

Napta College
Program of Medicine and Surgery

**Assessment of Knowledge, attitude and practice towards
epilepsy among displaced Sudanese Adults in Egypt 2025**

*A thesis submitted to the Department of Medicine Program of Medicine
and Surgery in partial fulfillment of the requirement of Bachelor's
Degree*

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Dedication

We, the research team, dedicate this work to all displaced Sudanese individuals who continue to
face life's challenges with resilience and hope.

To every person living with epilepsy your strength inspires us. It is our hope that this research
helps bring greater awareness, compassion, and support to your journey.

We also dedicate this study to our families, especially our mothers, whose unconditional love,
prayers, and sacrifices have been the backbone of our efforts.

To our professors and mentors thank you for your guidance, encouragement, and belief in our
potential.

Lastly, we dedicate this work to every vulnerable individual whose voice often goes unheard.
May this be a small step toward better health, dignity, and equity for all.

Acknowledgments

We would like to express our sincere gratitude to **Dr. Monir Ali Abdallah** for his invaluable guidance, support, and encouragement throughout the course of this research. His expertise, constructive feedback, and continuous motivation have been instrumental in shaping this work, and we are deeply thankful for his dedication to our academic and personal growth.

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Abstract

Background: Epilepsy affects over 50 million people worldwide, with 80% living in developing countries. Displaced populations face unique challenges in epilepsy management due to disrupted healthcare access, limited resources, and cultural beliefs. This study assessed knowledge, attitudes, and practices regarding epilepsy among displaced Sudanese adults in Egypt to inform targeted educational interventions.

Methods: A cross-sectional survey was conducted among 132 displaced Sudanese adults in Egypt in 2025. Using a structured questionnaire, data were collected on participants' knowledge of epilepsy causes and symptoms, attitudes toward people with epilepsy, and practices related to seizure management. Descriptive statistics were used to analyze the results.

Results: Most participants (96%) were aware of epilepsy, with 52% attributing it solely to medical causes, though misconceptions persisted—48% believed epilepsy was hereditary and 12% attributed it to magical causes. While attitudes were generally positive, with 91% supporting inclusion in schools and workplaces, significant stigma remained regarding marriage, with only 34% accepting marriage to someone with epilepsy. Regarding practices, 61% correctly identified placing a person on their side during seizures as appropriate first aid, but dangerous misconceptions persisted, with 24% recommending placing objects in the mouth. Though 95% expressed willingness to help during seizures, 42% acknowledged not knowing proper response techniques.

Conclusion: Despite relatively high awareness and positive attitudes toward social inclusion, displaced Sudanese adults in Egypt hold persistent misconceptions about epilepsy causation and management. The gap between willingness to help and correct seizure response knowledge presents a clear opportunity for targeted educational interventions. Addressing these gaps

through culturally-appropriate education could improve epilepsy management and reduce stigma within this vulnerable population.

الملخص

الخلفية: يُصاب أكثر من 50 مليون شخص حول العالم بالصرع، ويعيش 80٪ منهم في البلدان النامية. تواجه المجتمعات النازحة تحديات فريدة في إدارة الصرع بسبب تعطل الوصول إلى الرعاية الصحية، ومحدودية الموارد، والمعتقدات الثقافية. هدفت هذه الدراسة إلى تقييم المعرفة والاتجاهات والممارسات المتعلقة بالصرع بين السودانيين البالغين النازحين في مصر لتوجيه التدخلات التعليمية المستهدفة.

المنهجية: أجريت دراسة مقطعية بين 132 من البالغين السودانيين النازحين في مصر عام 2025. باستخدام استبيان منظم، تم جمع بيانات حول معرفة

المشاركين بأسباب وأعراض الصرع، واتجاهاتهم نحو المصابين بالصرع، وممارساتهم المتعلقة بإدارة النوبات. استخدمت الإحصاءات الوصفية لتحليل النتائج. باستخدام برنامج R.

النتائج: كان معظم المشاركين (96٪) على دراية بالصرع، مع 52٪ يعززون ذلك فقط لأسباب طبية، على الرغم من استمرار المفاهيم الخاطئة - حيث اعتقد 48٪ أن الصرع وراثي و 12٪ نسبوه لأسباب سحرية. بينما كانت الاتجاهات إيجابية بشكل عام، حيث دعم 91٪ الدمج في المدارس وأماكن العمل، ظلت هناك وصمة عار كبيرة فيما يتعلق بالزواج، حيث وافق 34٪ فقط على الزواج من شخص مصاب بالصرع. فيما يتعلق بالممارسات، حدد 61٪ بشكل صحيح وضع الشخص على جانبه أثناء النوبات كإسعافات أولية مناسبة، لكن استمرت مفاهيم خاطئة خطيرة، حيث أوصى 24٪ بوضع أشياء في الفم. على الرغم من أن 95٪ أعربوا عن استعدادهم للمساعدة أثناء النوبات، اعترف 42٪ بعدم معرفتهم بتقنيات الاستجابة المناسبة.

الاستنتاج: على الرغم من الوعي المرتفع نسبيًا والمواقف الإيجابية تجاه الاندماج الاجتماعي، لا يزال البالغون السودانيون النازحون في مصر يحملون مفاهيم خاطئة مستمرة حول أسباب الصرع وإدارته. تمثل الفجوة بين الاستعداد للمساعدة ومعرفة الاستجابة الصحيحة للنوبات فرصة واضحة للتدخلات التعليمية المستهدفة. يمكن أن يؤدي معالجة هذه الفجوات من خلال التثقيف المناسب ثقافياً إلى تحسين إدارة الصرع وتقليل الوصمة داخل هذه الفئة الضعيفة من السكان.

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Table of Abbreviations

Abbreviation	Full Term
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KAP	Knowledge, Attitudes, and Practices
PWE	People With Epilepsy
WHO	World Health Organization
GECP	Gezira Epilepsy Care Programme
IQR	Interquartile Range
ILAE	International League Against Epilepsy
SUDEP	Sudden Unexpected Death in Epilepsy
AEDs	Anti-Epileptic Drugs
DALY	Disability-Adjusted Life Year

□

Chapter (1)

Introduction

Epilepsy is a neurological condition characterized by recurrent seizures. A seizure is a temporary disturbance of cerebral function secondary to abnormal paroxysms in the brain, which results in a sudden excessive disorderly discharge of cerebral neurons. The discharge results in an almost instantaneous disturbance of sensation, loss of consciousness or psychic function, convulsive movements, or combinations of these (1).

