Knowledge Test (PESMNT)

The Pediatric Epileptic Seizure Management Knowledge Test (PESMNT) was developed by the researchers based on an extensive review of the relevant literature to assess nursing students' knowledge regarding pediatric seizure management.^{10,14,20} An initial item pool was generated to cover key domains of pediatric seizure management, including epilepsy and seizure physiology, recognition of seizure symptoms, first-aid interventions, airway management, injury prevention, and common misconceptions related to seizure care. Content validity was established through expert evaluation by 13 faculty members specializing in pediatric nursing. The content validity index (CVI) for the instrument was calculated as 0.99, indicating excellent content validity.

Prior to the main study, the instrument was pilot tested with 10 nursing students to evaluate item clarity, comprehensibility, and feasibility of administration. Participants provided feedback regarding the wording and understandability of the items as well as completion time. Since no substantial concerns were identified, no modifications were made to the instrument. The final version consists of 18 items with three response options (true,

false, and no idea). Correct responses are scored as 1 and incorrect or “no idea” responses as 0, yielding a total score ranging from 0 to 18, with higher scores indicating greater knowledge of pediatric seizure management. Internal consistency reliability of the PESMNT was assessed in the present study using the Kuder-Richardson 20 (KR-20) coefficient, which was found to be 0.75, demonstrating acceptable reliability.

Epilepsy Attitude Scale (EAS)

The Epilepsy Attitude Scale (EAS) was developed by Aydemir (2008) to assess attitudes toward epilepsy and individuals with epilepsy in Turkish society. During the scale development process, an initial pool of 16 items was generated based on a literature review and expert evaluation. Content validity, readability, and clarity of the items were assessed by four academics and ten volunteers. Following expert review, one item was removed and two items were revised. Construct validity was examined using exploratory factor analysis (EFA) with principal component analysis and varimax rotation. EFA revealed a two-factor structure explaining 46.3% of the total variance. One item was excluded following factor analysis, resulting in a final 14-item scale. The first factor, “Negative and Discriminatory Attitudes,” consists of 10 items and reflects stigmatizing and unfavorable attitudes toward individuals with epilepsy. The second factor, “Positive Attitudes,” consists of 4 items and reflects favorable attitudes toward individuals with epilepsy. Factor loadings ranged from 0.45 to 0.80. Items 3, 7, and 12 are reverse scored. The scale is rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with total scores ranging from 14 to 70. Higher scores indicate more positive attitudes toward epilepsy. In the original study, the internal consistency coefficient (Cronbach’s α) was 0.84 for the total scale, 0.85 for the Negative and Discriminatory Attitudes subscale, and 0.67 for the Positive Attitudes subscale. Cronbach’s alpha for the EAS was 0.84 in both the original study²¹ and the present study, indicating good reliability.

Study variables

The dependent variables were nursing students’ knowledge and attitude scores regarding the management of epileptic seizures in pediatric patients. Independent variables included age, gender, academic year, parents’ education level, family income, prior exposure to epileptic seizures, acquaintance with someone with epilepsy, caregiving experience for individuals with seizures, previous training in epilepsy care, and perceived adequacy of undergraduate education on epilepsy and seizure management.

Data analysis

Data were analyzed using SPSS version 24.0. Descriptive statistics included frequencies, percentages, means, and standard deviations. Normality was confirmed by skewness and kurtosis values within ± 2 . Multiple regression analysis was used to examine the effects of independent variables on PESMNT and EAS total and subscale scores. Multicollinearity was assessed using VIF and tolerance values ($VIF < 10$, tolerance > 0.2). Statistical significance was set at $p < 0.05$. Independent variables were selected a priori based on the study aim and previous literature. Sociodemographic and epilepsy-related experience/training variables considered relevant to nursing students’ knowledge and attitudes were entered simultaneously into the regression models, and categorical variables were dummy coded using reference categories.

Ethical considerations

Ethical approval for this study was obtained from the Hakkari University Scientific Research and Publication Ethics Committee (Approval Date: 17.06.2025; Approval Number: 2025/112-1), and institutional permission was granted by the dean’s office. Written informed consent was obtained electronically from students who agreed to participate in the study. The study was conducted in accordance with the ethical standards of the Declaration of Helsinki.

