Research Article

Epilepsy in Eastern Algeria: Epidemiological Characteristics, Comorbidities, Risk Factors, and Antiseizure Medication Patterns in Clinical Practice

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Abstract

Background: Epilepsy is a chronic neurological disorder with substantial clinical, social, and functional consequences. Its multifactorial etiology involves genetic and environmental factors, while comorbidities, inadequate seizure control, and long-term treatment requirements may further increase its impact on patients' quality of life. This study aimed to characterize the clinical, socio-demographic, familial, comorbidity, and antiseizure treatment profiles of people with epilepsy in an Algerian population.

Methods: A cross-sectional descriptive study was conducted from February to April 2023 among 78 patients with epilepsy, with or without a family history of epilepsy. Data were collected using a standardized questionnaire covering socio-demographic characteristics, age at seizure onset, seizure type and frequency, family history, consanguinity, educational and occupational status, associated comorbidities, antiseizure medications, treatment regimen, and treatment adherence. The association between seizure type and antiseizure treatment was assessed using the chi-square test of independence.

Results: The study population was predominantly young, with a mean age of 21 years. Childhood-onset epilepsy was prominent, with 43.6% of patients experiencing their first seizure between 1 and 10 years of age. Generalized tonic-clonic seizures were the most frequently reported seizure type (50.4%), and 53.1% of patients experienced more than six seizures during the preceding 12 months. Monotherapy was the most commonly used treatment regimen, with sodium valproate (33%) and levetiracetam (31%) being the most frequently prescribed antiseizure medications. Sodium valproate was frequently used among patients with generalized tonic-clonic seizures (35.9%) and absence seizures (46.2%), whereas levetiracetam was frequently prescribed among patients with complex partial seizures (45.5%) and generalized tonic-clonic seizures (30.8%). However, no statistically significant association was observed between seizure type and antiseizure treatment ($\chi^2(25) = 33.93$, $p \approx 0.11$). Self-reported adherence to antiseizure medication was high (98.7%). A family history of epilepsy was reported in 29.5% of patients, while consanguinity was particularly frequent (69.6%). The socio-educational burden was substantial: 37.2% of patients had never attended school, 34.6% had not completed primary education, approximately three-quarters were unemployed, and 53% were single. Intellectual disability was the most common comorbidity (33%), followed by hypertension (23%); diabetes, stroke, and heart disease were each reported in 10% of patients, and autism spectrum disorder in 5%.

Conclusion: Epilepsy in this Eastern Algerian population was characterized by early onset, frequent seizures, high consanguinity, substantial socio-educational impairment, and a considerable burden of cognitive and cardiometabolic comorbidities. Monotherapy predominated, with sodium valproate and levetiracetam being the most frequently prescribed antiseizure medications, while treatment adherence was highly reported. Although treatment patterns varied

descriptively according to seizure type, no statistically significant overall association was observed, and prescription frequency should not be interpreted as evidence of comparative treatment efficacy. These findings support the need for early diagnosis and individualized, multidisciplinary management integrating seizure control and appropriate antiseizure treatment with cognitive, developmental, genetic, and socio-professional care, particularly in populations with high rates of consanguinity.

Keywords: Epilepsy; antiseizure medication; monotherapy; seizure control; treatment adherence; childhood-onset epilepsy; consanguinity; intellectual disability; comorbidities; Eastern Algeria.

1. INTRODUCTION

Epilepsy is a chronic neurological disorder characterized by recurrent seizures resulting from abnormal and excessive electrical activity of brain neurons. These seizures may manifest in various forms, including convulsions, loss of consciousness, and transient sensory or behavioral disturbances. Epilepsy represents a major public health challenge because of its significant impact on quality of life, social integration, and occupational functioning of affected individuals (Fisher et al., 2014 ; WHO, 2023).

The etiology of epilepsy is based on the complex interaction between genetic and environmental determinants. Numerous studies have shown that some monogenic forms of the disease are associated with mutations affecting ion channels, synaptic transmission, or brain development, whereas other forms are related to a more complex polygenic susceptibility. In addition, several acquired factors may promote seizure occurrence or contribute to the development of epilepsy, including traumatic brain injury, central nervous system infections, cerebrovascular events, perinatal complications, and certain metabolic abnormalities. Therefore, epilepsy is currently recognized as a multi-factorial disorder resulting from the interplay between genetic predisposition and environmental influences (Fisher et al., 2014 ; Helbig et al., 2018).