Epilepsy is one of the most common neurological disorders worldwide, with a prevalence rate of 2.8-19.5 per 1,000 of the general population. It accounts for 1% of the global burden of disease, and about 80% of this burden is in the developing world, such as Sudan (2).

Despite this high prevalence, studies conducted in multiple countries have revealed that many people lack sufficient information about the disease (3).

It affects individuals irrespective of age, gender, cultural background, and geographic location.

The lives of people with epilepsy (PWE) are profoundly impacted by a range of factors, including seizures, a heavy burden of comorbidities, and the side effects of antiseizure medications. In addition to the clinical manifestations of the disease, people with epilepsy and their families face the consequences of prevalent stigma. This can lead to prejudice and discrimination in schooling, employment, marriage, and other aspects of social life (4).

The issue of stigma has long been a concern for people with epilepsy and their caregivers and is frequently mentioned as an important and identifiable cause of impaired quality of life. Despite significant progress in our understanding of the causes of epilepsy and the remarkable achievements that have been made to prevent and treat it, people of all ages living with a diagnosis of epilepsy continue to be affected by discrimination and negative attitudes (5).

The persistent stigma and incorrect perceptions surrounding epilepsy in Africa, which have remained largely unchanged over the past fifty years despite significant advancements in scientific understanding, are largely fueled by a lack of proper education (6).

The social stigma of epilepsy can be very difficult to overcome, causing many patients to avoid seeking medical advice and increasing the “treatment gap,” which exacerbates the condition more than the convulsions and the disease itself (7).

To date, there is little research on public attitudes toward epileptics in Sudan. In order to ensure the proper management of epilepsy, it is important to have a clear understanding of community attitudes toward the disease (2).

Problem statement

Despite its prevalence, misconceptions, stigma, and inadequate knowledge about epilepsy remain widespread in many communities. These gaps in knowledge, negative attitudes, and poor practices (KAP) towards epilepsy play a major role in social isolation, discrimination, and delayed treatment-seeking behavior among people living with epilepsy. Understanding the existing KAP towards epilepsy within a specific population is essential for designing effective educational interventions and public health strategies. This research seeks to assess the level of knowledge, attitudes, and practices towards epilepsy, identifying gaps and factors influencing them, in order to promote better management, reduce stigma, and improve the quality of life for individuals affected by epilepsy.

Research question

What are the levels of knowledge, attitudes, and practices regarding epilepsy among displaced Sudanese adults aged 18 years and older residing in Egypt, and how do these vary across population subgroups in a cross-sectional study conducted in 2025

Research hypothesis

Displaced Sudanese adults in Egypt with higher education levels, prior exposure to epilepsy, and lower adherence to cultural misconceptions will exhibit higher knowledge scores, more positive attitudes, and better healthcare practices regarding epilepsy compared to those with lower education, no prior exposure, and strong cultural misconceptions.

Objectives

General Objective

To assess the knowledge, attitudes, and practices (KAP) toward epilepsy among displaced Sudanese adults in Egypt.

Specific Objectives

1. Assess the level of knowledge about epilepsy among displaced Sudanese adults in Egypt.
2. Evaluate the attitudes toward people living with epilepsy.
3. Examine healthcare practices related to epilepsy.
4. Identify sociodemographic factors associated with variations in KAP outcomes.
5. Investigate the influence of cultural beliefs on stigma and healthcare practices.

JUSTIFICATION

There is a significant lack of research on the beliefs and health needs of Sudanese refugees in Egypt regarding epilepsy, despite their unique challenges. The influx of Sudanese refugees, due to ongoing turmoil in Sudan, has led to substantial health and social obstacles, necessitating targeted awareness programs on epilepsy. Addressing misconceptions and stigma surrounding epilepsy within these communities is crucial for improving treatment access and the overall quality of life for affected individuals. Improving the Quality of Life for Epilepsy Patients in Displaced Communities

Epilepsy patients in displaced communities often face difficulties in diagnosis, accessing medication, and coping with the disease due to economic and social factors.

This research can contribute to improving health and psychosocial support for patients by providing recommendations based on the study findings.

Chapter 2

LITERATURE REVIEW

Religious and cultural beliefs influence how people with epilepsy are treated, especially in Africa and other developing regions, where many believe epilepsy is caused by evil spirits and should be treated with traditional medicine and religious practices. A study conducted in Sululta Woreda, Ethiopia, surveyed 660 people to assess their knowledge, attitudes, and practices regarding epilepsy. The results showed that 59.8% had some knowledge of epilepsy, 35.6% had a positive attitude, and only 33.5% followed safe practices. Factors such as living in rural areas, education level, hearing about epilepsy, proximity to healthcare, witnessing a seizure, age, occupation, and family history of epilepsy influenced people's understanding and behavior. Overall, while the community is somewhat aware of epilepsy, they hold negative attitudes and unsafe practices toward it, despite having a fair level of knowledge (8).

This study assessed knowledge and attitudes toward epilepsy among the educated community in Sudan. Conducted from January to April 2018, the internet-based survey included 467 participants (60% female, average age 28.1). The results showed that most participants (69.6%) had witnessed a seizure, and 38.3% had a relative with epilepsy. While 77.9% knew epilepsy affects brain cells, only 27.4% were aware of genetic factors. The majority understood that epilepsy is not caused by possession (8.1%) or punishment from God (0.6%), and 82.9% recognized it is not a mental illness. Positive attitudes were observed regarding the inclusion of people with epilepsy (PWE) in family activities, school, and employment. The study found that females showed better knowledge and more positive attitudes toward epilepsy (9).