Results

The mean age of the participating students was 20.65 ± 2.05 years. Among the students, 56.1% ($n = 87$) were female, and 29.0% ($n = 45$) were first-year students. Regarding parental education, 41.2% ($n = 64$) of mothers were primary school graduates, and 42.6% ($n = 34$) of fathers were high school graduates. Nearly half of the students (49.7%, $n = 77$) reported that their income and expenses were equal. In terms of experience with epilepsy, 56.1% ($n = 87$) of the students had never witnessed an epileptic seizure, while 52.9% ($n = 82$) knew someone with epilepsy. Most students (78.7%, $n = 122$) had never looked after someone experiencing an epileptic seizure. Additionally, 53.6% ($n = 83$) had not received training in epileptic seizure patient care, and 65.8% ($n = 102$) reported insufficient training in epilepsy and seizure management during their undergraduate education. The mean PESMNT score was 10.47 ± 3.13 . The EAS total score averaged 59.92 ± 6.60 , with subscale means of 45.32 ± 4.65 for Negative and Discriminatory Attitudes and 14.60 ± 2.94 for Positive Attitudes.

The effects of eleven independent variables on nursing students’ knowledge scores regarding the management of pediatric epileptic seizures were evaluated using multiple regression analysis (Model 1). Collectively, age, gender, school year, parents’ education, family income, previous encounter with someone experiencing an epileptic seizure, knowing someone with epilepsy, prior experience looking after someone with epileptic seizures, previous training in patient care for epileptic seizures, and adequacy of undergraduate training in epilepsy and seizure management significantly explained students’ knowledge scores ($p < 0.05$). Together, these variables accounted for 49% of the

variance in knowledge scores ($R^2 = 0.49$, $p < 0.05$). When examined individually, only school year and gender had significant effects. Knowledge scores increased by 3.68 points from first to second year, 3.13 points from first to third year, and 2.22 points from first to fourth year, indicating that first-year students had lower knowledge scores than their senior peers. Male students had a 0.90-point lower knowledge score compared to female students ($\beta = -0.14$, $p < 0.05$) (Table 1).

Table 1. Demographic, Experience, and Training Variables Predicting Nursing Students' Knowledge of Pediatric Epileptic Seizure Management

	Model 1						
	B	SE	β	t	p	95% CI	
Variables	8.76	2.76		3.18	0.002	3.31	14.22
Age	0.10	0.12	0.06	0.80	0.427	-0.15	0.34
School year							
2	3.68	0.62	0.52	5.99	< .001	2.47	4.90
3	3.13	0.65	0.43	4.83	< .001	1.85	4.41
4	2.22	0.86	0.28	2.59	.011	0.53	3.91
Gender							
Male	-0.90	0.42	-0.14	-2.14	0.034	-1.73	-0.07
Income							
Income>expenses	-0.32	0.87	-0.03	-0.37	0.715	-2.05	1.41
Income<expenses	-0.10	0.43	-0.02	-0.23	0.816	-0.96	0.76
Education (mother)							
Elementary school	0.20	0.47	0.03	0.42	0.675	-0.74	1.14
Middle school	0.56	0.67	0.07	0.84	0.404	-0.77	1.89
High school	1.97	1.15	0.12	1.71	0.089	-0.31	4.25
University	0.58	1.80	0.02	0.32	0.750	-2.99	4.14
Education (father)							
Elementary school	-0.20	0.88	-0.03	-0.23	0.818	-1.94	1.53
Middle school	-0.46	0.90	-0.06	-0.51	0.608	-2.23	1.31
High school	-0.67	0.92	-0.09	-0.73	0.466	-2.49	1.15
University	-1.31	1.02	-0.14	-1.29	0.199	-3.33	0.70
Previous encounters with individuals experiencing epileptic seizures							
No	-0.57	0.51	-0.09	-1.11	0.271	-1.58	0.45
Acquaintance with someone with epilepsy							
No	-0.37	0.49	-0.06	-0.75	0.453	-1.35	0.60
Experience looking after someone with epileptic seizures							
No	-0.68	0.62	-0.09	-1.10	0.274	-1.90	0.54
Previous training in patient care for epileptic seizures							
No	-0.92	0.50	-0.15	-1.84	0.067	-1.91	0.07
Adequacy of training on epilepsy and seizure management during undergraduate education							
No	-0.42	0.57	-0.06	-0.74	0.461	-1.54	0.70
R^2	0.49						
F	6.44						
p	<.001						
DW (1.5-2.5)	1.84						

