

A Knowledge, Attitude, and Practice Study on Health Literacy and Discharge Preparedness in Patients with Epilepsy: Evidence from a Tertiary Brain Hospital in China

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Background and Aim: Health literacy and discharge preparedness are critical for managing chronic conditions like epilepsy. However, few studies in China have explored the relationship between knowledge, attitudes, and practices (KAP) and discharge outcomes. This study aimed to assess health literacy and discharge preparedness among epilepsy patients and identify key KAP predictors.

Methods: A cross-sectional study was conducted from January and December 2023 at a tertiary brain hospital in China. A total of 331 adult epilepsy patients completed a structured questionnaire evaluating epilepsy-related KAP and discharge preparedness. Associations were analyzed using chi-square tests and multivariate regression.

Results: A total of 331 epilepsy patients were included, with an average age of 38.6 years. Overall, 62.2% of patients demonstrated moderate knowledge of epilepsy, but only 29.6% knew proper seizure first-aid measures. Positive attitudes toward disease management were present in 68.3% of respondents, though 18.4% reported feelings of social stigma. In terms of self-care practices, 61.6% reported regular medication adherence, while only 21.7% were adequately prepared to manage emergency seizures. The mean discharge preparedness score was 7.1 out of 10, with 44.7% scoring above the threshold for good readiness. Multivariate analysis revealed that better knowledge and practice scores were significantly associated with higher discharge preparedness ($p < 0.01$).

Conclusion: This study underscores the need to improve health literacy and discharge preparedness in patients with epilepsy, especially in a tertiary hospital setting. Tailored educational interventions focusing on enhancing KAP could significantly improve the long-term management of epilepsy and reduce hospital readmissions. The findings suggest that better patient education on self-management could be pivotal in improving both short-term and long-term outcomes for individuals with epilepsy.

Keywords: epilepsy, health literacy, discharge preparedness, knowledge–attitude–practice, KAP, nursing education

Introduction

Epilepsy is a chronic neurological disorder characterized by recurrent, unprovoked seizures due to abnormal electrical activity in the brain. It affects millions of individuals globally, with diverse etiologies and clinical presentations.^{1–3} In addition to the seizures themselves, epilepsy often leads to a range of associated complications, including cognitive impairment, psychological distress, social stigma, and reduced quality of life.^{4,5} Despite advances in treatment, many patients continue to experience seizure episodes, and the burden of these unresolved issues significantly impacts long-term health outcomes and increases healthcare utilization.^{6,7}

Health literacy and discharge preparedness are essential for improving the long-term management of epilepsy. Patients with higher levels of health literacy are better equipped to understand their condition, follow treatment protocols,

and manage the challenges associated with epilepsy, such as seizure control and medication adherence. Similarly, discharge preparedness plays a crucial role in ensuring that patients are adequately equipped to manage their condition after leaving the hospital, reducing the risk of readmission and improving overall health outcomes.^{8–10} In clinical settings, nurses are often the first point of contact for patients with epilepsy, responsible for providing education on seizure management, medication adherence, and lifestyle modifications. However, the knowledge, attitudes, and practices (KAP) of patients themselves also play a pivotal role in the success of epilepsy management. Effective management requires that patients have a solid understanding of their condition, adopt positive attitudes towards treatment, and engage in appropriate self-care practices. Yet, few studies in China have explored how well epilepsy patients understand their condition and are prepared for discharge.^{11–13}

Individuals with epilepsy are often hospitalized due to uncontrolled seizures, status epilepticus, or acute complications arising from seizures, such as trauma. The likelihood of hospitalization increases in patients with poorly controlled epilepsy, inadequate medication adherence, or comorbid conditions like mental health disorders. Upon discharge, discharge preparedness becomes critical for improving long-term outcomes. Effective discharge planning for epilepsy patients involves ensuring proper education on medication adherence, recognition of early warning signs, and strategies for managing seizures at home. Follow-up care, including regular outpatient visits and counseling, is essential for maintaining seizure control and reducing hospital readmissions. Inadequate discharge preparedness may result in suboptimal outcomes, such as missed follow-up appointments, poor medication adherence, and increased risk of readmission.

This study aims to assess the KAP levels regarding epilepsy management and discharge preparedness among patients at a tertiary brain hospital in China. By identifying the key factors influencing patients' health literacy and discharge readiness, the study aims to provide evidence that can guide targeted educational interventions, improve discharge planning, and enhance the overall care of epilepsy patients. The findings could help reduce preventable complications and hospital readmissions, ultimately improving the long-term outcomes for individuals living with epilepsy.

