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# Exploring the Epidemiology and Factors Influencing Epilepsy: Investigating its Connection with Sleep and Stress

**A Karolin***

*Assistant Professor, P G Department of Food Science and Nutrition, Holy Cross Home Science College, Thoothukudi, Tamil Nadu, India*

***Corresponding Author:** A Karolin, Assistant Professor, P G Department of Food Science and Nutrition, Holy Cross Home Science College, Thoothukudi, Tamil Nadu, India.

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## Abstract

This study explores epilepsy's multifaceted nature, focusing on epidemiology, influencing factors, and its association with sleep and stress. With a sample of 100 respondents, predominantly aged 31-60 years, generalized seizures are prevalent. Stress emerges as a significant trigger, impacting sleep quality and exacerbating anxiety for both genders. Medication side effects contribute to sleep disturbances. Among males, seizures typically last 3-5 minutes, while among females, they last 5-7 minutes. Seizure frequency and severity are primary factors influencing quality of life for both genders. Anxiety and stress are common psychological effects. Generalized seizures are predominant in both males and females. The study advocates for comprehensive neurological care and recommends further research on sleep disturbances, stress management, and dietary guidelines for epilepsy management.

***Keywords:*** *Stress; Sleep; Factors*

## Introduction

Epilepsy is a brain condition characterized by the recurrence of unprovoked seizures. Generally, prognosis refers to the probability of attaining seizure freedom on treatment and little is known about the natural history of the untreated condition [1]. QoL of patients with epilepsy depended upon effectiveness of antiepileptic therapy and disease duration [2]. Sleep disorders are common in epilepsy, and early recognition and treatment can improve seizure frequency and potentially reduce risk [3]. Epileptiform discharges and antiepileptic medications may in turn detrimentally impact sleep [4].

## Objectives of the Study

- To identify the factors influencing the quality of life in people with epilepsy.
- To explore the association between epilepsy and sleep.

## Methodology

The researcher employed an investigative research design for this study, focusing on epilepsy patients in the Thoothukudi district. Data were gathered from the neuro center and nearby areas. A total of 100 participants aged 6 to 60 were selected using purposive sampling. Questionnaires and interviews were utilized to collect information, assessing their nutritional status and quality of life. Additionally,

insights into sleep disturbances were gathered, and EEG tests were conducted on ten participants. The researcher's plan involves raising awareness through a program at the neuro center, utilizing videos and pamphlets.

### Anthropometric measurements

Anthropometric measurements, including height and weight, were taken from the respondents, and their BMI was subsequently calculated. The participants then provided the corresponding values, which were recorded in the questionnaire.

### Biochemical assessment

The researcher conducts biochemical assessments on the participants, employing a blood pressure test as part of the study. The biochemical assessment proved valuable for evaluating diagnosis and treatment approaches.

### Clinical assessment

The researcher gathered clinical information from the participants, covering various aspects such as the symptoms experienced, potential causes of epilepsy, methods of diagnosis, and the treatments administered to epileptic patients.

### EEG testing for epilepsy diagnosis

Ten participants underwent an electroencephalogram (EEG) test, a painless and non-invasive procedure typically lasting between 30 to 60 minutes. This diagnostic tool is utilized to identify epileptiform states.

### Organizing a program to raise awareness

The researcher aims to organize a comprehensive awareness program tailored specifically for epilepsy patients at hospitals in the Thoothukudi district. The researcher will raise awareness in the neuro centre. This initiative seeks to address the unique needs and challenges faced by individuals living with epilepsy in the local community.

## Results and Discussion

### Duration of seizures

| Duration of seizures | Male | | Female | |
|---|---|---|---|---|
| | Frequency | % | Frequency | % |
| 3-5 minutes | 28 | 63.63 | 8 | 14.28 |
| 2-3 minutes | 16 | 36.36 | 20 | 35.71 |
| 5-7 minutes | 0 | 0 | 24 | 42.85 |
| < 7 minutes | 0 | 0 | 4 | 7.14 |
| Total | 44 | 100 | 56 | 100 |

***Table 1***

The predominant duration of seizures among male respondents was 3-5 minutes, accounting for 63.63% of cases. Among female respondents, the predominant duration was 5-7 minutes, comprising 42.85% of cases.

### Types of epilepsy

The most common type of epilepsy among both male and female respondents is generalized seizures, with 81.81% among males and 78.57% among females.

| Types of epilepsy | Male | | Female | |
|---|---|---|---|---|
| | Frequency | % | Frequency | % |
| Generalized seizures | 36 | 81.81 | 44 | 78.57 |
| Partial seizures | 8 | 18.18 | 12 | 21.43 |
| Total | 44 | 100 | 56 | 100 |

***Table 2***

## Triggers

| Triggers | Male | | Female | |
|---|---|---|---|---|
| | Frequency | % | Frequency | % |
| Stress | 16 | 36.36 | 28 | 50 |
| Lack of sleep | 12 | 27.27 | 8 | 14.28 |
| Flashing light | 8 | 18.18 | 16 | 28.57 |
| Others | 8 | 18.18 | 4 | 7.14 |
| Total | 44 | 100 | 56 | 100 |

***Table 3***

The predominant common trigger of epilepsy among both males and females is stress, with 36.36% of males and 50% of females identifying it as a trigger.