Epilepsy is frequently associated with various neurological, psychiatric, and developmental comorbidities, including intellectual disability, autism spectrum disorders, depression, and anxiety (Keezer et al., 2016). The presence of these associated conditions increases the functional burden of the disease and contributes to a significant deterioration in patients' quality of life. From a socio-economic perspective, individuals living with epilepsy often experience lower educational attainment, reduced access to employment, and lower marriage rates compared with the general population. These disparities are mainly explained by seizure-related limitations, persistent social stigma, and the cognitive impairments frequently associated with the disorder. Therefore, epilepsy represents not only a medical challenge but also a major psychosocial issue requiring comprehensive and multidisciplinary management (Jacoby et al., 2005; de Boer et al., 2008).

The analysis of risk factors associated with epilepsy represents an essential step toward improving our understanding of the pathophysiological mechanisms involved in this disorder and developing appropriate prevention strategies. Numerous risk factors have been identified, including genetic predisposition, consanguineous marriage, traumatic brain injury, central nervous system infections, cerebrovascular events, and perinatal complications. Early identification of these factors offers a dual benefit: it helps optimize diagnosis and patient management while contributing to the reduction of preventable forms of epilepsy. This issue is particularly important in low-resource settings, where acquired causes of epilepsy remain highly prevalent (Beghi, 2020; Thurman et al., 2011). Pharmacological treatment with antiseizure medications (ASMs) remains the cornerstone of epilepsy management, with treatment selection guided primarily by seizure type, epilepsy syndrome, patient characteristics, and potential adverse effects. Current evidence-based recommendations support lamotrigine, levetiracetam, and sodium valproate among the principal first-line options for generalized-onset seizures, while lamotrigine and levetiracetam are recommended for focal-onset

seizures (World Health Organization, 2023). Appropriate treatment can achieve seizure freedom in a substantial proportion of people with epilepsy; however, access to antiseizure medications remains limited in many low- and middle-income settings, contributing to a persistent treatment gap (World Health Organization, 2023).Therefore, understanding treatment patterns, medication use, and adherence is particularly relevant when assessing the overall burden and management of epilepsy in resource-limited populations.

2. PATIENTS AND METHODS

2.1. Study context

The study was conducted over a three-month period (February–March–April 2023). The data collected from patients were obtained using a structured questionnaire. Participants were recruited from three healthcare settings in Constantine, including a specialized medical clinic in rheumatology and neurology, a psychiatric hospital, and the University Hospital of Constantine.

2.2. Study population

The present study included 78 patients with epilepsy. Among them, 26 were recruited from a psychiatric hospital, 40 from a medical clinic, and 12 from the University Hospital of Constantine.

- Inclusion criteria

The study included all patients of any age and gender with a confirmed diagnosis of epilepsy established by specialist physicians.

- Exclusion criteria

Patients whose caregivers or themselves refused to complete the questionnaire were excluded from the study.

2.3. Methods

- Data collection

A structured questionnaire was designed for the study population to identify the factors associated with the development and occurrence of epilepsy.

Among these factors were patients' age and sex, the mean age at first seizure onset, seizure type, ongoing medical treatment, associated comorbidities, family history of epilepsy, and parental consanguinity.

- Data analysis

The collected data were computerized and analyzed using SPSS and Microsoft Excel software. A chi-square test was used to assess statistical significance ($p < 0.05$). This was followed by a descriptive frequency analysis to calculate percentages for the studied variables, notably the treatment regimen and the associations between seizure type and antiepileptic treatment.

3. RESULTS

3.1. Characteristics of population

In our population, there was a male preponderance of 55.1% males versus 44.9% females giving a sex ratio of 1.22. Our study reveals that the mean age of our population is 21 years with a predominance of the age group (11-20 years) accounting for 19.2% of our subjects (see Table 1). Nearly three-quarters of the patients are unemployed. In our research, we observe that 53% of the cases are single individuals, a thus majority. Most of the patients were not in school, 37.2% of the total, or at primary level, a proportion of 34.6%.