This observational cross-sectional study aimed to assess the knowledge and attitudes toward epilepsy among final and semi-final year medical students at the University of Bahri. A total of 228 students completed self-administered questionnaires. The results indicated that 63% of students had a high level of knowledge about epilepsy. However, misconceptions were noted, with 10.1% not recognizing atonic seizures as a type of epilepsy, 62.7% attributing epilepsy solely to psychological factors, and 9.6% viewing it as untreatable. Some students also held erroneous beliefs, such as thinking epilepsy was a demonic attack (8.3%) or that the Quran could cure it (34.6%). Despite these misconceptions, 77% of students demonstrated a positive attitude toward people with epilepsy. Nevertheless, 42.1% believed there should be restrictions on sports for people with epilepsy, and 13.6% would not marry someone with the condition. The study highlights the need for curriculum adjustments to address both the scientific understanding and the social impacts of epilepsy in medical education (10).

This study aimed to assess the knowledge, attitudes, and practices of secondary school teachers in Khartoum, Sudan, regarding epilepsy. A self-administered questionnaire with 38 items was distributed to 317 teachers. While the majority (93.6%) were familiar with the term "epilepsy" and 83.5% had witnessed a seizure, their understanding of the disease's causes and treatment was generally poor. Notably, 48% of teachers believed that people with epilepsy should not be treated normally in society, and many held harmful misconceptions about managing seizures, such as tying patients or placing spoons in their mouths. Despite these gaps in knowledge, teachers demonstrated positive practices

regarding first aid for seizures. However, negative attitudes were prevalent, especially regarding the social integration of people with epilepsy, such as marriage and employment. The findings highlight a need for improved education on epilepsy, focusing on both medical understanding and reducing stigma (11).

This study evaluated school teachers' knowledge, attitudes, and practices concerning childhood epilepsy, emphasizing the absence of formal education on the subject in teacher training programs. Conducted under the Gezira Epilepsy Care Programme (GECp), the cross-sectional study utilized a 35-item questionnaire to assess epilepsy awareness and response strategies among 200 teachers (100 primary and 100 secondary) in rural south Gezira, Central Sudan. Findings revealed that most teachers lacked prior exposure to epilepsy-related information, leading to uncertainty in their responses. While some mistakenly believed epilepsy to be contagious, none opposed having students with epilepsy in their classrooms. Regarding seizure management, 47% of primary and 64% of secondary school teachers demonstrated correct first aid knowledge (2).

This study aimed to assess the knowledge, attitudes, and practices of caregivers of children with epilepsy. A cross-sectional design was used, involving 107 caregivers of children diagnosed with epilepsy, attending a pediatric neurology outpatient clinic in Khartoum, Sudan. Data were collected via structured interviews, with clinical details sourced from medical records. The results showed that while most caregivers recognized epilepsy as a non-infectious condition (92.5%), a significant portion (41.1%) still believed it could have a supernatural origin. Many caregivers (66.4%) felt epilepsy resulted in missed educational opportunities, and 64.5% observed societal stigma. Regarding practices during seizures, less than half (39.7%) knew to position their child safely on their side, while over a third (37.2%) used water during seizures. Additionally, caregivers of children with generalized tonic-clonic seizures had significantly lower knowledge levels and were more likely to associate epilepsy with heredity and loss of consciousness. The study highlights the need for continuous educational programs to improve caregiver knowledge and practices, providing valuable insight into how care resources can be better tailored to the local context (12).

This cross-sectional study examined the knowledge, attitudes, and practices of 418 parents and caregivers of children with epilepsy at a tertiary care center in North India. Using a 16-item questionnaire available in both English and Hindi, researchers collected data from individuals whose children attended the pediatric outpatient clinic between January 2021 and 2022. Results showed that misconceptions about epilepsy were common—only a third of respondents did not associate it with psychiatric illness. Many believed epilepsy negatively affected school performance (77.2%) and family life (71%), while over half felt that societal discrimination existed. Additionally, 46.6% believed alternative medicine could cure epilepsy, and a significant number reported financial (72.5%) and work-related (78.5%) burdens. Perception of epilepsy as a psychiatric condition was more prevalent among those with lower educational backgrounds. Although most caregivers followed appropriate medication practices, 36.6% admitted to missing doses. The study underscores critical gaps in awareness and attitudes, emphasizing the need for community and family education to improve outcomes for children with epilepsy (13).

This large-scale door-to-door survey aimed to determine the prevalence and pattern of epilepsy and assess the knowledge, attitudes, and practices (KAP) regarding the condition among residents in central Kerala, a region known for high literacy and health awareness. Covering over 238,000 individuals across 43,681 households, the study identified 1,175 active epilepsy cases, with a crude prevalence of 4.9 per 1,000 people, peaking in the 10–19-year age group. Among 1,118 surveyed individuals from households without epilepsy, nearly all had heard of epilepsy, yet misconceptions remained—31% believed it to be hereditary, 27% saw it as a form of insanity, and 40% thought people with epilepsy could not be properly educated or employed. Additionally, 11% were uncomfortable with their children interacting with epileptic peers. Despite a high level of awareness, the study revealed deeply rooted negative attitudes, highlighting the urgent need for public education and inclusion of epilepsy-related content in school curricula (14).

This study investigated the knowledge, attitudes, and practices (KAP) regarding epilepsy among rural residents in Tanzania to inform the development of a health education program. A total of 3,256 heads of households (average age 40.2 years) were interviewed. Findings revealed widespread misconceptions and stigma: 67.7% of respondents did not know the cause of epilepsy, while others attributed it to factors like heredity, witchcraft, and infections. Alarmingly, 40.6% believed epilepsy was contagious through contact or shared food. Many viewed epilepsy as incurable (36.8%) or uncontrollable (17.1%), and 45.3% preferred traditional healers over hospital treatments, which only half believed to be effective. Stigma extended to education, with 62.7% unwilling to allow epileptic

children to attend school due to fears of mental impairment, injury, or contagion. Regarding seizure response, only 35.7% were aware of appropriate first-aid practices, while others admitted to harmful or unnecessary actions. These results highlight a critical need for targeted epilepsy education and informed the foundation of a broader health care and epilepsy control program in the region (15).