B: Unstandardized Beta; SE: Standard error; β : Standardized beta; R^2 : Correlation coefficient (explained variance rate); F: Model statistic; t: Significance test of linear regression; p: Significance level; DW: Durbin-Watson

In Model 2, the effects of twelve independent variables on nursing students' scores on the Negative and Discriminatory Attitudes subscale of the Epilepsy Attitude Scale were evaluated using multiple regression analysis. Collectively, age, gender, school year, parents' education, family income, previous encounters with someone experiencing an epileptic seizure, knowing someone with epilepsy, prior care experience for individuals with epileptic seizures, previous training in patient care for epileptic seizures, and adequacy of undergraduate training in

epilepsy and seizure management did not significantly explain the variance in negative and discriminatory attitudes ($p > 0.05$) (Table 2).

For models in which the overall regression model was not statistically significant, individual regression coefficients were not interpreted as independent predictors, even when some coefficients reached a nominal statistical significance.

Table 2. Demographic, Experience, and Training Variables Predicting Nursing Students' Negative and Discriminatory Attitudes Toward Pediatric Epileptic Seizure Management

	Model 2						
	B	SE	β	t	p	95% CI	
						Lower limit	Upper limit
Variables	43.36	5.40		8.03	< .001	32.68	54.03
Age	0.05	0.23	0.02	0.21	0.833	-0.41	0.51
School year							
2	-2.39	1.31	-0.23	-1.83	0.070	-4.97	0.20
3	-3.63	1.33	-0.33	-2.74	0.007	-6.25	-1.01
4	-3.23	1.66	-0.28	-1.95	0.053	-6.50	0.05
Gender							
Male	1.08	0.81	0.12	1.34	0.183	-0.52	2.67
Income							
Income>expenses	-2.64	1.65	-0.14	-1.60	0.112	-5.90	0.62
Income<expenses	-1.45	0.82	-0.15	-1.76	0.081	-3.07	0.18
Education (mother)							
Elementary school	0.01	0.90	0.001	0.01	0.990	-1.76	1.78
Middle school	-0.08	1.27	-0.006	-0.06	0.950	-2.60	2.44
High school	0.47	2.20	0.02	0.22	0.830	-3.88	4.82
University	1.36	3.40	0.03	0.40	0.691	-5.38	8.09
Education (father)							
Elementary school	1.16	1.65	0.12	0.70	0.483	-2.11	4.44
Middle school	0.80	1.69	0.08	0.47	0.638	-2.55	4.15
High school	0.59	1.74	0.05	0.34	0.734	-2.85	4.04
University	1.51	1.93	0.11	0.78	0.437	-2.32	5.33
Previous encounters with individuals experiencing epileptic seizures							
No	-0.29	0.97	-0.03	-0.30	0.767	-2.21	1.63
Acquaintance with someone with epilepsy							
No	-0.95	0.93	-0.10	-1.02	0.308	-2.80	0.89
Experience looking after someone with epileptic seizures							
No	-0.95	1.17	-0.08	-0.81	0.417	-3.27	1.36
Previous training in patient care for epileptic seizures							
No	-1.02	0.95	-0.11	-1.07	0.288	-2.90	0.87
Adequacy of training on epilepsy and seizure management during undergraduate education							
No	-0.08	1.07	-0.008	-0.08	0.940	-2.20	2.04
Pediatric epileptic seizure management knowledge test	0.43	0.16	0.29	2.61	0.010	0.10	0.75
R ²	0.18						
F	1.41						
p	0.124						
DW (1.5-2.5)	1.57						

B: Unstandardized Beta; SE: Standard error; β : Standardized beta β ; R²: Correlation coefficient (explained variance rate); F: Model statistic; t: Significance test of linear regression; p: Significance level; DW: Durbin-Watson