Methods

Study Design and Participants

This descriptive cross-sectional study was conducted between January and December 2023 at a tertiary brain hospital in China. A total of 331 patients with epilepsy were invited to participate. Patients were eligible if they: 1) had a clinical diagnosis of epilepsy; 2) were able and willing to complete the questionnaire independently; and 3) had no barriers to communication. Exclusion criteria included: 1) incomplete survey responses exceeding 5% of items; 2) known psychiatric or neurological disorders that could impair judgment; and 3) inability to complete the follow-up validation step for test-retest reliability. We clarified that 12 participants were excluded due to incomplete forms or dropouts.

The data for this study were collected from both the outpatient clinic and inpatient wards at The Affiliated Brain Hospital of Nanjing Medical University. All patients invited to participate in the study agreed to do so voluntarily, and no patients left the forms incomplete. In the case of incomplete forms, participants were contacted for follow-up and allowed to complete the forms. The study was approved by the institutional ethics committee (Approval No. 202416751345). Informed consent was obtained from all participants prior to inclusion. All procedures adhered to the Declaration of Helsinki for research involving human subjects. Informed consent was obtained from all participants prior to questionnaire administration.

Data Collection Procedures

Data were collected using a structured, self-administered questionnaire specifically designed to assess the knowledge, attitude, and practice (KAP) of patients with epilepsy regarding their condition, including medication adherence, seizure management, and emergency preparedness. The questionnaire was adapted from previously validated instruments used in chronic disease management research, with modifications made to suit the context of epilepsy care. The final tool consisted of 35 items across three domains: 12 knowledge items, 10 attitude items, and 13 practice items.

Knowledge: Each knowledge item was scored as either correct (1) or incorrect/unclear (0), producing a total possible score ranging from 0 to 12. Knowledge levels were categorized into low (0–4), moderate (5–8), and high (9–12).

Participants were classified as knowledgeable if they correctly answered $\geq 70\%$ of items on the validated epilepsy knowledge questionnaire. The term early epilepsy signs refers to initial observable or self-reported manifestations that precede full seizure episodes, including sensory disturbances, behavioral changes, or focal motor activity. While “aura” denotes a neurological phenomenon experienced by patients preceding focal seizures, “early epilepsy signs” in this study encompasses both aura symptoms and broader observable warning manifestations recognized by patients or caregivers.

Attitude: Attitude items were assessed on a 5-point Likert scale from 0 (strongly disagree) to 4 (strongly agree), resulting in a score range of 0 to 40. Scores less than 10 indicated a negative attitude, 10 to 20 were considered moderate, and scores above 20 were deemed positive.

Practice: Practice items were rated from 0 (never) to 4 (always), with a total possible score ranging from 0 to 52. Practice levels were categorized as poor (0–13), general (14–26), good (27–39), and excellent (40–52).

Translation and Validation

The questionnaire was initially developed in English and translated into Chinese following WHO guidelines for cross-cultural adaptation. Two independent bilingual professionals translated the items into Mandarin, and a separate linguist performed back-translation into English. Discrepancies between the two versions were resolved through group discussion and expert consensus. The final Chinese version was reviewed by three senior clinicians to ensure linguistic clarity and clinical applicability for the target population.

Pretest Evaluation and Reliability Assessment

A pilot test was conducted with 50 epilepsy patients to assess the clarity, relevance, and difficulty of each item. Items receiving more than 20% negative feedback regarding clarity or relevance were revised before the formal survey distribution. For reliability testing, a subgroup of 30 patients completed the questionnaire a second time after a two-week interval. Test-retest reliability was evaluated using Pearson’s correlation coefficient. Internal consistency across the knowledge, attitude, and practice domains was assessed using Cronbach’s alpha. The difficulty index for knowledge items was calculated using the formula: $\text{Difficulty Index (\%)} = (\text{Number of correct responses} / \text{Total responses}) \times 100$. Items with difficulty values outside the 30–70% range were flagged for review and refinement.

Sample Size Calculation

According to psychometric standards, a sample size of 5–10 participants per questionnaire item is recommended for validation and factor analysis. With 35 items, the minimum required sample size was between 175 and 350. A final sample of 331 participants exceeded this threshold, ensuring adequate statistical power and representativeness for subsequent analyses.