This study assessed the knowledge, attitudes, and practices (KAP) of school teachers toward people living with epilepsy (PWE) in Addis Ababa, Ethiopia, where epilepsy is highly prevalent among school-aged children and associated with significant stigma. Using multistage cluster sampling, researchers surveyed 845 teachers from 20 schools across three sub-cities through a standardized self-administered questionnaire. Findings revealed a mix of biologically and culturally influenced beliefs: while some teachers correctly identified brain disease as a cause (26.5%) and supported medical treatment (52.2%), many also believed epilepsy to be a psychiatric illness (12.9%) and favored culturally-rooted remedies like Holy water (20.3%). Protective first aid responses (20.4%) and willingness to allow children to play with PWE (19.1%) were relatively low. Cultural misconceptions such as the belief that epilepsy must be cured before school attendance (21.6%) and ineffective practices like using smoke from a struck match (14.2%) were also noted. The study found that higher education levels were associated with scientifically accurate responses, while longer teaching experience correlated with stronger cultural beliefs. The findings highlight the need for integrating special needs and epilepsy education into teacher training programs to encourage a shift toward medically sound practices and reduce stigma (16).

Chapter 3

Chapter (3)

Methodology

Study Design

This study employ a cross-sectional design.

Study Population

The target population for this study consisted of Sudanese adults aged 18 years and older who were living in Egypt as part of the displaced community.

Inclusion criteria

1. Sudanese refugees or displaced persons residing in Egypt
2. Adults aged 18 years and older
3. Willing and able to provide informed consent

Exclusion criteria

1. Individuals who are unable to communicate due to cognitive or physical impairments
2. Individuals who are unwilling to participate in the study.

Data Collection

Data was collected using a structured questionnaire developed to assess the KAP model for epilepsy. The questionnaire consisted of three sections:

1. Knowledge:

- Understanding of epilepsy (definition, symptoms, causes, risk factors)
- Knowledge of treatment options (medication, healthcare services)
- Awareness of common myths and misconceptions about epilepsy (beliefs that epilepsy is a curse or contagious)

2. Attitude:

- Perceptions of people living with epilepsy (stigma, social acceptance, discrimination)
- Attitudes towards seeking medical care for epilepsy (willingness to access healthcare services, adherence to prescribed treatment)
- The role of family and the community in supporting people with epilepsy

3. Practice:

- Personal healthcare practices related to epilepsy (seeking medical care, taking prescribed medication)
- First aid practices in case of a seizure
- Utilization of healthcare services for epilepsy-related concerns
- Community support practices for individuals with epilepsy (e.g., assisting family members or others with the condition)

Data Analysis

The data was entered into a R statistical software package for analysis. Descriptive statistics will be used to summarize the demographic characteristics of the participants, as well as their KAP scores.

Ethical Considerations

The following ethical considerations were meticulously addressed in the context of this study:

- Approval was obtained from the ethical committee of the Program of Medicine and Surgery at Napta College.
- All participants received comprehensive information regarding the study's nature, objectives, potential risks, and anticipated benefits. Informed consent was sought from each participant or their legal guardian.
- The confidentiality and privacy of participants were rigorously safeguarded through the implementation of measures to ensure anonymity and the secure storage of all personal information.
- Sensitive and potentially distressing inquiries were approached with caution, and participants were provided access to psychological support as needed.
- The study complied with all relevant laws, regulations, and ethical guidelines, with prior approval from the appropriate ethical review board.
- Participation was entirely voluntary, allowing participants the option to withdraw at any time without facing any repercussions. Data was securely stored and utilized exclusively for research purposes.

Chapter (4)

Results

Among the 1,32 participants, the majority were young adults aged 18–23 years (39%), with a median length of stay in Egypt of 15 months (IQR: 10–24). A substantial majority had attained university level education (77%), indicating a relatively educated population. Students comprised the largest occupational group (35%), followed by healthcare professionals (20%), while both employees and the unemployed accounted for 16% each.

Table 1: Demographic characteristic of displaced Sudanese Adults in Egypt 2025

Characteristic	N = 132 ¹
Age	
18-23	52 (39%)
24-29	25 (19%)
30-35	15 (11%)
36 and above	40 (30%)

Gender	
Female	82 (62%)
Male	50 (38%)
Marital Status	
Single	83 (63%)
Widowed	3 (2.3%)
Married	40 (30%)
Divorced	6 (4.5%)
Education level	
Secondary	12 (9.1%)
University	102 (77%)
Above university	18 (14%)
Occupation	
Employee	21 (16%)
Freelancer	9 (6.8%)
Health care professional	27 (20%)
Other	8 (6.1%)
Student	46 (35%)
Unemployed	21 (16%)
Length of stay in Egypt in months	15 (10, 24)

Females constituted a higher proportion of the sample (62%), and most respondents were single (63%).

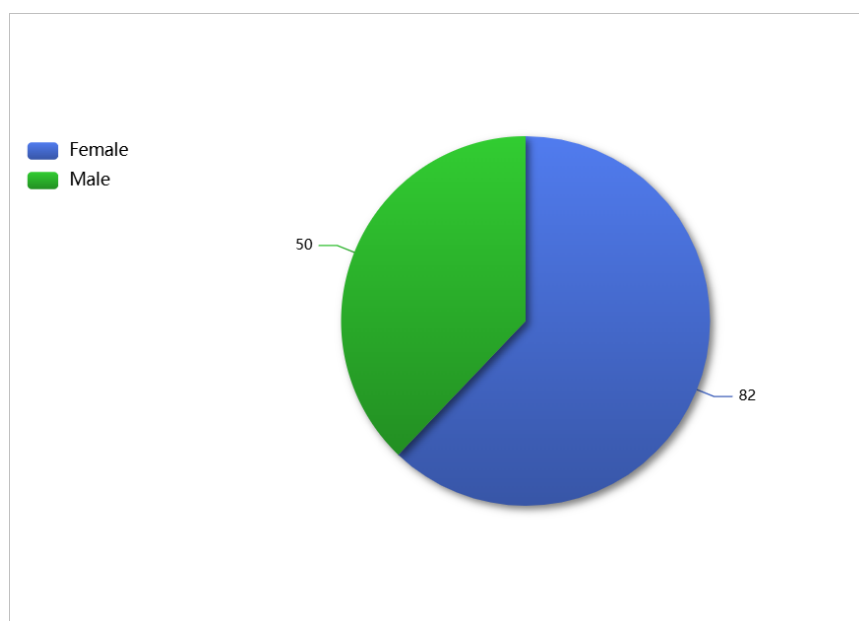


Figure 1: Gender Distribution of Displaced Sudanese Adults in Egypt 2025

Awareness of epilepsy was high, with 96% reporting prior knowledge of the condition. Despite this, misconceptions persisted: nearly half (48%) believed epilepsy to be hereditary, and a small minority (2.3%) incorrectly identified it as contagious, while 9.8% remained uncertain. The majority (71%) correctly affirmed that epilepsy can be treated with medication, though 16% expressed uncertainty. Misbeliefs about cognitive impairment were also prevalent, with 57% believing epilepsy affects intelligence. Nevertheless, attitudes toward inclusion were largely positive 91% supported school and work participation for individuals with epilepsy, and 92% recognized it as a chronic condition requiring regular treatment. Clinical understanding was notable: 99% identified convulsions as a common seizure sign, and 78% associated a blank stare with seizures. Furthermore, 77% correctly linked short-term memory loss with epilepsy.

