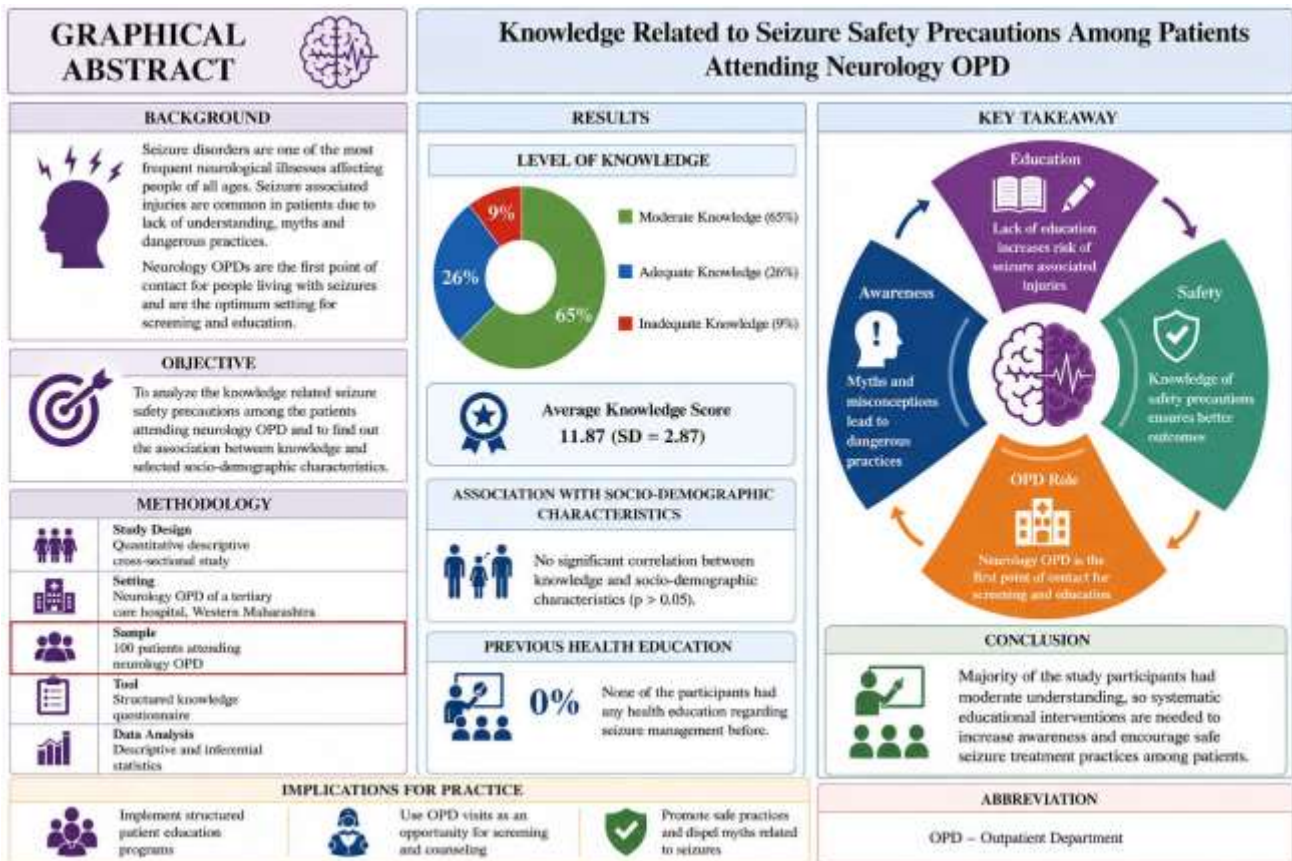


# A Descriptive Study to Assess the Level of Knowledge of Patients Regarding Seizure Safety Precautions Attending Neurology OPD of Tertiary Care Hospital of Western Maharashtra