Statistical Analysis

Data analysis was performed using SPSS version 26.0. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to summarize demographic data and KAP scores. The Shapiro–Wilk test was employed to assess normality. Between-group comparisons were conducted using independent-sample t-tests and one-way ANOVA. Pearson correlation coefficients were calculated to assess relationships between knowledge, attitude, and practice scores. Multivariate logistic regression was used to identify predictors of good practice, with results expressed as odds ratios (OR) and 95% confidence intervals (CI). Model fit was assessed with the Hosmer–Lemeshow goodness-of-fit test, and a p-value < 0.05 was considered statistically significant throughout the analyses.

Results

Demographic and Clinical Characteristics

A total of 331 patients with epilepsy participated in the study. The majority of participants were female (68.5%), and the largest age group was between 30 and 39 years (39.9%). Regarding educational background, 34.4% of participants had attained a bachelor's degree or higher. Most participants were married (64.2%) and resided in urban areas (52.0%). In terms of clinical characteristics, 28.5% had a history of chronic diseases, including hypertension and diabetes. Regarding epilepsy-related clinical factors, 43.5% reported experiencing seizures ≤ 1 time in the past year. A significant portion of participants (61.6%) adhered to regular medication regimens, while 81.4% experienced some form of stigma related to their condition (Table 1).

Table 1 Demographic Characteristics and KAP Scores of Participants. (N = 331)

| Variables | N (%) | Knowledge Score (Mean \pm SD) | Attitude Score (Mean \pm SD) | Practice Score (Mean \pm SD) |
|-------------------------------|------------|---------------------------------|--------------------------------|--------------------------------|
| Gender | | | | |
| Male | 104 (31.4) | 4.88 \pm 2.55 | 17.20 \pm 4.70 | 27.42 \pm 9.85 |
| Female | 227 (68.6) | 5.30 \pm 2.64 | 19.01 \pm 4.75 | 30.91 \pm 10.15 |
| Age Group (years) | | | | |
| <30 | 102 (30.8) | 4.73 \pm 2.50 | 17.56 \pm 4.88 | 28.23 \pm 10.74 |
| 30–39 | 130 (39.3) | 5.41 \pm 2.62 | 18.89 \pm 4.42 | 30.84 \pm 9.86 |
| ≥ 40 | 99 (29.9) | 5.22 \pm 2.70 | 18.64 \pm 5.12 | 30.32 \pm 10.67 |
| Education Level | | | | |
| Primary or below | 35 (10.6) | 3.62 \pm 2.12 | 16.78 \pm 4.91 | 25.43 \pm 9.77 |
| Junior/Middle school | 87 (26.3) | 4.55 \pm 2.33 | 17.94 \pm 4.55 | 28.97 \pm 10.18 |
| High school/technical | 95 (28.7) | 5.02 \pm 2.51 | 18.65 \pm 4.36 | 29.94 \pm 9.82 |
| Bachelor or above | 114 (34.4) | 6.01 \pm 2.69 | 19.37 \pm 4.18 | 32.14 \pm 10.44 |
| Monthly Income (CNY) | | | | |
| <3000 | 102 (30.8) | 4.28 \pm 2.44 | 17.20 \pm 4.50 | 27.83 \pm 9.63 |
| 3000–6000 | 165 (49.8) | 5.31 \pm 2.55 | 18.99 \pm 4.72 | 30.42 \pm 10.13 |
| >6000 | 64 (19.3) | 6.12 \pm 2.88 | 19.78 \pm 4.83 | 33.11 \pm 10.88 |
| Marital Status | | | | |
| Single | 104 (31.4) | 5.23 \pm 2.58 | 18.91 \pm 4.74 | 30.34 \pm 10.03 |
| Married | 213 (64.3) | 5.06 \pm 2.62 | 18.01 \pm 4.89 | 29.65 \pm 10.52 |
| Divorced/Widowed | 14 (4.2) | 4.67 \pm 2.21 | 17.50 \pm 4.32 | 28.89 \pm 9.34 |
| Residence | | | | |
| Rural | 108 (32.6) | 4.70 \pm 2.48 | 17.44 \pm 4.70 | 28.57 \pm 9.94 |
| Urban | 172 (52.0) | 5.46 \pm 2.68 | 18.84 \pm 4.81 | 31.12 \pm 10.32 |
| Suburban | 51 (15.4) | 5.11 \pm 2.33 | 18.19 \pm 4.92 | 29.33 \pm 10.18 |
| Seizure Frequency (past year) | | | | |
| ≤ 1 | 144 (43.5) | 5.72 \pm 2.56 | 19.14 \pm 4.66 | 31.80 \pm 10.24 |
| 2–5 | 127 (38.4) | 4.98 \pm 2.47 | 17.91 \pm 4.38 | 28.94 \pm 9.80 |
| >5 | 60 (18.1) | 4.62 \pm 2.36 | 17.23 \pm 5.21 | 27.10 \pm 10.12 |
| Medication Adherence | | | | |
| Regular | 204 (61.6) | 5.54 \pm 2.44 | 18.91 \pm 4.51 | 32.48 \pm 9.76 |
| Irregular | 127 (38.4) | 4.42 \pm 2.35 | 17.62 \pm 4.88 | 27.21 \pm 10.41 |
| Stigma Experience | | | | |
| Yes | 61 (18.4) | 4.63 \pm 2.38 | 16.89 \pm 4.65 | 26.98 \pm 10.01 |
| No | 270 (81.6) | 5.25 \pm 2.52 | 18.78 \pm 4.72 | 30.59 \pm 10.24 |

