

Exploring Medication and Mental Health in Epilepsy: A Cross-Sectional Study of Individuals under Therapy

Bimal Tamakuwala

Consultant Psychiatrist, Surat, Gujarat, India

Received: 03-03-2024 Revised: 29-03-2024 / Accepted: 25-04-2024

Corresponding author: Dr Bimal Tamakuwala

Conflict of interest: Nil

Abstract

Introduction: Epilepsy is a neurological ailment that is defined by the occurrence of repeated seizures. It is a condition that impacts a large number of people globally. Gaining knowledge of the demographics, treatment patterns, and related variables is essential for the successful administration of care. The objective of this research was to examine the demographic features, drug use, mental health symptoms, and prognosis of epilepsy patients receiving therapy.

Materials and Methods: We performed a cross-sectional research comprising 50 individuals with epilepsy who were receiving therapy. Structured questionnaires were used to gather data on demographics, drug utilization, adverse reactions, and mental health symptoms. The Self-Reporting Questionnaire-20 (SRQ-20) was used to evaluate symptoms related to mental health. The prognosis was classified as better, stable, worsened, or not relevant. The data were examined using descriptive statistics.

Results: The research had an equal distribution of male and female participants. The majority consisted of adult individuals residing in urban regions. The majority of individuals had generalized epilepsy and had a familial predisposition to the condition. Approximately half of the individuals experienced five or fewer seizures before receiving therapy. Lamotrigine was the predominant antiepileptic medication, with 46% of individuals reporting adverse effects. There was a high incidence of mental health complaints, including headaches, reduced appetite, and disrupted sleep patterns. The prognosis exhibited variability, with 30% of cases demonstrating improvement, 40% remaining stable, and 20% experiencing deterioration.

Conclusion: This research offers significant findings about the demographic characteristics, treatment behaviours, and mental health symptoms of individuals with epilepsy. Gaining insight into these aspects may assist healthcare practitioners in customizing treatment plans and support methods to enhance patient outcomes and quality of life.

Keywords: Epilepsy, Mental health, Prognosis, Remission, Therapy.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Epilepsy, a global neurological illness that interferes with brain function, has a profound impact on people's lives. According to the World Health Organization (WHO), there are more than 50 million individuals worldwide who have epilepsy, with 80% of them living in underdeveloped countries where access to healthcare is limited [1, 2]. Rural communities often have elevated incidences of several health issues, including low availability of prenatal and postnatal care, children's illnesses, and untreated childhood epilepsy [3]. Epilepsy is prevalent across all age groups, genders, ethnicities, socioeconomic backgrounds, and geographic areas, but it is more often seen in young individuals and seniors aged 60 and above [2]. Mental health, an essential aspect of one's total well-being, is intricately connected to physical and physiological health [4]. The

Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), published by the American Psychiatric Association, defines a mental illness as a notable disruption in cognition, emotional control, or behaviour. This disruption indicates impairment in the psychological, biological, or developmental processes that provide the basis of mental functioning. Mental problems often result in significant anguish or hinder social, vocational, or other crucial tasks [5] and prevalent mental diseases include depression, anxiety disorders, psychotic disorders, and bipolar disorder. Mental illnesses contribute significantly to the overall burden of disease worldwide, accounting for 25.3% and 33.5% of disability-adjusted life years in low- and middle-income countries, respectively [6]. Epilepsy is associated with a significant prevalence of mental illness. Patients with epilepsy often have psychological disorders

ranging from standard to severe [7, 8]. Prevalent are common mental health illnesses, including depression, anxiety disorders, and somatoform disorders. Some people living with epilepsy also have severe mental diseases, such as schizophrenia and bipolar disorder that significantly impede their social and vocational functioning.