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## ABSTRACT



## INTRODUCTION

Seizure disorders are among the most common neurological conditions affecting individuals of all age groups across the world. A seizure is defined as a transient occurrence of signs and/or symptoms due to abnormal, excessive, or synchronous neuronal activity in the brain, causing sudden changes in behaviour, movements, feelings, or level of consciousness.<sup>1,2</sup> Epilepsy, the most prevalent seizure disorder, is characterised by recurrent, unprovoked seizures and represents a significant global public health challenge.<sup>3</sup>

At the global level, epilepsy affects an estimated 50 million people worldwide, making it one of the most prevalent neurological conditions irrespective of sociodemographic boundaries.<sup>3</sup> According to the Global Burden of Disease Study 2021, the overall global prevalence of active epilepsy stands at approximately 658 per 100,000 population (95% UI: 569–748), with an estimated 51.7 million prevalent active cases, the vast majority (83.7%) residing in low- and middle-income countries (LMICs).<sup>4</sup> Population-based studies indicate that the annual incidence of epilepsy ranges from 50 to 60 new cases per 100,000 person-years globally, while up to 8% of individuals experience at least one seizure episode during their lifetime.<sup>3</sup> The incidence is disproportionately higher in LMICs — approximately 139 per 100,000 population annually compared to approximately 49 per 100,000 in high-income countries — owing to a higher prevalence of endemic infectious conditions such as neurocysticercosis, perinatal complications, traffic injuries, and limited access to healthcare services.<sup>5</sup> Epileptic seizures account for 1% of all hospital admissions and 3% of Emergency Department visits globally.<sup>3</sup>

India carries a substantial share of this global burden. Of the estimated 70 million persons with epilepsy worldwide, nearly 12 million are expected to reside in India, contributing to approximately one-sixth of the global epilepsy burden.<sup>6</sup> Epidemiological studies report that the overall prevalence of epilepsy in India ranges from 5.59 to 10 per 1,000 population, while the incidence varies from 38 to 60 per 100,000 population per year.<sup>6,7</sup> There is a clear differential distribution across sociodemographic groups, with higher rates reported among males, rural populations, and individuals of low socioeconomic status. Rural areas record an epilepsy prevalence of approximately 1.9% compared to 0.6% in urban centres.<sup>8</sup> Aetiology remains unknown in approximately two-thirds of cases; febrile seizures, family history, perinatal complications, central nervous system infections, and head trauma are identified as significant risk factors.<sup>7</sup> Alarming, the treatment gap — the proportion of patients with epilepsy not receiving adequate treatment — is estimated between 73.7% and 78% in India, driven by poverty, lack of awareness, cultural beliefs, stigma, and inadequate health infrastructure.<sup>7</sup>

Within India, the state of Maharashtra represents a unique epidemiological landscape. A systematic review and meta-analysis published in 2025 reported that the overall prevalence of epilepsy in Indian children stands at 0.8% (95% CI: 0.6–1.0), with considerable regional variation — highest in the North-East (2.3%) and lowest in Central India (0.4%).<sup>9</sup> Maharashtra, being among the most populous and industrially developed states, witnesses a dual burden of urban lifestyle-related neurological disorders and rural healthcare access challenges. Western Maharashtra, in particular, has fewer dedicated studies on seizure safety knowledge and practices among patients attending neurology outpatient departments (OPDs), highlighting a critical gap in region-specific data.<sup>10</sup>

Seizure disorders contribute significantly to morbidity, particularly in developing nations. People with epilepsy face a risk of premature death two to three times greater than the general population, and sustain frequent physical complications including soft tissue injuries, head trauma, dental injuries, orthopaedic injuries, and burns.<sup>11</sup> A hospital-based study from North India found that 32.5% of patients with epilepsy sustained at least one seizure-related injury, with male gender, generalised tonic-clonic seizures, and uncontrolled seizures as the strongest predictors.<sup>11</sup> Despite advances in medical management, many patients and caregivers continue to practise unsafe responses during seizure episodes — including harmful manoeuvres such as placing objects in the mouth or physically restraining the patient — due to widespread myths and inadequate knowledge of evidence-based first-aid measures.<sup>12</sup>