## Factors influencing the quality of life

| Factors influencing the quality of life | Male | | Female | |
|---|---|---|---|---|
| | Frequency | % | Frequency | % |
| Seizure frequency | 16 | 36.36 | 16 | 28.57 |
| Side effects of medication | 8 | 18.18 | 8 | 14.28 |
| Impact on daily activities | 4 | 9.09 | 8 | 14.28 |
| Psychological effects | 8 | 18.18 | 12 | 21.42 |
| Social stigma | 0 | 0 | 4 | 7.14 |
| Access to health care | 4 | 9.09 | 8 | 14.28 |
| Financial implication | 4 | 9.09 | 0 | 0 |
| Total | 44 | 100 | 56 | 100 |

***Table 4***

The most common factor influencing quality of life among both male and female respondents is seizure frequency and severity, with 36.36% for males and 28.57% for females.

## Psychological impact

Among male respondents, anxiety and stress are the most common psychological impacts of epilepsy, affecting 45.45% of them. Among female respondents, anxiety and stress, confusion or disorientation, and fear or panic are equally common, each affecting 21.42% of them.

| Psychological impact | Male | | Female | |
|---|---|---|---|---|
| | Frequency | % | Frequency | % |
| Fear or panic | 4 | 9.09 | 12 | 21.42 |
| Confusion | 0 | 0 | 12 | 21.42 |
| Anxiety and stress | 20 | 45.45 | 12 | 21.42 |
| Depersonalization | 4 | 9.09 | 4 | 7.14 |
| Hallucinations | 8 | 18.18 | 4 | 7.14 |
| Memory loss | 0 | 0 | 8 | 14.28 |
| Emotional distress | 4 | 9.09 | 4 | 7.14 |
| Other | 4 | 9.09 | 0 | 0 |
| Total | 44 | 100 | 56 | 100 |

***Table 5***

## Common cause of sleep disturbance

| Common cause of sleep disturbance | Male | | Female | |
|---|---|---|---|---|
| | Frequency | % | Frequency | % |
| Medication side effects | 28 | 63.63 | 20 | 35.71 |
| Genetic | 4 | 9.09 | 4 | 7.14 |
| Anxiety and stress | 4 | 9.09 | 8 | 14.28 |
| Irregular sleep schedule | 8 | 18.18 | 24 | 42.85 |
| Total | 44 | 100 | 56 | 100 |

***Table 6***

The predominant sleep disturbances reported in the study among individuals with epilepsy were medication side effects, affecting 63.63% of male respondents and 35.71% of female respondents. Irregular sleep schedules were also prevalent, particularly among females, affecting 42.85% of them.

## Impact of stress and anxiety on sleep

| Impact of Stress and Anxiety on Sleep | Male | | Female | |
|---|---|---|---|---|
| | Frequency | % | Frequency | % |
| Significantly affects | 20 | 45.45 | 12 | 21.42 |
| Somewhat affects | 12 | 27.27 | 24 | 42.85 |
| little to no effect | 12 | 27.27 | 8 | 14.25 |
| I am not sure | 0 | 0 | 12 | 21.42 |
| Total | 44 | 100 | 56 | 100 |

***Table 7***

The most common impact of epilepsy among male is the most common impact is that it somewhat affects their sleep, reported by 27.27%. Conversely, among females, the most common impact is also somewhat affected sleep, reported by 42.85%.

### EEG report

| EEG report | Male | | Female | |
|---|---|---|---|---|
| | Frequency | % | Frequency | % |
| Generalized | 5 | 55.55 | 1 | 100 |
| Lateralized epileptiform activity | 1 | 11.11 | 0 | 0 |
| Borderline epileptiform activity | 2 | 22.22 | 0 | 0 |
| Bilateral epileptiform activity | 1 | 11.12 | 0 | 0 |
| Total | 9 | 100 | 1 | 100 |

***Table 8***

Among the respondent's, generalized seizures are predominant in both males and females, with 55.55% of males exhibiting them and 100% of females.

## Conclusion

In conclusion, this thesis delves into the multifaceted landscape of epilepsy, shedding light on its epidemiology, influencing factors, and the intricate connection it shares with sleep and stress. Stress impacts sleep quality and exacerbates anxiety for both genders. Medication side effects disrupt sleep. Seizures last 3-7 minutes, frequency/severity affect quality of life. Anxiety and stress are common. Generalized seizures predominate in males and females.

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