In Model 3, the effects of twelve independent variables on nursing students' scores on the Positive Attitudes subscale of the Epilepsy Attitude Scale regarding pediatric epileptic seizure management were evaluated using multiple regression analysis. Collectively, age, gender, school year, parents' education, family income, previous encounters with someone experiencing an epileptic seizure, knowing someone with epilepsy, prior care experience for individuals with epileptic seizures, previous training in patient care for epileptic seizures, and adequacy of undergraduate training in epilepsy and seizure management together significantly explained the positive attitude scores ($p < 0.05$). These variables accounted for 22% of the variance in the Positive Attitudes subscale ($R^2 = 0.22$, $p < 0.05$). When examined individually, only gender had a significant effect ($\beta = 0.28$). Male students demonstrated 0.28 times higher positive attitudes toward epilepsy compared to female students ($p < 0.05$) (Table 3).

Table 3. Demographic, Experience, and Training Variables Predicting Nursing Students' Positive Attitudes Toward Pediatric Epileptic Seizure Management

	Model 3						
	B	SE	β	t	p	95% CI Lower limit Upper limit	
Variables	14.81	3.34		4.44	< .001	8.22	21.41
Age	-0.04	0.14	-0.03	-0.31	0.757	-0.33	0.24
School year							
2	-0.80	0.81	-0.12	-0.99	0.323	-2.40	0.80
3	-0.72	0.82	-0.11	-0.88	0.380	-2.34	0.90
4	-0.85	1.02	-0.12	-0.83	0.406	-2.88	1.17
Gender							
Male	1.65	0.50	0.28	3.30	0.001	0.66	2.63
Income							
Income>expenses	-1.17	1.02	-0.10	-1.15	0.252	-3.19	0.84
Income<expenses	-0.14	0.51	-0.02	-0.28	0.780	-1.15	0.86
Education (mother)							
Elementary school	0.84	0.55	0.14	1.52	0.131	-0.25	1.94
Middle school	0.10	0.79	0.01	0.13	0.899	-1.45	1.65
High school	2.03	1.36	0.13	1.49	0.138	-0.66	4.72
University	3.42	2.10	0.13	1.62	0.107	-0.74	7.58
Education (father)							
Elementary school	0.11	1.02	0.02	0.11	0.913	-1.91	2.13
Middle school	-0.33	1.05	-0.05	-0.31	0.755	-2.40	1.74
High school	-0.67	1.08	-0.09	-0.62	0.537	-2.79	1.46
University	-0.08	1.19	-0.009	-0.06	0.949	-2.44	2.29
Previous encounters with individuals experiencing epileptic seizures							
No	-1.11	0.60	-0.19	-1.85	0.067	-2.29	0.08
Acquaintance with someone with epilepsy							
No	-0.08	0.58	-0.01	-0.14	0.886	-1.22	1.06
Experience looking after someone with epileptic seizures							
No	0.09	0.72	0.01	0.13	0.897	-1.34	1.53
Previous training in patient care for epileptic seizures							
No	-0.71	0.59	-0.12	-1.20	0.232	-1.87	0.46
Adequacy of training on epilepsy and seizure management during undergraduate education							
No	-0.33	0.66	-0.05	-0.50	0.621	-1.64	0.98
Pediatric epileptic seizure management knowledge test	0.15	0.10	0.16	1.54	0.127	-0.04	0.35
R^2	0.22						
F	1.76						
p	0.030						
DW (1.5-2.5)	1.85						

B: Unstandardized beta; SE: Standard error; β : Standardized beta β ; R^2 : Correlation coefficient (explained variance rate); F: Model statistic; t: Significance test of linear regression; p: Significance level; DW: Durbin-Watson

Discussion

In this study, nursing students demonstrated a mean knowledge score of 10.47 ± 3.13 , which may be considered a relatively moderate level within the study group, along with generally positive attitudes toward pediatric epileptic seizure management. Research specifically examining nursing students' knowledge and attitudes in this area is limited²⁰, with most studies focusing on epilepsy more broadly.^{13,14,16,19,22} Some studies report low epilepsy knowledge but positive attitudes among nursing students¹⁵, while others report higher levels of epilepsy-related knowledge.²³ These differences may be associated with variations in clinical exposure, training experiences, teaching methods (e.g., simulation and case analysis), course content, study settings, and cultural factors.^{10,19,22} In this context, the inclusion of comprehensive pediatric seizure education, along with simulation- and case-based training approaches in nursing curricula, may support students' knowledge development and preparedness for seizure-related learning outcomes.