A study conducted among neurology OPD patients and inpatients at a tertiary care hospital in South India (2024) found that 67.1% of participants exhibited poor knowledge regarding epilepsy and seizure

management, underscoring the urgent need for structured educational interventions at primary contact points of care.<sup>13</sup> Neurology OPDs serve as the foremost interface between patients living with seizures and the healthcare system, making them an ideal setting for assessment and targeted education.<sup>13</sup> Understanding the existing knowledge, attitudes, and practices of patients and their relatives helps healthcare personnel design context-specific educational strategies that can meaningfully reduce seizure-related injuries and improve outcomes.<sup>12</sup>

### **NEED OF THE STUDY**

Seizure disorders are associated with a high risk of preventable injuries due to sudden loss of consciousness, uncontrolled motor movements, and falls. Many of these adverse outcomes can be averted when patients and caregivers adhere to evidence-based seizure safety precautions.<sup>11</sup> However, existing literature consistently highlights that patients with seizure disorders and their caregivers possess limited and often inaccurate knowledge regarding appropriate safety measures, first-aid responses, and environmental modifications required during and after a seizure episode.<sup>12,13</sup> This deficiency in knowledge leads to avoidable injuries, repeated emergency hospital visits, prolonged disability, and significant psychosocial burden on both patients and their families.<sup>6</sup>

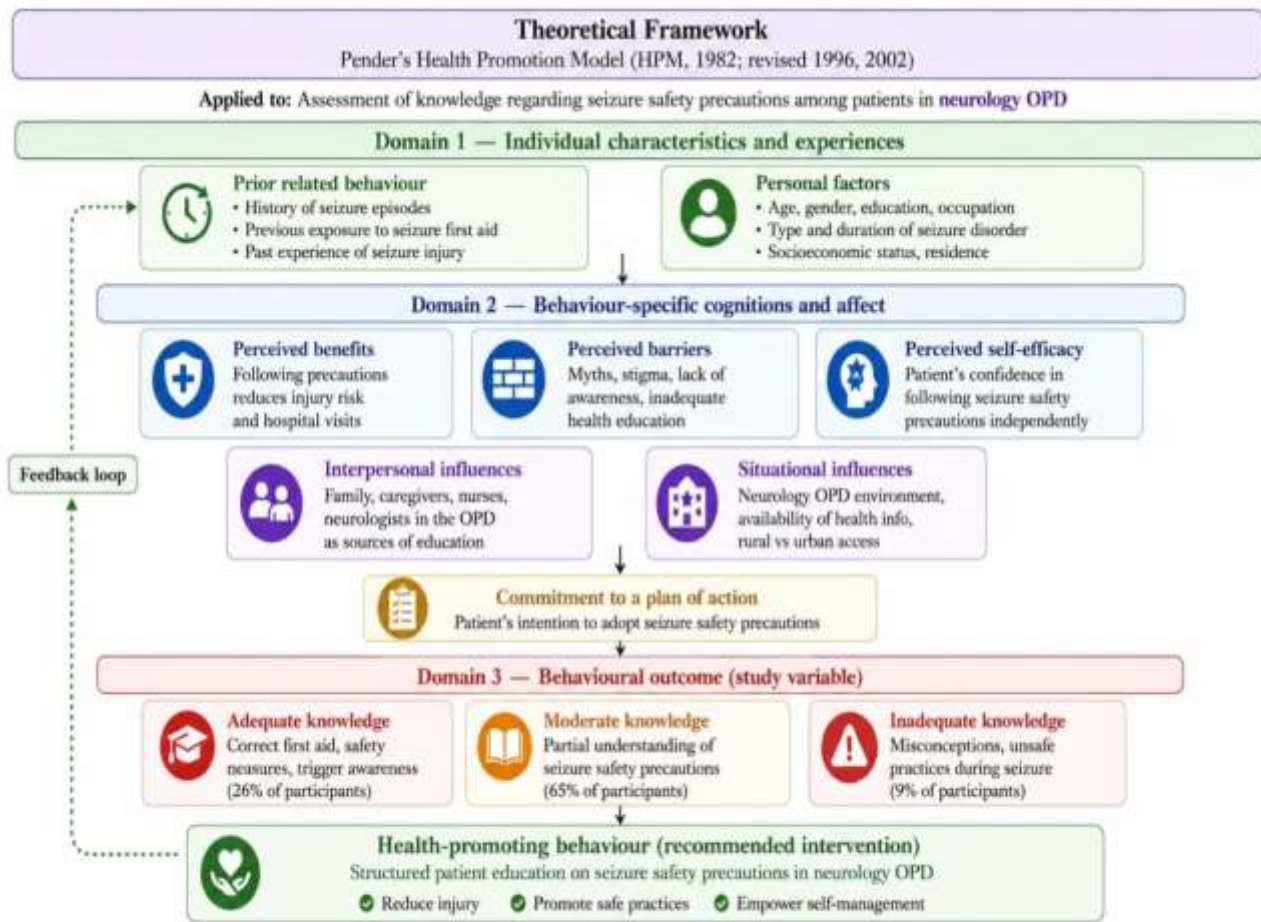
While several studies have examined knowledge and attitude regarding epilepsy across various regions of India, there remains a notable paucity of studies focused specifically on seizure safety precautions among patients attending neurology OPDs in Western Maharashtra.<sup>10,13</sup> The local sociocultural context, rural-urban divide, and region-specific healthcare access patterns in Western Maharashtra necessitate targeted assessment to understand the true knowledge deficit in this population. Identifying these gaps is a critical prerequisite for planning effective, context-specific health education programmes that can reduce seizure-related morbidity, prevent complications, and empower patients to manage their condition safely in daily life.

