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# Autism Spectrum Disorder and Epilepsy: A Clinical Case Study from the Child Psychiatry Department of Arrazi Hospital

Sara Riam[1*], N. Baabouchi[1], O. Belakbir[1], Z. Elmaataoui[1], H. Kisra[1]

[1]Child Psychiatry Department, Arrazi Hospital, Salé, Morocco

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***Corresponding author:** Sara Riam
Child Psychiatry Department, Arrazi Hospital, Salé, Morocco

**Abstract** **Case Report**

***Background:*** Autism spectrum disorder (ASD) is a neurodevelopmental condition frequently associated with epilepsy, suggesting potential overlapping neurobiological mechanisms. Although this comorbidity has been described in various populations, there is limited data from pediatric psychiatric services in Morocco. Understanding the clinical, social, and epidemiological characteristics of children with both ASD and epilepsy in this local context is essential for improving diagnosis, management, and outcomes. ***Objective:*** To analyze and compare the clinical, epidemiological, and social characteristics of children with ASD and epilepsy in the studied sample, as well as their developmental course, and to confront the findings with the existing literature. ***Materials and Methods:*** This descriptive and analytical study included 404 patients diagnosed with ASD at the day hospital of the Child Psychiatry Department of Ar-Razi Hospital in Salé, Morocco, from its establishment in 2010 until 2022. Diagnostic assessments were based on DSM criteria, with the DSM-IV used up to 2013 and the DSM-5 applied thereafter. Sociodemographic, clinical, and developmental data were systematically collected and analyzed. ***Results:*** Among the 404 children diagnosed with ASD, 8.2% (n=33) had comorbid epilepsy. The mean age at ASD diagnosis was 3.5 years, with a male predominance (78.6%; sex ratio 4:1). Compared to children with ASD alone, those with epilepsy presented higher rates of intellectual disability (15% vs. 4%), more severe adaptive impairments, and markedly greater language deficits (93% with initial impairment, 73% with unfavorable progression). Behavioral disturbances requiring antipsychotic treatment were more frequent in the ASD-epilepsy group (18.75% vs. 5.8%). Social and educational outcomes were also significantly affected, with 74% showing poor social integration and 85% not attending school. Overall, the clinical course was unfavorable in 88% of children with ASD and epilepsy compared to 63% of those without epilepsy. ***Conclusion:*** This study highlights the frequency and characteristics of epilepsy among children with ASD in a Moroccan pediatric psychiatric setting and emphasizes the importance of early multidisciplinary management. The findings contribute local data to the international literature on ASD–epilepsy co-occurrence and may guide clinicians in optimizing care strategies

**Keywords**: Autism spectrum disorder (ASD), Epilepsy, Comorbidity, Morocco, Pediatric psychiatry, Intellectual disability.



## INTRODUCTION

Autism spectrum disorder (ASD) is a neurodevelopmental condition characterized by persistent deficits in social communication and interaction, restricted and repetitive behaviors or interests, and impaired adaptive functioning. ASD is frequently associated with language impairments and intellectual disabilities, which can influence clinical presentation and prognosis. The global prevalence of ASD is increasing, with approximately 61.8 million individuals affected in 2021, and an estimated prevalence exceeding 1% in children, rising to over 2% when including social communication disorder [1–6]. Diagnosis requires a comprehensive clinical evaluation by a multidisciplinary team, including patient history, physical and neurological examinations, hearing and genetic testing, neuroimaging, EEG, and standardized assessment tools such as ADOS and ADI-R, in accordance with DSM-5-TR criteria [1].

Epilepsy is a common comorbidity in individuals with ASD. It is a chronic neurological disorder characterized by recurrent unprovoked seizures resulting from abnormal and uncontrolled electrical activity in the brain, which may be focal or generalized,

manifesting as alterations in consciousness, involuntary movements, or convulsions [2]. Although epilepsy is a distinct condition, it shares neurodevelopmental mechanisms with ASD, and their co-occurrence has been extensively documented.