Table 2: Knowledge of Epilepsy among Displaced Sudanese Adults in Egypt 2025

Characteristic	N = 132 ¹
Has previously heard about epilepsy	127 (96%)
Believes epilepsy is a hereditary disease.	64 (48%)
Believes epilepsy is a contagious disease	
Do not know	13 (9.8%)
No	116 (88%)
Yes	3 (2.3%)
Believes epilepsy can be treated with medication.	
Do not know	21 (16%)

No	17 (13%)
Yes	94 (71%)
Believes epilepsy is caused by magic.	
Do not know	26 (20%)
No	90 (68%)
Yes	16 (12%)
Believes epilepsy can affect intelligence and thinking	
Do not know	20 (15%)
No	37 (28%)
Yes	75 (57%)
Believes that individuals with epilepsy can go to school and work	
Do not know	7 (5.3%)
No	5 (3.8%)
Yes	120 (91%)
Believes epilepsy is a chronic disease that requires regular treatment.	
Do not know	6 (4.5%)
No	5 (3.8%)
Yes	121 (92%)
Believes giving medication on time can treat epilepsy.	
Do not know	23 (17%)
No	7 (5.3%)
Yes	102 (77%)

While 52% attributed epilepsy to medical causes alone, 27% believed in both medical and spiritual explanations, and 12% specifically endorsed magical causation.

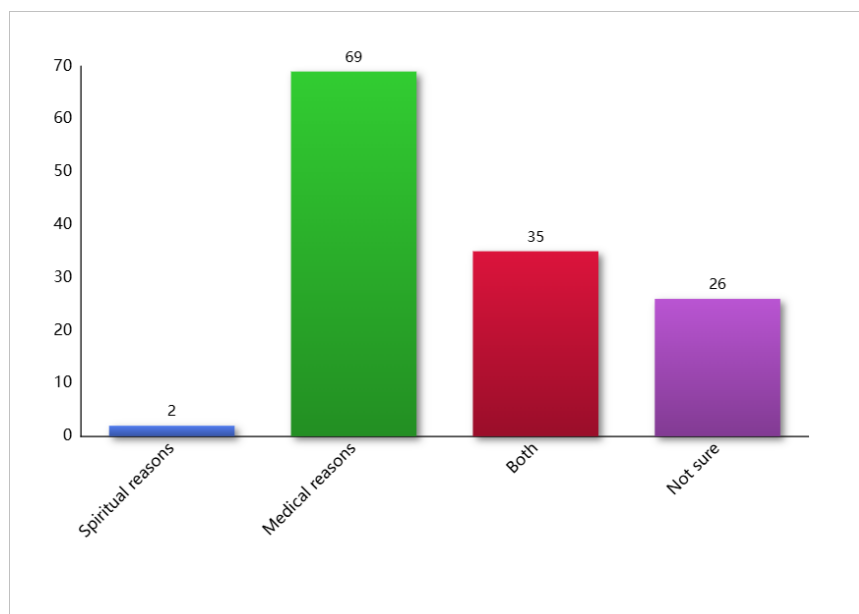


Figure 2: Knowledge about Epilepsy Reasons among Displaced Sudanese Adults in Egypt 2025

Clinical recognition of epileptic symptoms was generally strong, with 99% correctly identifying convulsions as a hallmark physical sign of seizures. Additionally, 78% accurately recognized a blank stare without response as indicative of a seizure, while 77% linked short-term memory loss to epilepsy, reflecting sound awareness of non-convulsive manifestations. Regarding symptoms accompanying loss of consciousness, shaking was the most commonly acknowledged (51%), followed by drooling (39%), whereas signs like sweating (4.5%) and rapid blinking (5.3%) were less frequently noted. When asked about the implications of sudden behavioral changes, 62% correctly associated them with epilepsy, although 30% misattributed such changes to stress.

Table 3: Knowledge about Seizure among Displaced Sudanese Adults in Egypt 2025

Characteristic	N = 132 ¹
Identifies the common physical sign of a seizure.	
Convulsions	131 (99%)
Vomiting	1 (0.8%)

A blank stare without response in an epilepsy patient indicate	
Eye strain	9 (6.8%)
Fatigue	13 (9.8%)
Boredom	7 (5.3%)
Seizure	103 (78%)
A short memory loss may be a symptom of	
Insomnia	4 (3.0%)
Depression	19 (14%)
Epilepsy	102 (77%)
Symptom may accompany loss of consciousness during a seizure	
Shaking	67 (51%)
Sweating	6 (4.5%)
Rapid blinking	7 (5.3%)
Drooling	52 (39%)
A sudden short change in a person's behavior can indicate	
Stress	39 (30%)
Daydreaming	10 (7.6%)
Epilepsy	82 (62%)
Sleepwalking	1 (0.8%)
Anxiety	7 (5.3%)

Attitudes toward epilepsy revealed mixed perceptions, particularly regarding social integration and familial relationships. While a majority (60%) believed epilepsy does not interfere with family life, a notable minority (21%) felt it does, and 19% were uncertain. When asked about acceptance of a family member marrying someone with epilepsy, only 34% responded affirmatively, with an equal proportion unsure and 32% opposed indicating ambivalence and possible stigma. Similarly, only 33% personally expressed willingness to marry someone with epilepsy (20% agree, 13% strongly agree), while 28% disagreed or strongly disagreed, and 39% remained uncertain. Importantly, there was near unanimous consensus (95%) on the need for increased public awareness.