### **OBJECTIVES**

- To assess the level of knowledge regarding seizure safety precautions among patients attending neurology OPD.
- To determine the association between the level of knowledge regarding seizure safety precautions and selected socio-demographic variables.

### **CONCEPTUAL FRAMEWORK**

Health Promotion Model was specifically developed to explain why individuals adopt or fail to adopt health-promoting behaviours. Since your study aims to assess knowledge of seizure safety precautions — which directly determines whether patients act safely during and after a seizure — the HPM provides the ideal theoretical lens.



Source: Pender NJ, Murdaugh CL, Parsons MA. Health Promotion in Nursing Practice. 6th ed. Pearson; 2011.

Adapted for: Assessment of knowledge regarding seizure safety precautions. Neurology OPD, Western Maharashtra.

□ Individual characteristics / intervention   □ Behaviour-specific cognitions   □ Behavioural outcome   ---> Feedback loop: improved knowledge reinforces health-promoting behaviour

## MATERIALS AND METHODS

The present study utilized quantitative research approach as the aim was to test and quantify the level of knowledge about seizure safety precautions among patients with seizure disorders at a neurology outpatient setting objectively. The quantitative method presents an opportunity for the systematic collecting of numerical data and the application of statistical techniques to generate relevant conclusions about a well-defined population.<sup>14</sup> The descriptive cross-sectional research design was used to characterize the existing state of knowledge in a particular point in time without any experimental manipulation of factors. This design is ideal when the researcher wants to gain a snapshot of knowledge, attitudes or practices within a specific group in naturalistic settings.<sup>15</sup>

The study was conducted in the Neurology Out Patient Department (OPD) of a tertiary care hospital in Western Maharashtra which is the first point of contact for patients with seizure disorders from urban as well as rural areas and hence an appropriate environment for assessment of knowledge. The variables studied were categorized into independent variables and dependent variables. The independent variables were sociodemographic characteristics including age, gender, marital status, religion, educational status, occupation, type of family and socioeconomic status and clinical variables such as personal history of seizure disorder and previous health education received on seizure management. The dependent variable was the level of understanding of seizure safety precautions.