Research indicates that around 33% of individuals diagnosed with epilepsy may have a mental comorbidity at some stage in their lifetime, particularly those who have seizures that do not respond well to therapy. The most common comorbidities are mood disorders, anxiety disorders, and psychotic illnesses. Depression is the most prevalent mental disorder among people living with epilepsy, with lifetime incidence rates ranging from 20% to 60%. The rates mentioned are generally more significant than the lifetime prevalence of 16-20% in the general population. According to the WHO, depression is projected to be primary cause of global illness burden by 2030 [6, 9, 10]. Anxiety disorders are considered to be the second most prevalent mental problem in epilepsy, with prevalence rates ranging from 11% to 40%. Depression has adverse effects on several aspects of life, including interpersonal relationships, occupational efficiency, and academic achievement [6, 9, 10]. Common mental diseases have a substantial impact on several aspects of psychosocial functioning, quality of life, employment, seizure management, healthcare usage, and the adverse effects of antiepileptic medication and other psychosocial issues in persons with epilepsy. Although common mental diseases are often present in epilepsy patients, they

are typically not identified and treated correctly [11].

On the other hand, correctly identifying and treating these diseases may enhance the management of seizures in individuals with epilepsy. Nevertheless, the exact extent and probable contributing causes of prevalent mental diseases in individuals with epilepsy are still uncertain, especially in underdeveloped nations such as Ethiopia. The objective of this research was to evaluate the coexistence of prevalent mental disorders in individuals with epilepsy and examine the correlation between these disorders and characteristics linked to seizures and sociodemographics [12].

Material and Methods

We used a method called systematic random sampling to select patients at a health centre in India. We determined the number of epilepsy patients at a centre and allocated the sample size proportionally. We included all adults aged 18 and above who were receiving treatment and agreed to be interviewed. Those with intellectual disabilities or communication issues were not included in the study. The Self-Reporting Questionnaire-20 (SRQ-20) was used to evaluate common mental disorders. The World Health Organization developed this questionnaire to screen for mental health issues among people seeking primary healthcare in developing nations. The outcome measures are to analyze the medication therapies available, adherence to the medication schedule and the adverse reaction symptoms occurring in the patients. A total of N=50 patients were included in the statistical study.

Result

Table 1: Provides the demographic analysis of the different patients involved in the medical study

Variable Category	Frequency	Per cent
Sex parameter		
Male participants	25	50.0%
Female participants	25	50.0%
Age at onset (in years)		
Less or 10	10	20.0%
11-18	8	16.0%
18-30	15	30.0%
>30	17	34.0%
Population group analysis		
Adult	35	70.0%
Adolescent and children	15	30.0%
Place of residence		
Urban	30	60.0%
Rural	20	40.0%
Familial history of epilepsy occurrence		
Yes	12	24.0%
No	20	40.0%
NA	18	36.0%

Number of pre-treatment seizures		
≤5	25	50.0%
>5	25	50.0%
Pre-treatment duration (in months)		
<12	30	60.0%
>12	20	40.0%
Recreational drug use		
Yes	10	20.0%
No	25	50.0%
NA	15	30.0%
Type of epilepsy		
Generalized type	40	80.0%
Focal type	5	10.0%
Unclassified type	5	10.0%
Aetiology		
Genetic	10	20.0%
Metabolic/structural	15	30.0%
Unidentified	25	50.0%
Brain imaging		
Yes	15	30.0%
No	35	70.0%
Neurological examination result		
Normal	45	90.0%
Abnormal	5	10.0%
Adherence to medication		
Good	30	60.0%
Poor	20	40.0%
Comorbidities		
Psychiatric	10	20.0%
Diabetes mellitus	5	10.0%
Hypertension	3	6.0%
Others	2	4.0%
No	30	60.0%
Duration of follow-up		
Median in months (IQR)	36 (24-72)	
Time to achieve remission		
Mean + SD (years)	2.1 + 0.92	

Table 1: In this epilepsy research, the participants were evenly split by gender, with an equal number of male and female participants. The age distribution varied, with a significant portion of participants being over 30 years old. Most participants were adults, and a smaller percentage were adolescents and children. The majority lived in urban areas. A family history of epilepsy was present in some participants. Before treatment, seizure frequency varied, with some having ≤ 5 seizures and others having more than 5. The duration of pre-treatment seizures is also diverse.

Some participants reported recreational drug use. Most participants had generalized epilepsy, while others had focal or undefined types. Aetiology was genetic, metabolic/structural, or unidentified. Some participants underwent brain imaging, and most had average neurological test results. Medicine adherence varied, with some reporting excellent adherence and others poor adherence. Some participants reported mental comorbidities, while others did not. The median follow-up duration was 36 months. The mean time to remission was 2.1 years.