Table 4: Attitude of Social and Familial Towards Epilepsy among Displaced Sudanese Adults in Egypt 2025

Characteristic	N = 132 ¹
Epilepsy interferes with family life	
No	79 (60%)
Don't know	25 (19%)
Yes	28 (21%)
Agree to a family member marrying someone with epilepsy	
No	42 (32%)
Don't sure	45 (34%)
Yes	45 (34%)
Believe there is a need for more public awareness about epilepsy	
No	2 (1.5%)
Do not sure	5 (3.8%)
Yes	125 (95%)
I don't mind marrying someone with epilepsy	
Agree	27 (20%)
Strongly agree	17 (13%)
Not sure	51 (39%)
Disagree	28 (21%)
Strongly disagree	9 (6.8%)

Overall, attitudes toward individuals with epilepsy were generally positive, though some uncertainty and fear persisted. A majority (62%) reported feeling comfortable interacting with someone with epilepsy (36% agree, 26% strongly agree), while 30% remained unsure. Similarly, 85% agreed that people with epilepsy can be good friends, reflecting high levels of social acceptance. Notably, the belief that individuals with epilepsy should be isolated was overwhelmingly rejected by 93% (38% disagree, 55% strongly disagree), indicating a strong opposition to social exclusion. However, emotional responses to seizures revealed mixed sentiments: although 44% disagreed or strongly disagreed with feeling afraid when witnessing a seizure, 41% admitted to fear (36% agree, 4.5% strongly agree), and 16% were unsure.

Table 5: Attitude of Perception and Emotional Reactions Towards Epilepsy among Displaced Sudanese Adults in Egypt 2025

Characteristic	N = 132 ¹
I feel comfortable interacting with someone who has epilepsy	
Agree	47 (36%)
Strongly agree	34 (26%)
Not sure	39 (30%)
Disagree	6 (4.5%)
Strongly disagree	6 (4.5%)
People with epilepsy can be good friends	
Agree	44 (33%)
Strongly agree	69 (52%)
Not sure	18 (14%)
Strongly disagree	1 (0.8%)
I believe people with epilepsy should be isolated	
Agree	3 (2.3%)
Strongly agree	1 (0.8%)
Not sure	6 (4.5%)
Disagree	50 (38%)
Strongly disagree	72 (55%)
I feel afraid when witnessing a seizure	
Agree	47 (36%)
Strongly agree	6 (4.5%)

Not sure	21 (16%)
Disagree	32 (24%)
Strongly disagree	26 (20%)

The responses demonstrate a generally good level of awareness among participants regarding first aid for seizures, though important misconceptions persist. The majority (61%) correctly identified rolling the person onto their side as the appropriate first response during a seizure, which is consistent with international first-aid guidelines. Similarly, 82% correctly understood that loosening tight clothing improves breathing, and 83% knew that ensuring proper breathing prevents oxygen deficiency both reflecting sound understanding of seizure management priorities.

However, dangerous misconceptions remain: nearly a quarter (24%) suggested putting a spoon in the mouth, and 18% recommended giving something to bite to prevent the tongue from falling backward practices that are medically discouraged due to the risk of injury. Only 48% correctly stated that placing the person on their side helps prevent tongue obstruction. Likewise, 83% correctly identified seizure duration as the most important detail to document crucial for medical evaluation.

Table 6: Practice Towards Seizure Response in Epilepsy among Displaced Sudanese Adults in Egypt 2025

Characteristic	N = 132 ¹
The first step to help someone during a seizure	
•Other	12 (9%)
Leave him alone	20 (15%)
Restrain his movement	20 (15%)
Roll the person onto their side	80 (61%)
Why should tight clothing be loosened during a seizure?	
Other	2 (1.6%)
Stop the seizure	8 (6.1%)
Improves breathing	108 (82%)
Reduces sweating	11 (8.3%)
Helps with cooling	3 (2.3%)
What should be done to prevent the tongue from falling backward?	
Other	5 (4.5%)

Give him something to bite	24 (18%)
Put fingers in the mouth to hold the tongue	8 (6.1%)
Put a spoon in the mouth	32 (23.8%)
Place him on their side	63 (48%)
What should be done with the surroundings during a seizure?	
Don't know	1 (0.8%)
Remove sharp or dangerous objects	115 (87%)
Close the room	1 (0.8%)
Leave everything as it is	15 (11%)
What should be recorded during a seizure	
What the person ate before the seizure	10 (7.7%)
Duration of the seizure	109 (83%)
Time of the seizure	13 (9.8%)

Awareness of the seizure environment was better, with 87% knowing that removing sharp objects is essential to prevent injury.

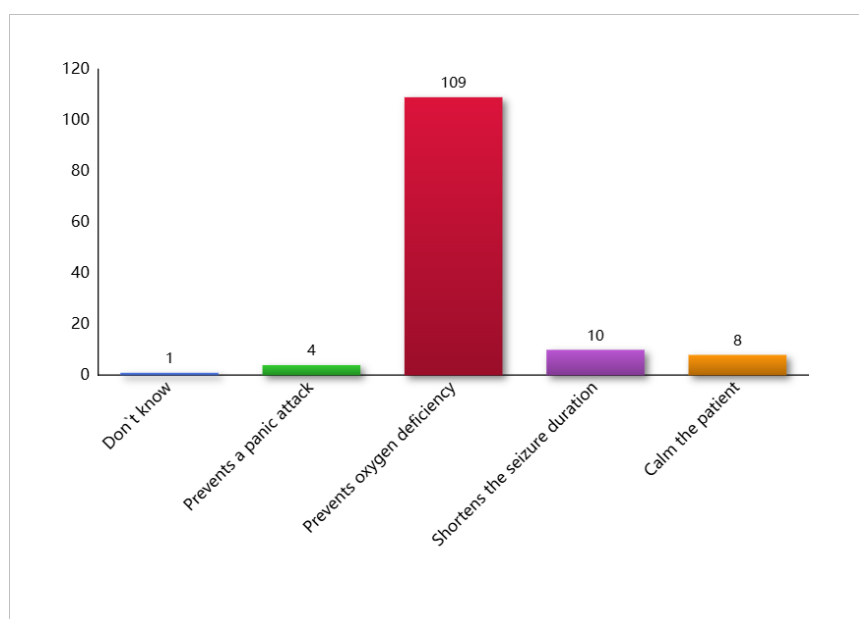


Figure 3: Practice Towards Ensuring Proper Breathing During a Seizure
Seizure Response in Epilepsy Among Displaced Sudanese Adults in Egypt, 2025