Total 100 patients with seizure disorders attending neurology OPD were enrolled in the study during the data collecting period. The study participants were selected using a purposive selection strategy, where only those patients who met the pre-defined inclusion criteria were included in the study, thus guaranteeing that the sample was relevant and representative of the study population.<sup>16</sup> Data was obtained via structured knowledge questionnaire prepared by investigator and approved by the experts for the content validity, clarity and appropriateness of items. Each right answer was assigned one mark. The total scores collected were categorized into three levels: inadequate knowledge (scoring 0–8), intermediate knowledge (score 9–13) and adequate knowledge (score 14–20). Descriptive statistics like frequency, percentage, mean and standard deviation were employed to summarize the socio-demographic profile and knowledge scores of the participants. Inferential statistics was employed to examine the association between knowledge and chosen socio-demographic characteristics. The p-value of less than 0.05 was regarded statistically significant.<sup>17</sup>

### ETHICAL ASPECTS

The study was conducted under formal approval from the Institutional Ethical Committee and appropriate hospital authorities. All participants gave written informed consent. Confidentiality, anonymity, and voluntary involvement were carefully provided during the study. The study was conducted in partial completion of the requirements for a degree in nursing.

### RESULTS

The study included 100 participants with seizure disorders. Results: The demographic analysis revealed that most of the participants (61%) were in the age category of 36-50 years followed by 18-35 years (22%) and 51-65 years (17%). Most of the participants were males (75%) and females were 25%. Regarding educational status, 52% had higher secondary education, 24% were graduate, 20% had secondary education and 4% had primary education. Most of the participants were government employees (41%) followed by jobless (25%), non-government employees (23%) and self-employed (11%). Most of them were living in Nuclear families (66%). Socio-economic status: 42% had income ₹47,347 & above. Importantly, 90% had no personal experience and 92% had no family history of seizure disease, and 100% had no prior health education on seizure control.

**Table 1: Level of Knowledge Regarding Seizure Safety Precautions Among Patients (N = 100)**

Level of Knowledge	Frequency (n)	Percentage (%)
Adequate (Score 14–20)	26	26%
Moderate (Score 9–13)	65	65%
Inadequate (Score 0–8)	9	9%
<b>Total</b>	<b>100</b>	<b>100%</b>

*Mean = 11.87, SD = 2.87, Median = 12, Range = 5–19*

Table 1 demonstrates the level of awareness of seizure safety precautions by the participants. Majority of the participants had intermediate knowledge (65%), adequate knowledge (26%) and inadequate

knowledge (9%) The mean knowledge score was 11.87, with a standard deviation of 2.87 and median of 12, reflecting an overall moderate level of knowledge.