In this study, academic year and gender were significantly associated with nursing students' knowledge of pediatric seizure management, with higher knowledge levels observed among students in advanced academic years, consistent with previous research.¹⁹ Lower knowledge scores among first-year students may be related to their limited exposure to relevant coursework and clinical training. In this context, academic year appears to reflect cumulative curriculum exposure rather than serving as an independent predictor of knowledge. Therefore, the findings should be interpreted with caution, as differences across academic years may represent progression within the educational program rather than a direct causal effect of academic level. Additionally, male students demonstrated lower knowledge scores than female students. Previous studies have reported similar patterns; however, the underlying factors contributing to gender differences in knowledge were not directly examined in the present study and should therefore be interpreted with caution.^{14,15,19} The reasons for this gender difference were not directly assessed in the present study; therefore, this finding should be interpreted cautiously and examined in future studies with larger and more balanced samples.²⁴⁻

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In this study, none of the examined variables were significantly associated with negative and discriminatory attitudes toward epilepsy. This finding suggests that such attitudes may be related to deeply rooted social stigma and cultural beliefs rather than demographic or educational characteristics. Consistent with the literature, misconceptions about epilepsy, fear of seizures, and limited public awareness have been reported to be associated with the stigmatization of individuals with epilepsy.^{4,5,8} In particular, higher levels of knowledge do not necessarily appear to be associated with more positive attitudes among health science students. These findings indicate that educational approaches focusing primarily on theoretical knowledge may not be sufficient to address discriminatory perceptions. In addition, lower knowledge levels and negative attitudes among nursing students may be associated with less favorable care practices toward patients with epilepsy in clinical settings.^{18-20,21,24} In this context, the inclusion of comprehensive educational strategies in nursing curricula, such as stigma reduction, empathy development, and opportunities for meaningful interaction with individuals living with epilepsy may be associated with more supportive and inclusive attitudes among future nurses.

In the present study, gender was associated with positive attitude scores, with male students reporting higher scores than female students. However, the mechanisms underlying this difference were not assessed. Therefore, this finding should be interpreted cautiously and should be confirmed in future studies with larger and more gender-balanced samples.

Limitations of the study

This study has several limitations that should be considered when interpreting the findings. First, the study was conducted at a single center using a convenience sampling method, which may limit the generalizability of the results to other nursing student populations. Second, the data were collected through self-reported online questionnaires rather than direct observation or objective performance-based assessments. Future studies should include objective performance-based assessments, such as simulation-based seizure management scenarios, to evaluate whether knowledge and attitudes translate into clinical performance. Therefore, response bias may have occurred, and participants may have received external assistance while completing the knowledge test, potentially affecting the objectivity of the findings. In addition, the PESMNT was developed by the researchers. Although it demonstrated strong content validity and acceptable internal consistency in this sample, further psychometric testing, particularly regarding construct validity and reliability across different populations and settings, is needed. Another limitation is the relatively high number of predictors and dummy-coded categories included in the regression models compared with the sample size. Although the predictors were selected a priori based on the literature and the study aim, this may have increased the risk of model overfitting and reduced the stability of some regression coefficients. Therefore, the regression findings should be interpreted as exploratory and should be confirmed in larger samples. Despite these limitations, the study has several strengths, including the use of comprehensive measurement tools, the inclusion of students from different academic years, the evaluation of knowledge-attitude relationships, and the provision of findings relevant to nursing education and clinical practice.

Conclusion

In conclusion, nursing students demonstrated a mean knowledge score of 10.47 ± 3.13 , which may be considered a relatively moderate level within the context of this study group, and generally positive attitudes toward epilepsy. Knowledge and attitudes were significantly influenced only by school year and gender, with first-year students showing lower knowledge levels and male students demonstrating lower knowledge but more positive attitudes. These findings highlight the need to reinforce pediatric seizure management content through theoretical, practical, and awareness-based learning opportunities, particularly in the early years of nursing education.

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