The data reveal notable insights into the personal experiences and attitudes towards epilepsy. A significant majority, 58%, reported no personal experience with epilepsy, while 42% had personal experience with the condition. Most respondents, 73%, had witnessed a seizure, which may influence their perceptions of the condition. Despite this exposure, 42% were unaware of how to properly respond to a seizure, highlighting a gap in practical knowledge that contrasts with the high willingness to assist those experiencing seizures, with 95% indicating a readiness to help. Additionally, a strong consensus exists regarding the need for medical intervention in epilepsy, with 92% affirming the necessity of professional medical care for individuals with the condition.

Table 7: Practice Toward Experience and Willingness to Assist Epileptic Seizures Among Displaced Sudanese Adults in Egypt, 2025

Characteristic	N = 132 ¹
Personal experience with epilepsy	
No	77 (58%)
Yes	55 (42%)
Witnessing a seizure	
No	35 (27%)
Yes	97 (73%)
Knowledge of how to respond to a seizure	
No	55 (42%)
Yes	77 (58%)
Willingness to help someone having a seizure	

No	7 (5.3%)
Yes	125 (95%)
Belief in the need for medical intervention in epilepsy	
No	10 (7.6%)
Yes	122 (92%)

Chapter (5)

Discussion

This study assessed knowledge, attitudes, and practices (KAP) regarding epilepsy among displaced Sudanese adults in Egypt in 2025. The findings reveal a complex picture of relatively high awareness coupled with persistent misconceptions, generally positive social attitudes with specific areas of stigma, and mixed practices regarding seizure management. These results offer valuable insights into the understanding of epilepsy within this unique population and highlight areas for targeted educational interventions.

Our findings demonstrated high overall awareness of epilepsy (96%) among the study population, who reported that they had heard about epilepsy. This figure exceeds the awareness levels reported in a study from Sululta Woreda, Ethiopia, where only 59.8% demonstrated knowledge about epilepsy (8). This disparity likely reflects the high educational attainment of our sample, with 77% having university-level education. Education has consistently been identified as a significant determinant of epilepsy knowledge across multiple studies (16). Despite this high awareness, several misconceptions persisted. Nearly half (48%) of respondents incorrectly believed epilepsy to be hereditary, which is notably higher than the 31% reported in central Kerala, India (14), and in rural Tanzania (15). Among our respondents, 12% believe in magical causation, similar to rural populations in Tanzanian Residents (15). This finding suggests that despite displacement and potential cultural influences, our study population maintained relatively scientific perspectives on epilepsy etiology, with 52% attributing it solely to medical causes.

The recognition of epilepsy as a treatable condition requiring medication (71%) reflects a moderately informed understanding, though still showing room for improvement compared to the educated community previously studied in Sudan where scientific understanding was more prevalent (9). However, our finding that 57% believed epilepsy affects intelligence reveals a persistent misconception that could contribute to stigma, consistent with reports from other studies showing beliefs that epilepsy affects cognitive abilities (13, 14).

The recognition of epilepsy as a treatable condition requiring medication (71%) reflects a moderately informed understanding, though still showing room for improvement compared to the educated community previously studied in Sudan where scientific understanding was more prevalent (9). However, our finding that 57% believed epilepsy affects intelligence reveals a persistent misconception that could contribute to stigma, consistent with reports from other studies showing beliefs that epilepsy affects school performance (13).

Attitudes toward individuals with epilepsy demonstrated a pattern of general acceptance with specific pockets of stigma. The strong support for inclusion in educational and occupational settings (91%) and rejection of isolation (93%) contrasts markedly with findings from previous studies of teachers in Khartoum, where 48% opposed treating people with epilepsy normally in the community (11), and rural Tanzania, where 62.7% were unwilling to allow children with epilepsy to attend school (15). This difference likely reflects the higher education levels of our respondents and perhaps the perspective-broadening influence of their displacement experience.

However, significant stigma persisted regarding marriage to individuals with epilepsy. Only 34% would accept a family member marrying someone with epilepsy, and just 33% would personally consider such a marriage. This finding aligns with previous research among Sudanese medical students, where 13.6% explicitly stated they would not marry someone with epilepsy (10), and suggests that intimate social integration remains challenging despite overall positive attitudes. This marriage-specific stigma may reflect deeply rooted cultural beliefs about heredity (which 48% endorsed) or concerns about managing the condition within family life (which 21% believed would be disrupted by epilepsy).

The emotional response to witnessing seizures revealed mixed attitudes, with 41% acknowledging fear. This emotional reaction may contribute to social distancing despite intellectual acceptance, a phenomenon observed across multiple studies (16). Importantly, the

near-unanimous recognition (95%) of the need for increased public awareness highlights respondents' self-awareness of knowledge gaps and receptiveness to educational initiatives.

Regarding seizure response practices, our findings revealed both strengths and critical areas for improvement. The majority (61%) correctly identified rolling a person onto their side as the appropriate first response during a seizure, which exceeds the correct first aid knowledge reported among caregivers in Khartoum (39.7%) (12), and rural Tanzanians (35.7%) (15). Similarly, most respondents understood the importance of loosening tight clothing (82%) and ensuring proper breathing (83%).

However, dangerous misconceptions persist, with nearly a quarter (24%) suggesting putting a spoon in the mouth during seizures. This unsafe practice has been documented consistently across various populations, including among teachers in Sudan (11,12), suggesting it is a deeply entrenched belief that requires specific targeting in educational campaigns. Only 48% correctly understood the purpose of the recovery position in preventing tongue obstruction, highlighting an opportunity for practical first aid education.

The high willingness to help during seizures (95%) coupled with the admission by 42% that they did not know how to properly respond presents a clear opportunity for educational intervention. This gap between intention and knowledge is particularly notable given that 73% had witnessed a seizure, suggesting that observation alone does not guarantee proper response knowledge without formal education.