Table 1. Characteristic of patients

Population data	Percentage of patients (%)	
Sex of the patients	55.1% male	44.9 % female
Patient age distribution (years)	1-10 years	10.3%
	11-20 years	19.2%
	21-30 years	16.7%
	31- 40 years	14.1%
	41 -50 years	10.3%
	51-60 years	15.4%
	61- 70 years	5.1%
	71-80 years	5.1%
	81-90 years	3.8%
Distribution by profession	Unemployed	71.8%
	Retired civil servant	9%
	Merchant	6.4%
	Guardian	3.8%
	Director	1.3%
	Others	7.7%
Distribution by marital status	Single	53%
	Married	42%
	Divorced	4%
	Widower	1%
Distribution according to educational level	Not enrolled in school	37.2%
	Primary	34.6%
	College	12.8%
	High school	9%
	University level	6.4%

3.2. Clinical data

In our population, the onset of seizures predominantly occurred between the ages of 1 and 10, representing 43.6% of the cases. Furthermore, 53.1% of patients experienced more than 6 seizures in the past 12 months. The most frequent type of seizure was the generalized tonic-clonic seizure, with a frequency of 50.4%, followed by absence seizures, observed in 17.4% of cases.

Table 2: Clinical data

Variable	Results
Distribution of patients according to the age of onset of the first seizure	1-10 years **43.6%** 11-20 years 21.8% 21-30 years 10.3% 31- 40 years 7.7% 41 -50 years 6.4% from 51 years old and up to 90 years old, 2.6% for each age group.
Distribution according to the number of	**0 Seizure** 6.1%

seizure in the last 12 months	**1 Seizure** 20.4% **2 Seizure** 8.2% **3 Seizure** 6.1% **4 Seizure** 4.1% **6 Seizure 53.1%** **16 Seizure** 2%
Distribution according to the type of seizure	Absences 17.4% Atonic seizure 2.5% Myoclonic seizure 6.6% Generalized tonic-clonic seizure **50.4%** Simple partial seizure 9.1% Complex partial seizure 14%

3.3. Family history and consanguinity

Of our cohort of 78 patients, 23 have a family history of epilepsy, representing 29.5%. Furthermore, consanguinity was reported in more than half of the families, accounting for 69.6 %.

3.4. Comorbidities

A significant prevalence of comorbidities was observed, revealing the complexity and diversity of epilepsy, with frequencies varying according to the type of the disease. As shown in Figure 1, among the most frequent comorbidities are mental retardation (33%) and hypertension (23%). Diabetes, strokes, and heart problems are present at a frequency of 10% each. Autism is associated with 5% of the population.

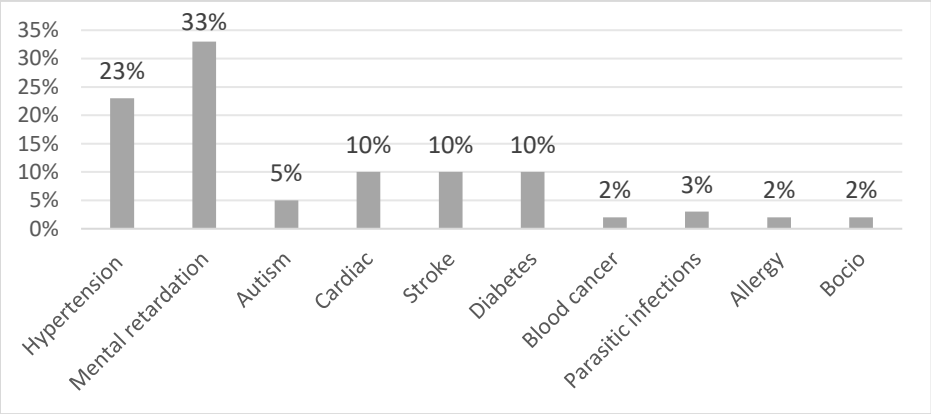


Figure 1. Distribution of patients according to diseases associated with epilepsy