Table 2: Provides details of the intake of medicines used for treating epilepsy in different patients

Variable	Category	Frequency	Per cent
Number of medications used	Monotherapy	38	76%
	Dual therapy	8	16%
	Triple therapy	4	8%
Type of antiepileptic used (primary)	Lamotrigine	22	44%
	Levetiracetam	18	36%

	Topiramate	10	20%
Adverse reaction symptoms	Yes	23	46%
	No	27	54%
Type of adverse drug reaction symptoms	Dizziness	12	24%
	Fatigue	8	16%
	Headache	7	14%
	Weight gain	4	8%
	Memory problems	2	4%
Presence of a concurrent medication regime	Yes	15	30%
	No	35	70%

Table 2: Most of the patients with epilepsy in the research were receiving treatment with a single medication (76%), while a smaller percentage were on two medications (16%) or three medications (8%). The predominant antiepileptic medication used exhibited variation, with 44% of individuals prescribed lamotrigine, 36% prescribed levetiracetam, and 20% prescribed topiramate. 46% of patients had adverse reactions, with prevalent symptoms including dizziness (24%), tiredness (16%), and headache (14%). Concurrent drug regimens were being used by thirty per cent of the patients.

Table 3: SRQ-20 questionnaire analysis of patients undergoing treatment for epilepsy

SRQ-20 Item	Yes Responses (Frequency, %)	No Responses (Frequency, %)
Do you often have headaches?	30 (60%)	20 (40%)
Poor appetite?	25 (50%)	25 (50%)
Sleep badly?	20 (40%)	30 (60%)
Easily frightened?	15 (30%)	35 (70%)
Hands shake?	10 (20%)	40 (80%)
Nervous, tense, or worried?	30 (60%)	20 (40%)
Poor digestion?	25 (50%)	25 (50%)
Do you need help thinking clearly? Do you need help with this?	20 (40%)	30 (60%)
Feel unhappy?	15 (30%)	35 (70%)
Cry more than usual?	10 (20%)	40 (80%)
Difficulty enjoying daily activities?	15 (30%)	35 (70%)
Difficulty making decisions?	10 (20%)	40 (80%)
Daily work suffering?	10 (20%)	40 (80%)
Need help to play a helpful part in life?	10 (20%)	40 (80%)
Need more interest in things?	15 (30%)	35 (70%)
Feel worthless?	10 (20%)	40 (80%)
Thought of ending life?	10 (20%)	40 (80%)
Feel tired all the time?	10 (20%)	40 (80%)
Uncomfortable feelings in the stomach?	15 (30%)	35 (70%)
Easily tired?	20 (40%)	30 (60%)
Common mental disorder case	15 (30%)	35 (70%)

Table 3: The examination of the SRQ-20 questionnaire revealed that a significant number of patients receiving treatment for epilepsy had symptoms associated with prevalent mental illnesses. The symptoms reported were headaches (60%), decreased appetite (50%), and sleep disturbances (40%). In addition, a substantial proportion of individuals reported enduring feelings of anxiety, tension, or concern (60%) and having trouble deriving pleasure from their everyday activities (70%).

Table 4: Prognosis condition of epilepsy in different patients undergoing medicines treatment

Prognosis	Frequency	Percentage
Improved	15	30%
Stable	20	40%
Deteriorated	10	20%
Not Applicable	5	10%
Total	50	100%

Table 4: The prognosis of epilepsy in individuals receiving therapy had diverse results. 30% of the patients had improvement, 40% maintained their condition, and 20% experienced a decline. 10% were classified as irrelevant. Overall, the majority of patients exhibited either improvement or maintained a stable status.