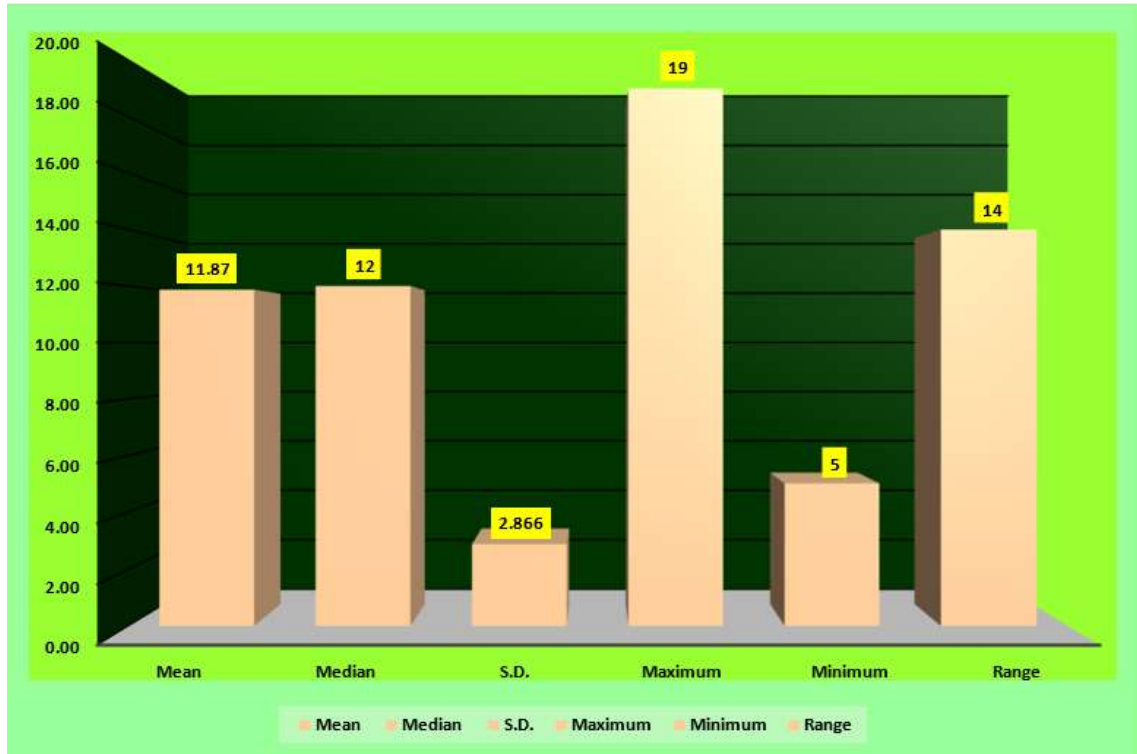


Figure no. 1: Diagram representing descriptive statistics level of knowledge

Figure no.1: The bar chart shows descriptive statistics of the participants' knowledge scores about seizure safety practices. The mean knowledge score was 11.87 showing the average knowledge level of the individuals. The median score was 12, indicating that most participants had a moderate level of understanding. The standard deviation was 2.866 which showed that there was a moderate variation in the scores of the subjects. The highest score achieved was 19 and the lowest score achieved was 5, giving a range of 14. The figure generally indicates that the participants had a moderate understanding of seizure safety procedures. Most of the scores hovered around 12 of the total score of 20 with reasonable variability within the group

Table 2: Association Between Level of Knowledge and Selected Socio-Demographic Variables (N = 100)

Demographic Variable	$\chi^2$ Value	p-Value
Age	1.887	0.757 (NS)
Gender	2.008	0.366 (NS)
Educational Status	9.987	0.125 (NS)
Occupation	6.766	0.343 (NS)
Type of Family	2.854	0.583 (NS)

Socio-Economic Status	3.036	0.552 (NS)
Personal History of Seizure	1.538	0.463 (NS)
Family History of Seizure	3.927	0.140 (NS)

NS = Not Significant ( $p > 0.05$ )

Table 2. suggests there was no significant relation between the amount of awareness on seizure safety precautions and any of the specified socio-demographic characteristics ( $p > 0.05$ ). These results reveal that knowledge levels were similar across diverse age groups, gender, education level, occupation, family type and socio-economic status. Because all of the participants (100%) had no previous health education on seizure management, it was not possible to compare the educated and non-educated group.

## DISCUSSION

The present study was undertaken to measure the level of knowledge of patients regarding seizure safety precautions attending to neurology OPD of a tertiary care hospital of Western Maharashtra. The results revealed that the majority of the participants (65%) had moderate knowledge, 26% had adequate knowledge and just 9% had inadequate knowledge with a total mean knowledge score of 11.87 (SD  $\pm$  2.87).

These findings are in line with Dabilgou et al. (2023) who examined 213 nurses and midwives in Burkina Faso, and discovered that 66.7% had good knowledge on epilepsy, but there remained significant gaps in first aid practices and medication management, indicating that even with good baseline knowledge, individuals do not possess the skills to implement knowledge in practice.<sup>18</sup> Similarly, Tawakul et al. (2022) assessed the public knowledge, awareness, attitudes and practices regarding seizure attacks among 401 residents of Makkah city and found that 67.1% had poor knowledge, and only 32.9% had a good level of knowledge, indicating that incomplete and moderate awareness of seizure management is a common finding in different settings.<sup>19</sup>

Raghavendra and Ramesh (2024) explored neurology OPD patients and their caregivers in a tertiary care hospital in South India and observed that while most had a reasonable understanding, a small but significant proportion had poor knowledge and unfavourable attitudes, suggesting ongoing gaps in seizure safety awareness even among those already receiving neurological care, which is very similar to the present study.<sup>13</sup> Sethi et al. (2020) conducted a hospital-based cross-sectional study among 201 epilepsy patients attending the neurology OPD of Banaras Hindu University, Varanasi and reported that though the majority of patients with epilepsy had better knowledge compared to the general population, significant gaps in practices persisted, including unsafe responses during seizures such as placing objects in the mouth.<sup>10</sup> Further, the study revealed better education related with improved knowledge, attitude and practices among epilepsy patients – a trend similar to the current study's conclusion that organized education has not yet been received by any participant.