3.5. Antiepileptic treatment and seizure control

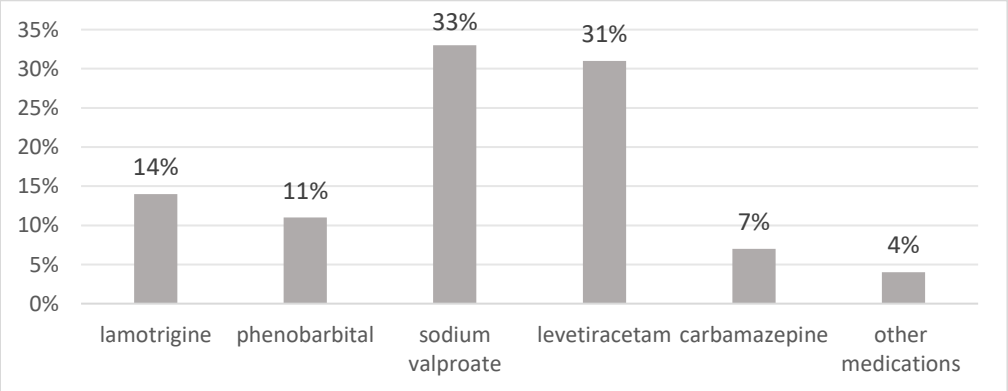


Figure 2. Distribution of patients according to antiseizure medication (ASM) used

Monotherapy was the most commonly used treatment regimen. Valproic acid was the most frequently used antiseizure medication in monotherapy, accounting for approximately 33% of patients, followed by levetiracetam (31%). Treatment adherence was reported in 98.7% of patients.

3.6. The Relationship Between Seizure Type and Antiepileptic Treatment

Table 3. Distribution of Patients by Seizure Type and Antiepileptic Treatment

Seizure Type	lamotrigine	Phenobarbital	Sodium valproate	Levetiracetam	Carbamazepine	Other
Generalized tonic-clonic seizure	**6**	**4**	**14**	**12**	**2**	**1**
Simple partial seizure	**2**	**0**	**2**	**1**	**1**	**1**
Complex partial seizure	**1**	**1**	**2**	**5**	**2**	**0**
Absences	**2**	**2**	**6**	**2**	**1**	**0**
Myoclonic seizure	**0**	**1**	**2**	**2**	**0**	**1**
Atonic seizure	**0**	**0**	**0**	**2**	**0**	**0**

Although no statistically significant association was found between seizure type and antiepileptic treatment overall ($\chi^2(25) = 33.93$, $p \approx 0.11$), descriptive differences were observed in the distribution of treatments across seizure types. Sodium valproate was the most frequently prescribed treatment among patients with generalized tonic-clonic seizures (14/39; 35.9%) and was also frequently used among patients with absence seizures (6/13; 46.2%). Levetiracetam was frequently prescribed among patients with complex partial seizures (5/11; 45.5%) and generalized tonic-clonic seizures (12/39; 30.8%). These findings indicate differences in treatment distribution according to seizure type; however, they should not be interpreted as evidence of superior treatment efficacy, as treatment effectiveness cannot be inferred from prescription frequencies alone.

3.7. The relationship between number of seizure in the last 12 months and antiepileptic treatment

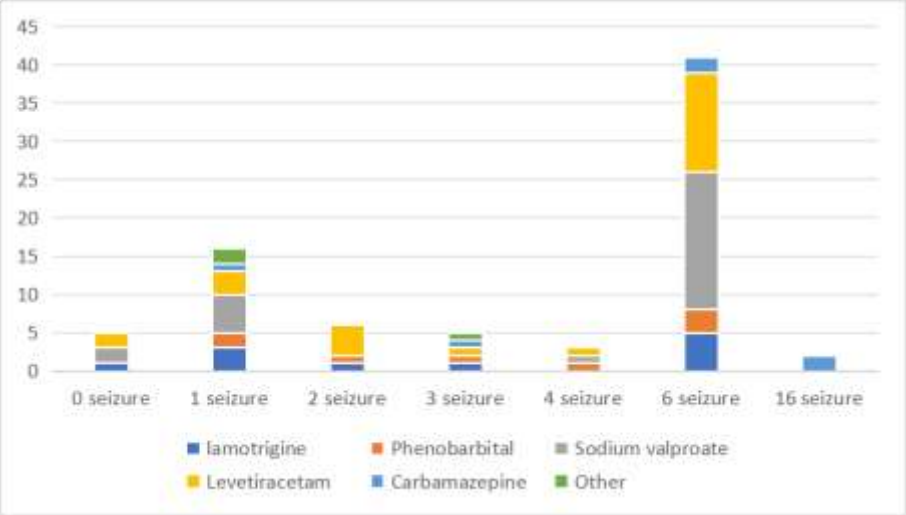


Figure 3. Distribution of Antiepileptic Treatments According to Seizure Frequency Over the Previous 12 Months

The main descriptive finding was the predominance of sodium valproate among patients who experienced six seizures during the previous 12 months, accounting for 43.9% of treatments in this group (18/41), followed by levetiracetam (31.7%; 13/41). However, these findings reflect treatment distribution and should not be interpreted as evidence of superior efficacy.