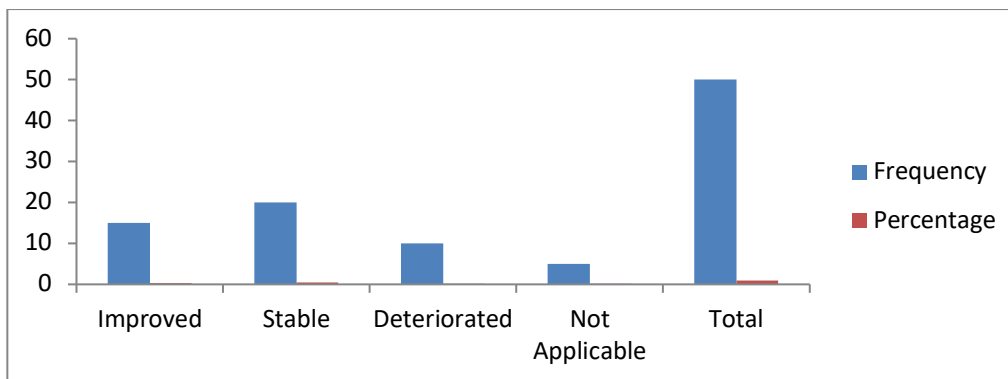


Fig 1: Shows the bar graph of the condition of the patients undergoing epilepsy treatment

Discussion

This research examined the level of adherence to antiepileptic drugs (AEDs) among patients with epilepsy who were receiving treatment at a specialized medical facility in India. Below is an analysis of the studied data: Nonadherence Rates: In the preceding four weeks, 30% of patients aged 18 or older reported not following their recommended regimen of antiepileptic drugs (AEDs). This percentage is within the range described in other research, which is between 26% to 79% [13-18]. Possible discrepancies arise from variations in the demographics of the research participants, the methods used to assess adherence, and the specific criteria employed. Variables Influencing Adherence: Three variables were found to be correlated with nonadherence: Multiple antiepileptic drug (AED) treatment, also known as polytherapy, was seen in 85% of patients who were not adherent to their medication regimen, whereas only 43% of adherent patients were on polytherapy. This implies a possible connection between intricate medication schedules and lack of adherence. Adverse Effects of Medications: Non-compliance was more prevalent among patients who were experiencing adverse effects from their antiepileptic drugs (AEDs). Prolonged Treatment Duration: Patients who had been on antiepileptic drugs (AEDs) for over three years had a higher likelihood of becoming non-adherent. The research emphasizes the notion of a "secondary treatment gap." This pertains to people who cease using antiepileptic drugs (AEDs) after receiving an initial diagnosis and prescription. Regular failure to comply might exacerbate this disparity [19].

Root Causes of Nonadherence: Adherence to the research could be influenced by several variables that are not explicitly examined. Treatment Expenses: The use of many therapies and the need for long-term treatment might result in significant costs. The reason for nonadherence to polytherapy may be partially attributed to the associated expenditures. Lack of knowledge and beliefs that are not well informed about epilepsy, the length of

treatment, and the possible adverse effects might result in non-compliance. On the other hand, studies have shown that epilepsy awareness initiatives may enhance adherence [20]. Cultural views, including social stigma, adherence to traditional ideas, and mistrust towards contemporary treatment, may also influence the situation [21].

Study Constraints: Voluntarily disclosed Data: Patients provided self-reported information on their adherence, which may be subject to inaccuracies either from forgetfulness or an unwillingness to divulge instances of nonadherence. The research design, which focused on the previous four weeks, intended to mitigate the influence of memory bias. Narrow Focus: The research primarily examined self-reported adherence using a screening instrument called MMAS-4 without further investigating the particular factors contributing to nonadherence. Furthermore, it failed to explore other possible variables, such as concurrent medical problems or drugs. Importance of the Research: Notwithstanding its limitations, the research provides significant information for two reasons. First, it needs more data availability. There is a dearth of dependable information about the lack of adherence to AEDs among epileptic patients in India. Factors that may be altered or changed: A number of the discovered variables that affect nonadherence can be corrected. The research proposes that encouraging adherence might encompass Restricting Polytherapy: Administering monotherapy wherever feasible may streamline treatment regimens and perhaps enhance adherence. Patient Education: Furnishing patients with extensive knowledge of epilepsy, the length of therapy, and possible adverse effects helps empower them to properly handle their illness. Healthcare providers may significantly contribute to enhancing adherence to antiepileptic drugs (AEDs) and, therefore, achieving better seizure control in patients with epilepsy by addressing these factors [19].