In the present study, no statistically significant association ( $p > 0.05$ ) was identified between knowledge and any socio-demographic indicator such as age, gender, education, occupation or marital status.<sup>19</sup> This is in line with Kateb et al. (2023), who assessed the seizure first-aid preparedness of the residents of Al-Madinah city and reported no significant associations between gender, age, or marital status and epilepsy first-aid knowledge ( $p > 0.005$ ), attributing adequate knowledge to formal educational exposure and prior epilepsy training rather than socio-demographic factors alone.<sup>20</sup> However, Sethi et al. (2020) showed a

substantial association of male gender and higher education with improved understanding and attitudes of epilepsy patients in North India.<sup>10</sup> The non-significant results in the present study can be due to the relatively small sample size of 100 participants and the very uniform educational and socio-economic profile of the study population.

The most important finding of this study was that none of the participants had received any health education on seizure treatment before. Raghavendra and Ramesh (2024) clearly corroborated this, emphasising that physicians should place greater attention on teaching their patients and caregivers, with absence of targeted education being the key cause of knowledge gaps in neurology OPD populations.<sup>13</sup> This finding underlines the crucial requirement for systematic nurse-led patient education programs in neurology OPD settings to enhance knowledge, dispel damaging beliefs and encourage safe seizure management techniques.

## CONCLUSION

The study concludes that most participants had a moderate level of knowledge regarding seizure management, with only a few having adequate knowledge and some having inadequate understanding. No significant association was found between knowledge and socio-demographic variables, indicating that knowledge levels were similar across different groups. The absence of prior health education among all participants further highlights the need for structured teaching and awareness programmes. Therefore, it is important for nurses to take an active role in educating patients and the community to improve knowledge and ensure proper management of seizures.

## IMPLICATIONS FOR NURSING

### Nursing Practice:

As most of the participants had moderate knowledge and none of them had previous health education. Nurses have a significant role in delivering essential information on first aid measures in seizures and safety measures. In the course of ordinary treatment, particularly during hospitalization and at discharge, nurses can educate patients and their families about how to react in the event of a seizure. The study also guides nurses in identifying specific areas where knowledge is missing, so they may focus on those parts during education. Nurses may actively participate in establishing community awareness campaigns to propagate the right information and minimize misconceptions regarding seizures.

### Nursing Education:

The findings indicate that more focus needs to be given to seizure management in nursing education. In addition to theory, practical education using demonstrations and case examples should be provided so students know what to do in real scenarios. Regular in-service education and training programmes can help to improve and refresh the staff nurses' expertise to manage seizure cases efficiently in clinical practice.

### Nursing Administration:

Nurse administrators might conduct frequent teaching programmes, workshops and training sessions for staff nurses to upgrade their knowledge and abilities. They can ensure that there are standard guidelines/protocols for seizure care in all wards and they are followed. Community awareness efforts can be planned to disseminate correct information regarding seizure management.

### Nursing Research:

Further research can be carried out on larger sample sizes and in other locations to examine the effective-

ness of different teaching techniques or educational programs. Research can be focused on specific aspects affecting knowledge and practice and there is potential to develop and assess structured education courses or information pamphlets for patients and the public

## LIMITATIONS

- The study had a limited sample size (100 individuals), so the results cannot be extended to a larger population.
- The study was conducted in a single context limiting the generalisability of the findings.
- As a structured questionnaire was used for data collection, the replies were dependent upon the honesty and understanding of the participants.
- The study only examined knowledge and not the practical assessment which does not reflect how the participants respond in real scenarios.
- As none of the participants had previous health education, it was not possible to compare educated and non-educated groups.

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