4. DISCUSSION

Our study found a male predominance of epilepsy; this finding is generally in line with several epidemiological data, which indicate a slightly higher incidence of epilepsy in men than in women, although this difference is not constant and may vary by age, type of epilepsy, and geographical context (Fiest et al., 2017). The average age of our patients was 21 years, and the majority fell within the 11–20 age group (19.2%), reflecting a predominantly young population. This distribution is of particular importance because of the long-term consequences of epilepsy that begins in childhood or adolescence. A systematic review and meta-analysis of 45 studies did show that individuals whose epilepsy starts in childhood have difficulties in a number of social domains in adulthood, especially in education, employment, emotional relationships and autonomy (Berg et al., 2016). It was observed that about three-quarters of the patients were unemployed, and that 53% of them were single. The poor employment situation that we observed in our study may be explained not only by functional limitations related to seizures, but also by stigma, negative attitudes of employers, restrictions on the practice of certain professions, and especially, by seizure control that is insufficient. A recent systematic review (Narducci et al., 2025) including 55 studies on employment in Europe showed that, depending on the countries and the periods studied, unemployment among people with epilepsy could reach rates similar to or even two to three times higher than those of the general population; seizure control and employers' attitudes seemed to be among the main factors determining professional integration. Our findings on singlehood concur with those of Jennum et al., who tracked a large Danish cohort for 30 years and observed that individuals with epilepsy beginning in childhood or adolescence attained a lower level of education, were less frequently married, experienced higher rates of unemployment, and earned lower professional incomes compared to those without epilepsy (Jennum et al., 2016). Similarly, Kaur et al. demonstrated that, compared to their unaffected siblings, adults whose epilepsy began in childhood were less likely to be married or employed and more likely to have dropped out of school, underscoring the lasting effect of the disease on socio-professional trajectories (Kaur et al., 2019). In our series also the educational level is low: 37.2% of the patients did not attend school and 34.6% had not completed the primary education. This situation may be explained by several mechanisms, such as early onset of the disease, repeated school absences, cognitive or neuropsychological difficulties that may accompany some forms of epilepsy, and family stigma and overprotection. The review by Huber and Weber, which analyzed 26 studies, likewise indicates that socioeconomic factors, especially education level and family income, may influence academic performance, adherence to treatment, seizure control and, over time, the risk of unemployment (Huber and Weber, 2022).

In our population, **43.6% of patients experienced their first seizure between 1 and 10 years of age**, highlighting the predominance of childhood-onset epilepsy in our cohort. Childhood epilepsy may result from a variety of aetiological factors, including genetic susceptibility, structural brain abnormalities, metabolic disorders, and perinatal insults. The high proportion of childhood-onset cases observed in our cohort is in keeping with the occurrence of epilepsy among children and adolescents reported in Algeria. Indeed, a national multicentre study involving 8,046 participants reported a particularly high prevalence of epilepsy among individuals aged 10–19 years (Moualek et al., 2012). Moreover, in an Algerian case-control study, Chentouf et al. (2015) reported a mean age at onset of 9.5 ± 6.1 years among patients with familial epilepsy, further supporting the occurrence of early-onset epilepsy in the Algerian context. The predominance of seizure onset during childhood may reflect the vulnerability of the developing brain to genetic, structural, metabolic, and acquired factors that can contribute to epileptogenesis. However, these comparisons should be interpreted with caution, as differences in study design, population characteristics, and definitions of epilepsy may have influenced the observed age distribution.