The prevalence of epilepsy in individuals with ASD is influenced by intellectual functioning. A meta-analysis reported that 21.5% of individuals with ASD and intellectual disability experience seizures, compared to 8% of those without intellectual disability [3]. Understanding the co-occurrence of ASD and epilepsy is crucial for early identification, tailored monitoring, and optimized management to mitigate cognitive, behavioral, and social impacts in affected children.

## MATERIALS AND METHODS

This descriptive and analytical study included 404 patients diagnosed with autism spectrum disorder (ASD) according to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) criteria. The diagnosis was confirmed using standardized assessment tools, including the Autism Diagnostic Interview-Revised (ADI-R) and the Autism Diagnostic Observation Schedule (ADOS). Patients with incomplete medical records were excluded from the study.

All participants were managed at the day hospital of the Child and Adolescent Psychiatry Department at AR-RAZI Hospital from its inauguration in 2010 until 2022. Data were collected retrospectively from patient medical records and supplemented through direct contact with parents to obtain information on clinical evolution, comorbidities, and therapeutic interventions.

Patients were admitted to the day hospital primarily for intensive ASD management. The therapeutic program included Applied Behavior Analysis (ABA) as the core intervention. Additionally, all patients received speech-language therapy to improve communication skills, psychomotor rehabilitation to support motor development, and, when indicated, occupational therapy to enhance daily living skills and adaptive functioning. Interventions were individualized based on each patient's developmental profile and clinical needs.

This approach allowed a comprehensive understanding of the clinical characteristics and therapeutic outcomes in a large cohort of children and adolescents with ASD over a 12-year period.

## RESULTS

In our study, 33.2% of patients presented somatic comorbidities, with epilepsy reported in 8.2%. Children with autism spectrum disorder (ASD) and comorbid epilepsy exhibited more unfavorable clinical and developmental profiles compared to those with ASD alone. Intellectual disability was observed in 15% of children with epilepsy, versus only 4% in the non-epileptic group, and their adaptive functioning was consistently more impaired.

Regarding language development, 93% of children with ASD and epilepsy had early speech and language difficulties, and 73% showed a poor developmental trajectory, indicating significantly poorer linguistic abilities compared to children with isolated ASD. Furthermore, a trend toward greater autism severity was noted in the epileptic subgroup ($p = 0.1$).

In terms of management, the use of antipsychotic medication for behavioral disturbances was considerably more frequent among children with ASD and epilepsy (18.75%) compared to those without epilepsy (5.8%). Overall prognosis also appeared less favorable, with 88% of children in the comorbid group showing adverse outcomes, compared with 63% in the non-epileptic group.