The displacement context of our population represents a unique aspect of this study. Despite the challenges of displacement, respondents maintained relatively high awareness and positive attitudes, suggesting resilience in health knowledge. However, the persistence of certain misconceptions and stigma indicates that displacement may limit access to updated health information or that cultural beliefs may be reinforced in diaspora communities as a form of cultural preservation.

Limitations

This study on epilepsy knowledge, attitudes, and practices among displaced Sudanese adults in Egypt has several significant limitations. The sample's demographic characteristics notably the high proportion of university-educated participants (77%), healthcare professionals (20%), and younger adults (39% aged 18-23) likely skewed results toward greater knowledge and more positive attitudes, limiting generalizability to the broader displaced Sudanese population with diverse educational backgrounds and age groups. The cross-sectional design prevents establishing causality or examining how KAP evolves during displacement, while self-reported data introduces potential social desirability bias, particularly regarding stigmatized conditions like epilepsy. Additionally, the structured questionnaire may not have fully captured culturally-specific nuances of epilepsy beliefs unique to Sudanese contexts, and the study's limited exploration of displacement experiences (trauma exposure, healthcare access, acculturation processes) leaves important contextual factors unexamined that might influence health perceptions and practices. These limitations suggest findings should be interpreted cautiously and supplemented with more diverse sampling and mixed-methods approaches in future research.

Recommendations

Based on our findings, several practical recommendations emerge:

1. **Targeted Educational Interventions:** Develop educational materials specifically addressing identified misconceptions, particularly regarding epilepsy causation, cognitive effects, and proper seizure response. These should be tailored to the educational level and cultural context of displaced Sudanese adults.
2. **Practical Seizure First Aid Training:** Implement hands-on training sessions in community settings to address the gap between willingness to help and knowledge of proper response techniques, with emphasis on correcting dangerous practices such as putting objects in the mouth during seizures.
3. **Cultural Sensitivity in Stigma Reduction:** Address marriage-related stigma through culturally sensitive approaches that acknowledge concerns while providing accurate medical information about heredity and management of epilepsy in family contexts.
4. **Community Ambassador Program:** Leverage the 42% of respondents with personal experience with epilepsy as potential community ambassadors to share experiences and knowledge, particularly regarding social integration and stigma reduction.
5. **Integration with Refugee Health Services:** Incorporate epilepsy education into existing health services for displaced populations, recognizing the potential vulnerability of individuals with epilepsy in displacement contexts.

Conclusion

This study provides valuable insights into the knowledge, attitudes, and practices regarding epilepsy among displaced Sudanese adults in Egypt. Despite relatively high awareness and generally positive attitudes, persistent misconceptions and specific areas of stigma highlight the need for targeted educational interventions. The high willingness to help coupled with knowledge gaps in proper seizure response presents a clear opportunity for practical education. Understanding these dynamics is crucial for developing effective strategies to improve epilepsy management and reduce stigma within this population, ultimately enhancing quality of life for people with epilepsy in displaced communities.

Our findings contribute to the growing body of literature on epilepsy KAP across diverse populations, highlighting both universal challenges and context-specific aspects of epilepsy understanding. Further research is needed to explore effective intervention strategies tailored to the unique needs of displaced populations and to assess changes in KAP over time as displacement situations evolve.

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Section A: Socio-demographic Information

1. Age: _____,
2. Gender: ☐ Male ☐ Female
3. Marital status: ☐ Single ☐ Married ☐ Divorced ☐ Widowed,
4. Educational level: ☐ No formal education ☐ Primary ☐ Secondary ☐ University ☐ Postgraduate,
5. Employment status: ☐ Employed ☐ Unemployed ☐ Student ☐ Retired,
8. Have you ever heard of epilepsy before? ☐ Yes ☐ No

Section B: Knowledge

1. Epilepsy is a brain disorder. ☐ True ☐ False ☐ Don't know,
2. Epilepsy can be caused by head injury. ☐ True ☐ False ☐ Don't know,
3. Epilepsy is a contagious disease. ☐ True ☐ False ☐ Don't know,
4. People with epilepsy are mentally ill. ☐ True ☐ False ☐ Don't know,
5. Seizures can be triggered by stress, lack of sleep, or flashing lights. ☐ True ☐ False ☐ Don't know,
6. Epilepsy can be controlled with medication. ☐ True ☐ False ☐ Don't know,

7. Traditional medicine can treat epilepsy. ☐ True ☐ False ☐ Don't know,
8. All seizures involve convulsions. ☐ True ☐ False ☐ Don't know,
9. A person having a seizure should be restrained. ☐ True ☐ False ☐ Don't know,
10. You can put something in the mouth of a person during a seizure. ☐ True ☐ False ☐ Don't know

Section C: Attitudes

1. I would be willing to live with someone who has epilepsy.,
2. Children with epilepsy should attend regular school.,
3. I would allow my child to play with a child who has epilepsy.,
4. People with epilepsy can work in the same place as others.,
5. People with epilepsy should not marry.,
6. People with epilepsy should be isolated.,
7. I would be ashamed if someone in my family had epilepsy.,
8. I feel uncomfortable when I see someone having a seizure.,
9. People with epilepsy should not drive.,
10. Epilepsy is a punishment from God.

Section D: Practice

1. Have you ever witnessed a seizure? ☐ Yes ☐ No,
2. If yes, did you help the person? ☐ Yes ☐ No,
3. What did you do during the seizure? (select all that apply) ☐ Called for help ☐ Held the person down ☐ Put an object in their mouth ☐ Timed the seizure ☐ Rolled them to the side ☐ Prayed for them,
4. Do you know how to provide first aid for a seizure? ☐ Yes ☐ No,
5. Would you seek hospital care if you or someone close had a seizure? ☐ Yes ☐ No,
6. Have you ever taken a person with epilepsy to a traditional healer? ☐ Yes ☐ No,
7. Do you think epilepsy can be treated with herbs or rituals? ☐ Yes ☐ No,
8. Would you keep it secret if someone in your family had epilepsy? ☐ Yes ☐ No,
9. Do you believe epileptic people can lead normal lives? ☐ Yes ☐ No,
10. Have you ever discussed epilepsy with a healthcare provider? ☐ Yes ☐ No