In our study 53.1% of the patients had more than six epileptic seizures in the last 12 months. This high frequency suggests that a significant percentage of our population had uncontrolled epilepsy. The persistence of a significant number of seizures might be related to several aspects such as inadequate therapeutic response, poor adherence to treatment, inappropriate selection or modification of antiepileptic drug treatment, and existence of pharmacoresistant forms (Sokhi and Samia, 2024). Our results are in agreement with recent data from other African populations. In a study conducted in Egypt in 2024 among adults with newly diagnosed epilepsy, 53% of patients had uncontrolled seizures, indicating the commonality of poor seizure control in the region's populations (Nageeb et al., 2024). Similarly, a recent study in Nigeria involving 940 people with epilepsy pointed out persistent difficulties in therapeutic management, with about one-third of patients experiencing treatment gaps (Ogunjimi et al., 2024). In Africa, inadequate seizure control must also be viewed in the light of difficulties in accessing specialized care and antiepileptic treatments. According to the ILAE, the gap in epilepsy care is especially notable in Africa, primarily because of restricted access to specialized care, inadequate medical resources, and challenges in obtaining medications (Kwon et al., 2022).

In our series, generalized tonic-clonic seizures were the most frequently reported type of seizure (50.4%), followed by absence seizures (17.4%). This predominance of tonic-clonic manifestations could reflect their particularly obvious clinical expression, facilitating their identification by patients and their entourage. According to the classification of the International League Against Epilepsy (ILAE), tonic-clonic seizures and absence seizures belong respectively to generalized motor and non-motor seizures (Fisher et al., 2017). The relatively high proportion of absence seizures in our population could also suggest the presence of generalized epileptic syndromes, particularly in young individuals, among whom these seizures are especially characteristic.

The prevalence of family history observed in our population (29.5%) indicates a significant familial aggregation of epilepsy and supports the role of genetic susceptibility in its pathophysiology. In fact, recent genetic data indicate that epilepsy has a complex genetic architecture, involving both common and rare variants, and a particularly significant contribution of genetic factors in certain forms of generalized epilepsy (International League Against Epilepsy Consortium on Complex Epilepsies, 2023). The high frequency of consanguinity in our series is also particularly relevant in the North African context. Consanguinity increases the likelihood that recessive pathogenic variants inherited from a common ancestor will be expressed in the offspring. It can thus contribute to revealing certain monogenic forms or to strengthening the expression of genetic predispositions to epilepsy. This hypothesis is supported by the Algerian study by Chentouf et al. (2015) in Oran, which found a significant association of epilepsy with first-degree parental consanguinity, while the presence of a family history of epilepsy in a first-degree relative was also strongly associated with the disease. However, the consanguinity rate of 69.6% found in our cohort may reflect the sociocultural and genetic peculiarities of some Algerian populations and highlights the need for targeted genetic evaluation and genetic counseling, especially in patients with a family history of epilepsy, early onset, or a phenotype suggestive of a genetic form.

This study demonstrates the broad spectrum of comorbidities and the high disease burden among people with epilepsy, underlining the clinical heterogeneity of the condition. Comorbid disorders add significantly to the overall burden of epilepsy and can negatively affect treatment planning, prognosis, and quality of life. Their systematic evaluation is therefore critical for comprehensive epilepsy care (Keezer, 2025).

Intellectual disability was the most frequent comorbidity in our population, being detected in 33% of subjects. This finding is particularly important in light of the documented bidirectional relationship between epilepsy and intellectual disability. The pooled prevalence of epilepsy among people with intellectual disability is 22.2%, and it increases with the severity of the disability (Robertson et al., 2015). This association may be due to shared underlying mechanisms, such as early neurological injury, brain malformations, and genetic conditions.

Conversely, severe or early-onset epilepsy may itself be associated with cognitive and neurodevelopmental impairment. Our findings therefore emphasize the need for comprehensive cognitive and developmental assessment in people with epilepsy, given the high frequency observed in our population.

Metabolic and cardiovascular comorbidities were also important. Hypertension was present in 23% of patients, while 10% of the study population had diabetes and 10% had heart disease. These results are consistent with studies demonstrating that somatic comorbidities, particularly cardiovascular diseases, are an important component of the comorbidity burden of epilepsy and may increase morbidity and mortality (Keezer, 2025). These conditions may coexist because of common risk factors, including age, metabolic disorders, physical inactivity, and vascular risk factors. These findings emphasize the importance of routine metabolic and cardiovascular risk assessment in patients with epilepsy.

Another clinically relevant finding was a history of stroke in 10% of patients. Stroke is one of the most common causes of acquired epilepsy, particularly among older adults. Brain lesions, especially those involving the cerebral cortex, may induce anatomical and functional changes conducive to epileptogenesis through mechanisms such as gliosis and alterations in synaptic plasticity (Freiman et al., 2024).