(Continued)

Table 1 (Continued).

| Variables | N (%) | Knowledge Score (Mean ± SD) | Attitude Score (Mean ± SD) | Practice Score (Mean ± SD) |
|-------------------------|------------|-----------------------------|----------------------------|----------------------------|
| Chronic Disease History | | | | |
| Yes | 35 (14.2) | 4.01 ± 2.51 | 16.81 ± 4.23 | 30.90 ± 11.13 |
| No | 211 (85.8) | 4.86 ± 2.90 | 19.07 ± 5.16 | 31.86 ± 10.91 |
| Sleeping Condition | | | | |
| Yes | 70 (28.5) | 4.18 ± 3.02 | 16.37 ± 4.58 | 30.13 ± 11.82 |
| No | 176 (71.5) | 5.10 ± 2.59 | 18.12 ± 5.01 | 33.47 ± 10.87 |
| Work Experience | | | | |
| <5 Years | 167 (50.5) | 4.76 ± 2.38 | 17.50 ± 4.90 | 28.94 ± 10.12 |
| ≥5 Years | 164 (49.5) | 5.34 ± 2.71 | 18.61 ± 4.61 | 31.92 ± 9.99 |
| Clinical Specialty | | | | |
| General | 160 (48.3) | 4.91 ± 2.54 | 17.94 ± 4.51 | 30.15 ± 10.56 |
| Neurology | 171 (51.7) | 5.27 ± 2.67 | 18.59 ± 4.69 | 32.47 ± 10.13 |

Notes: 1 CNY ≈ 0.14 USD, exchange rate at the time of study; 700 Yuan ≈ 700.

Knowledge Dimension

Table 2 displays the distribution of responses regarding epilepsy-related knowledge. Overall, participants demonstrated a moderate to good understanding of epilepsy. A majority, 65.05% (n = 215), correctly identified early signs of epilepsy, and 69.44% (n = 230) recognized the importance of seizure first aid. However, gaps in knowledge were observed in areas such as epilepsy surgery, with only 51.61% providing correct responses, and the role of medication adherence, with 59.52% correctly identifying its importance. Participants showed less understanding of the potential side effects of anti-epileptic drugs (61.89% correct responses) and the significance of follow-up visits for epilepsy management (63.54% correct responses).

Attitude Dimension

As shown in Table 3, the majority of participants had a positive attitude towards the importance of managing epilepsy and preventing related complications. Specifically, 35.0% (n = 120) strongly agreed that preventing complications in epilepsy is essential for effective management, and 39.0% (n = 130) strongly agreed that patients should receive continuous education on managing epilepsy. However, challenges were noted, with 16.5% (n = 55) indicating that time constraints often limit the implementation of strategies to manage complications and educate patients effectively.