Conclusion

This research provides valuable insights into several facets of epilepsy care, including patient characteristics, therapy trends, and issues related to mental well-being. The results suggest a substantial prevalence of epilepsy, with individuals encountering a variety of symptoms and difficulties. The significant occurrence of mental health symptoms highlights the need for all-encompassing treatment that attends to both the physical and psychological dimensions of the illness. Furthermore, the diverse outlook underscores the need of customized therapeutic strategies designed to meet the specific requirements of each patient. In summary, this research highlights the significance of comprehensive care in the treatment of epilepsy, which includes adhering to medication, providing mental health assistance, and ensuring frequent follow-up appointments. These measures are essential for achieving the best possible results and improving the overall well-being of those with epilepsy.

References

1. WHO. Epilepsy in the WHO Eastern Mediterranean Region: Bridging the Gap. 2010.
2. Mula M. Neuropsychiatric Symptoms of Epilepsy. Switzerland: Springer International Publishing; 2016; 387.
3. Bear MF, Connors BW, Paradiso MA. Neuroscience: Exploring the Brain. 4th ed. Wolters Kluwer; 2016; 650–660.
4. Tawar S, Bhatia S, Ilankumaran M. Mental Health, Are We at Risk? Indian J Community Med. 2014;39(1):43–46.
5. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 5th ed. Washington, DC: American Psychiatric Association; 2013.
6. WHO. Global Burden of Mental Disorders and the Need for a Comprehensive, Coordinated Response from Health and Social Sectors at the Country Level. 2011:1–6.
7. Keezer MR, Sisodiya SM, Sander JW. Comorbidities of Epilepsy: Current Concepts and Future Perspectives. Lancet Neurol. 2015:1–10.
8. Mula M. Treatment Issues for Psychiatric Comorbidities of Epilepsy. Clin Pract. 2013; 10(3):293–299.
9. Sezibera V, Nyirasafari D. Incidence of Depression in Epilepsy Patients. Rwanda Journal, Series F: Health Sciences. 2013;1(1):67–77.
10. Barr WB, Morrison C. Clinical Handbooks in Neuropsychology of Epilepsy. New York: Springer Science+Business Media; 2015. p. 224–235.
11. Fiest KM, Patten SB, Jette N. Screening for Depression and Anxiety in Epilepsy. Neurol Clin. 2015:1–11.
12. Tareke M, Birehanu M, Amare D, Abate A. Common mental illness among epilepsy patients in Bahir Dar city, Ethiopia: A cross-sectional study. West JC, ed. PLOS ONE. 2020;15(1):e0227854.
13. Das AM, Ramamoorthy L, Narayan SK, Wadvekar V, Harichandrakumar KT. Adherence to the antiepileptic regime: A cross-sectional survey. Neurol India. 2020; 68:856–860.
14. Niriyayo YL, Mamo A, Gidey K, Demoz GT. Medication belief and adherence among patients with epilepsy. Behav Neurol. 2019; 2019:2806341. doi: 10.1155/2019/2806341.
15. Gurumurthy R, Chanda K, Sarma G. An evaluation of factors affecting adherence to antiepileptic drugs in patients with epilepsy: A cross-sectional study. Singapore Med J. 2017; 58:98–102.
16. Getnet A, Woldeyohannes SM, Bekana L, Mekonen T, Fekadu W, Menberu M, et al. Antiepileptic drug nonadherence and its predictors among people with epilepsy. Behav Neurol. 2016; 2016:3189108.
17. Molugulu N, Gubbiyappa KS, Vasudeva Murthy CR, Lumae L, Mruthyunjaya AT. Evaluation of self-reported medication adherence and its associated factors among epilepsy patients in Hospital Kuala Lumpur. J Basic Clin Pharma. 2016;7:105–109.
18. Malek N, Heath CA, Greene J. A review of medication adherence in people with epilepsy. Acta Neurol Scand. 2017; 135:507–515.
19. Singh M, Kumar S, Kumar A, Padma Srivastava M, Goyal V. medication adherence in Indian epilepsy patients. Annals of Indian Academy of Neurology. 2021;0(0):0.
20. Das K, Banerjee M, Mondal GP, Devi LG, Singh OP, Mukherjee BB. Evaluation of socioeconomic factors causing discontinuation of epilepsy treatment resulting in seizure recurrence: A study in an urban epilepsy clinic in India. Seizure. 2007; 16:601–607.
21. Dash D, Sebastian TM, Aggarwal M, Tripathi M. Impact of health education on drug adherence and self-care in people with epilepsy with low education. Epilepsy Behav. 2015; 44:213–217.