Finally, 5% of the subjects were diagnosed with autism spectrum disorder. This percentage is comparable to the pooled prevalence of 6.3% reported among people with epilepsy by Strasser et al. (2018). There may be overlapping neurodevelopmental and genetic mechanisms underlying autism and epilepsy. In addition, the high prevalence of intellectual disability in our cohort is noteworthy because intellectual disability has been associated with an increased frequency of autism among people with epilepsy (Strasser et al., 2018).

Overall, our results demonstrate considerable multimorbidity across the cognitive, neurodevelopmental, cardiovascular, and metabolic domains in people with epilepsy. Given the high prevalence of intellectual disability and the substantial frequency of cardiovascular and metabolic comorbidities, an integrated treatment approach extending beyond seizure control alone is warranted. Early identification and appropriate management of comorbid conditions may contribute to improved long-term outcomes and a better quality of life for people with epilepsy (Keezer, 2025).

In our study, monotherapy was the most commonly used treatment regimen, with sodium valproate (33%) and levetiracetam (31%) being the most frequently prescribed antiseizure medications. This treatment pattern is broadly consistent with current recommendations, which include lamotrigine, levetiracetam, and sodium valproate among the first-line options for generalized tonic-clonic seizures, while lamotrigine and levetiracetam are recommended as first-line monotherapy options for focal seizures (National Institute for Health and Care Excellence [NICE], 2025). In our cohort, sodium valproate was particularly frequent among patients with generalized tonic-clonic and absence seizures, whereas levetiracetam was frequently used in patients with complex partial and generalized tonic-clonic seizures. However, the overall association between seizure type and antiseizure treatment was not statistically significant ($\chi^2(25) = 33.93$, $p \approx 0.11$), suggesting that these differences should be interpreted as descriptive treatment patterns rather than evidence of a specific treatment–seizure association. Similarly, the predominance of sodium valproate among patients experiencing six seizures during the previous 12 months reflects treatment distribution and should not be interpreted as evidence of greater treatment efficacy.

Treatment adherence was reported in 98.7% of patients based on questionnaire responses and patient self-report. This high reported adherence may indicate good engagement with antiseizure treatment; however, it should be interpreted cautiously because self-reported measures may overestimate actual medication-taking behavior and are susceptible to recall and social desirability biases (Kini et al., 2016; Mendorf et al., 2022). Overall, our findings indicate that treatment patterns were broadly compatible with established therapeutic options according to seizure type, while highlighting the need for outcome-based analyses to assess

comparative treatment effectiveness. Future studies incorporating objective measures of adherence and clinical outcomes, such as seizure freedom or reduction in seizure frequency, would provide a more robust assessment of treatment effectiveness.

5. Conclusion

This study highlights the substantial and multidimensional burden of epilepsy in our population, characterized by a predominance of childhood-onset epilepsy and a high frequency of poorly controlled seizures. One of the most striking findings was the considerable socio-educational impact of the disease, reflected by low levels of schooling, high unemployment, and a low proportion of married patients. The particularly high prevalence of consanguinity (69.6%), together with a family history of epilepsy in nearly one-third of patients, also suggests a potentially important contribution of genetic factors in our setting. Furthermore, the high prevalence of intellectual disability (33%) and the frequent coexistence of cardiovascular and metabolic comorbidities highlight the substantial multimorbidity associated with epilepsy. Regarding treatment, monotherapy was the predominant therapeutic regimen, with sodium valproate and levetiracetam being the most frequently prescribed antiseizure medications. Although no statistically significant association was found between seizure type and antiseizure treatment, the observed treatment patterns were broadly consistent with established therapeutic options. The high reported treatment adherence (98.7%) is encouraging, although this finding should be interpreted cautiously given that adherence was assessed through questionnaire responses and patient self-report. These findings emphasize that epilepsy management should not be limited to seizure control but should also address neurodevelopmental, cognitive, genetic, therapeutic, and socio-professional dimensions. They support the need for a multidisciplinary approach, earlier diagnosis and management, improved access to specialized care, appropriate optimization of antiseizure treatment, and genetic counseling, particularly in populations with high rates of consanguinity.

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