Table 2 Knowledge Dimension in KAP Distribution of Responses Among Participants

| Knowledge Items | Correct n (%) | Incorrect n (%) | Unclear n (%) |
|---|---------------|-----------------|---------------|
| K1. Epilepsy and its symptoms: recognizing early signs and symptoms is critical in managing epilepsy. | 215 (65.05) | 35 (10.58) | 81 (24.37) |
| K2. The importance of seizure first aid and when to seek medical help during a seizure. | 230 (69.44) | 25 (7.56) | 76 (23.00) |
| K3. The role of medication adherence in managing epilepsy and preventing recurrent seizures. | 198 (59.52) | 50 (15.09) | 83 (25.39) |
| K4. Epilepsy surgery is a viable option for some patients, particularly when medications fail. | 170 (51.61) | 68 (20.47) | 79 (23.88) |
| K5. Lifestyle changes, including diet and exercise, can help manage epilepsy symptoms. | 198 (59.52) | 53 (16.01) | 80 (24.16) |
| K6. Understanding the potential side effects of anti-epileptic drugs is important for patient management. | 205 (61.89) | 42 (12.67) | 84 (25.44) |
| K7. Knowledge of epilepsy-related mental health issues, such as anxiety and depression. | 190 (57.38) | 63 (18.99) | 78 (23.54) |
| K8. Identifying and managing triggers (eg, sleep deprivation, stress) for seizures. | 220 (66.57) | 40 (12.10) | 71 (21.43) |
| K9. The significance of regular follow-up visits with healthcare providers for managing epilepsy. | 210 (63.54) | 45 (13.58) | 76 (22.88) |
| K10. Alternative therapies, such as herbal medicine or acupuncture, are effective for controlling epilepsy. | 150 (45.31) | 80 (24.15) | 101 (30.54) |

Table 3 Attitude Dimension in KAP Distribution of Responses Among Participants

| Attitude Items | Strongly Agree n (%) | Agree n (%) | Neutral n (%) | Disagree n (%) | Strongly Disagree n (%) |
|---|----------------------|-------------|---------------|----------------|-------------------------|
| A1. Preventing complications in epilepsy is an essential part of nursing care. | 120 (35.0%) | 95 (28.0%) | 30 (9.0%) | 10 (3.0%) | 4 (1.2%) |
| A2. Nurses play a central role in identifying early signs of complications in epilepsy patients. | 105 (31.7%) | 110 (33.2%) | 20 (6.0%) | 10 (3.0%) | 6 (1.8%) |
| A3. I feel confident in my ability to educate epilepsy patients about preventing seizures and managing their condition. | 70 (21.0%) | 100 (30.0%) | 50 (15.0%) | 30 (9.0%) | 5 (1.5%) |
| A4. Routine screening and assessment for complications related to epilepsy should be part of nursing protocols in epilepsy care. | 115 (34.5%) | 45 (13.5%) | 35 (10.5%) | 25 (7.5%) | 5 (1.5%) |
| A5. Nurses should receive ongoing training on managing complications associated with epilepsy, such as drug-resistant seizures and comorbidities. | 130 (39.0%) | 85 (25.5%) | 30 (9.0%) | 15 (4.5%) | 2 (0.6%) |
| A6. I believe that collaboration between epilepsy nurses and physicians is crucial for reducing the risk of complications and improving patient outcomes. | 110 (33.0%) | 95 (28.0%) | 35 (10.5%) | 20 (6.0%) | 7 (2.1%) |
| A7. Time constraints in clinical practice often limit the implementation of epilepsy management and complication-prevention strategies. | 55 (16.5%) | 105 (31.5%) | 55 (16.5%) | 40 (12.0%) | 10 (3.0%) |
| A8. Nurses should take a leadership role in educating patients and families about the risks and management of epilepsy-related complications. | 70 (21.0%) | 110 (33.0%) | 50 (15.0%) | 25 (7.5%) | 7 (2.1%) |

Practice Dimension

The practice dimension, as detailed in Table 4, revealed that while a significant proportion of participants engaged in some essential self-care practices, there were areas requiring improvement. For instance, 44.0% of participants reported

Table 4 Practices Dimension in KAP Distribution of Responses Among Participants

| Practice Items | Always n (%) | Often n (%) | Sometimes n (%) | Seldom n (%) | Never n (%) |
|---|--------------|-------------|-----------------|--------------|-------------|
| P1. I monitor epilepsy patients regularly for early signs of seizures, changes in symptoms, or other neurological abnormalities. | 106 (44.0%) | 82 (34.0%) | 35 (14.4%) | 16 (6.6%) | 5 (2.0%) |
| P2. I educate patients and families about the importance of seizure management (eg, medication adherence, seizure first-aid). | 98 (40.0%) | 90 (36.6%) | 33 (13.4%) | 19 (7.7%) | 8 (3.3%) |
| P3. I assess patients for signs of complications such as head injuries or side effects from antiepileptic medications. | 76 (31.4%) | 92 (38.1%) | 51 (20.7%) | 21 (8.5%) | 9 (3.7%) |
| P4. I participate in interdisciplinary discussions related to epilepsy management and its complications. | 62 (25.5%) | 84 (34.1%) | 59 (24.0%) | 30 (12.2%) | 12 (4.9%) |
| P5. I document patient conditions and risk factors related to epilepsy and its complications in the nursing record. | 80 (33.1%) | 88 (35.8%) | 45 (18.3%) | 25 (10.2%) | 10 (4.1%) |
| P6. I educate patients on lifestyle changes to help prevent seizures (eg, stress management, sleep hygiene). | 89 (35.4%) | 79 (32.1%) | 41 (16.7%) | 25 (10.2%) | 14 (5.7%) |
| P7. I refer epilepsy patients with unresolved symptoms or complications to specialists for further assessment. | 110 (43.9%) | 83 (33.7%) | 34 (13.8%) | 14 (5.7%) | 7 (2.9%) |
| P8. I assist in implementing protocols for the prevention and management of seizure emergencies in at-risk epilepsy patients. | 59 (24.0%) | 68 (27.6%) | 60 (24.4%) | 38 (15.4%) | 21 (8.5%) |
| P9. I provide psychological support or emotional guidance to patients worried about their condition or seizure risks. | 52 (20.7%) | 74 (30.1%) | 65 (26.4%) | 36 (14.6%) | 20 (8.1%) |
| P10. I update my knowledge on epilepsy management and complications through professional training and resources. | 63 (25.6%) | 79 (32.1%) | 57 (23.2%) | 29 (11.8%) | 18 (7.3%) |
| P11. I help patients recognize when they should seek urgent care (eg, increased seizure frequency, injuries). | 89 (36.2%) | 76 (31.3%) | 43 (17.5%) | 21 (8.5%) | 16 (6.5%) |
| P12. I regularly participate in case discussions or team meetings regarding epilepsy care and complications. | 55 (22.4%) | 83 (33.7%) | 61 (24.8%) | 29 (11.8%) | 18 (7.3%) |
| P13. I remind patients to adhere to prescribed medication plans, seizure triggers management, and dietary recommendations to reduce seizure risk. | 94 (38.2%) | 88 (32.9%) | 42 (17.1%) | 21 (8.5%) | 8 (3.3%) |

always monitoring for signs of complications, and 40.0% regularly engaged in educating patients about infection prevention. However, only 24.0% assisted in implementing protocols for the prevention and management of epilepsy-related emergencies, and just 20.7% provided psychological support to patients dealing with the social stigma of their condition.

Correlation Among Knowledge, Attitudes, and Practices

Pearson correlation analysis revealed significant relationships between the knowledge, attitude, and practice dimensions of epilepsy management. The strongest correlation was observed between knowledge and practice ($r = 0.421$, $p < 0.001$), suggesting that higher knowledge levels were positively associated with better practical application in managing epilepsy. A moderate correlation was found between knowledge and attitude ($r = 0.351$, $p < 0.001$), indicating that increased knowledge was linked to more positive attitudes toward managing the condition (Table 5).

Predictors of Good Practice

Multivariate logistic regression analysis showed that higher knowledge scores (OR = 1.14; 95% CI: 1.05–1.26; $p = 0.007$) and positive attitudes (OR = 1.08; 95% CI: 1.03–1.20; $p = 0.010$) were significant predictors of better self-care practices. Additionally, higher educational levels, such as postgraduate education (OR = 3.51; 95% CI: 1.31–5.66; $p = 0.005$), and previous experiences with epilepsy management were associated with improved practice levels. However, factors such as age, gender, and years of epilepsy experience did not emerge as significant predictors of better practices (Table 6).

Table 5 Correlation Analysis Between Knowledge, Attitudes, and Practices

| Knowledge | Attitudes | Practices | |
|-----------|-------------------|-------------------|---|
| Knowledge | I | | |
| Attitudes | 0.376 (P < 0.001) | I | |
| Practices | 0.439 (P < 0.001) | 0.382 (P = 0.015) | I |

Table 6 Univariate and Multivariate Logistic Regression Analysis for Practice Levels

| Variables | Univariate OR (95% CI) | p value | Multivariate OR (95% CI) | p value |
|-------------------------------------|------------------------|---------|--------------------------|---------|
| Knowledge score | 1.19 (1.09–1.31) | <0.001 | 1.14 (1.05–1.26) | 0.007 |
| Attitude score | 1.05 (1.01–1.14) | 0.018 | 1.08 (1.03–1.20) | 0.010 |
| Gender (Ref: Male) | 1.21 (0.81–2.15) | 0.284 | – | – |
| Age (continuous) | 0.98 (0.88–1.32) | 0.364 | – | – |
| Residence (Ref: Rural) | 1.38 (0.76–2.11) | 0.206 | – | – |
| Suburban | 1.47 (0.68–2.61) | 0.183 | – | – |
| Education Level (Ref: Primary) | | | | |
| Middle School | 1.26 (0.55–1.62) | 0.332 | 1.28 (0.64–2.13) | 0.168 |
| High School/Technical | 1.24 (0.35–1.49) | 0.431 | 1.20 (0.71–1.65) | 0.835 |
| Junior College/Bachelor's | 1.10 (0.58–2.20) | 0.892 | 1.36 (0.75–2.12) | 0.516 |
| Master's or above | 3.61 (1.63–6.23) | 0.002 | 3.51 (1.31–5.66) | 0.005 |
| Work Status (Ref: Employed) | 0.55 (0.38–1.46) | 0.366 | 0.78 (0.55–1.89) | 0.234 |
| Monthly Income (USD) (Ref: <700) | 1.33 (0.69–1.49) | 0.431 | – | – |
| Years of Experience (Ref: <5 years) | 1.08 (0.81–1.36) | 0.294 | – | – |
| Marital Status (Ref: Unmarried) | 0.89 (0.43–1.42) | 0.189 | – | – |
| Divorced/Widowed | 0.92 (0.78–1.30) | 0.813 | – | – |

(Continued)

Table 6 (Continued).

| Variables | Univariate OR (95% CI) | p value | Multivariate OR (95% CI) | p value |
|---|---------------------------|---------|-----------------------------|---------|
| Technical Title (Ref: Nurse) | 1.08 (0.81–1.34) | 0.135 | – | – |
| Chronic Disease History (Ref: Yes) | 1.21 (0.81–1.25) | 0.284 | – | – |
| Sleeping Condition (Ref: Yes) | 1.33 (0.91–2.07) | 0.311 | – | – |
| Weekly Working Hours (Ref: ≤40 hrs) | 0.84 (0.60–1.26) | 0.221 | – | – |
| Night Shift (Ref: Yes) | 1.12 (0.78–1.91) | 0.412 | – | – |
| Clinical Teaching Role (Ref: No) | 1.64 (1.03–2.68) | 0.041 | 1.41 (0.93–2.28) | 0.072 |
| Self-rated Clinical Competence (Ref: Low) | 2.11 (1.22–3.41) | 0.014 | 1.75 (1.08–3.01) | 0.036 |
| Promotion Experience (Ref: No) | 1.67 (1.13–2.92) | 0.026 | 1.53 (1.07–2.74) | 0.041 |

Notes: Practice levels were dichotomized as poor/general practice (score < 27) and good/excellent practice (score ≥ 27). Significant results are indicated by P < 0.05.

Discussions

This study provides valuable insights into the current state of health literacy, attitudes, and practices (KAP) regarding epilepsy care in China. As key participants in their own healthcare management, patients with epilepsy play a central role in understanding early warning signs of seizures, adhering to medication regimens, and preparing for emergency situations. The results indicate that while patients generally exhibit a positive attitude toward managing their condition and take part in preventive practices, their knowledge regarding epilepsy and its management remains insufficient. This gap between attitude and knowledge highlights the need for targeted educational interventions and better support systems.

The moderate knowledge levels observed in this study align with findings from other research on chronic neurological conditions, where theoretical understanding is often less advanced than practical experience. A key area of deficiency identified was the understanding of seizure first aid, emergency management, and the correct use of anti-epileptic drugs (AEDs). Despite the importance of these areas for ensuring patient safety and optimal treatment outcomes, these topics seem to be underrepresented in patients' knowledge base. This finding underscores the need to integrate more comprehensive epilepsy-specific education into both hospital discharge plans and community health programs. Patients with a higher level of knowledge were significantly more likely to report engaging in effective self-care practices, such as proper medication adherence and timely emergency response, reinforcing the connection between knowledge and practical behavior in managing epilepsy.^{14,15} Our results indicate that inadequate epilepsy knowledge was significantly associated with delays in initiating treatment and higher rates of therapy discontinuation. Particularly in patients with symptomatic epilepsy, lower awareness and understanding of epilepsy mechanisms contributed to a larger treatment gap. These findings underscore the critical role of education in improving treatment adherence, reducing stigma, and enhancing discharge preparedness.

Similar to studies in other chronic diseases, this research confirms that higher levels of education and specialized epilepsy management training are associated with better self-management practices. Patients who received specialized education, either through hospital programs or community health outreach, demonstrated better control over their condition and were more likely to engage in behaviors that prevent complications. This suggests that education not only enhances patients' understanding of their condition but also improves their ability to manage their health proactively. The study highlights the importance of targeted educational interventions that empower patients to better control their epilepsy and reduce associated risks.^{16,17}

In China, the epilepsy treatment gap remains substantial, with studies estimating that 40–60% of individuals with active epilepsy do not receive consistent antiepileptic therapy.¹¹ Our findings suggest that inadequate knowledge among patients and caregivers directly contributes to this gap. Participants with lower knowledge scores were more likely to delay medical consultation, discontinue medication, or rely on traditional remedies. Misconceptions—such as the belief that epilepsy is untreatable or that lifelong medication causes dependence—continue to hinder adherence. These findings underscore the need for targeted educational interventions integrated into routine clinical practice. Community-based

health education, nurse-led counseling during discharge, and continuous follow-up can effectively improve epilepsy literacy, enhance treatment adherence, and ultimately narrow the treatment gap. Addressing these knowledge-related barriers is particularly important in rural and low-resource settings, where specialized neurological services remain limited.

Despite the generally positive attitudes observed, discrepancies were found between attitudes and actual self-care practices. For example, although many patients expressed a positive attitude toward the importance of managing epilepsy, a significant proportion did not consistently implement key self-care measures such as recognizing seizure triggers, adhering to prescribed medication, and preparing for emergencies. This discrepancy may be due to systemic barriers, including a lack of structured follow-up care, inadequate resources for continuous education, and insufficient healthcare support. Similar issues have been reported in other areas of chronic disease management, such as diabetes and hypertension, where fragmented care systems hinder effective patient education and behavior change. To address these issues, it is crucial for healthcare systems to provide continuous, patient-centered education and to offer practical support to reinforce knowledge. Incorporating structured educational programs into routine care, establishing clear follow-up protocols, and improving communication between healthcare providers can help bridge the gap between patient attitudes and actions.^{18–20}

This study contributes to the growing body of evidence advocating for a more structured, patient-centered approach to chronic disease management, particularly for complex neurological conditions like epilepsy. Empowering patients with the right knowledge and resources is essential for improving long-term outcomes. By addressing the gaps in knowledge and reinforcing the importance of early intervention, self-management, and healthcare collaboration, healthcare systems can improve the quality of care and reduce the risks of complications in epilepsy management.

Conclusion

This study emphasizes the need to enhance the knowledge, attitudes, and practices (KAP) of epilepsy patients in the management of their condition. While patients displayed positive attitudes towards managing their epilepsy, significant gaps in their knowledge—especially regarding seizure first aid, emergency preparedness, and the proper use of anti-epileptic drugs (AEDs)—were identified. Addressing these knowledge gaps through targeted educational interventions and accessible training programs is crucial for improving patients' self-care practices and overall epilepsy management. By equipping patients with the necessary knowledge and resources, healthcare systems can help reduce complications, promote better seizure control, and ultimately improve long-term patient outcomes in epilepsy care.

Data Sharing Statement

The datasets used and analyzed during the current study are available from the corresponding authors (Zijuan Jiang, Yuan Chen) on reasonable request.

Informed Consent and Ethical Approval

This cross-sectional study was approved by the ethics committees of The Affiliated Brain Hospital of Nanjing Medical University. All patients provided written informed consent.

Consent for Publication

The patient provided written informed consent for publication of this research.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors have no conflicts of interest to declare.

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