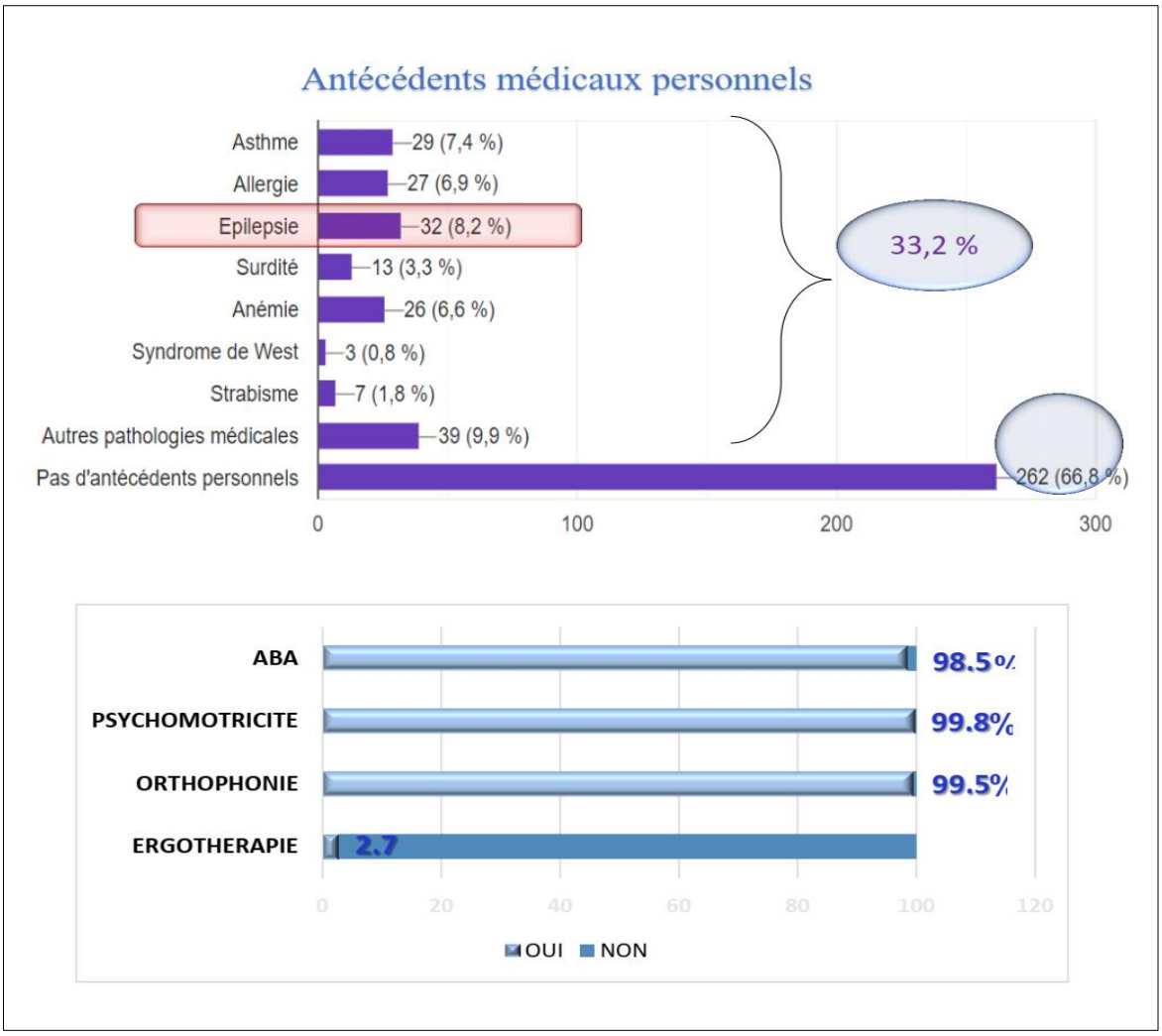
Finally, the functional and social impact was particularly pronounced in the comorbid group: 74% of children demonstrated poor social integration, and 85% were not enrolled in school—figures substantially higher than those observed in children with ASD without epilepsy.

| | Social integration with peers | | | Schooling | |
|---|---|---|---|---|---|
| | **Low** | **Moderate** | **High** | **YES** | **NO** |
| **Epileptic** | 74,1% | 12,9% | 12,9% | 15% | 85% |
| **Non-epileptic** | 32,1% | 34,6% | 33,1% | 59% | 40,9% |

**Quality of life in children with ASD and epilepsy**

| **Epilepsy** | | **Severity level** | | | | **Outcome** | | |
|---|---|---|---|---|---|---|---|---|
| | | **I** | **II** | **III** | **p** | **Poor** | **Favorable** | **p** |
| | YES | 12,0% | 56,0% | 32,0% | 0,100 | 88,2% | 11,8% | 0,038 |
| | NO | 25,8% | 47,5% | 18,6% | | 63,3% | 36,7% | |

**Clinical progression in the day-care unit**




**Interventions provided in the day hospital**

## DISCUSSION

Epilepsy is a frequent comorbidity in children with ASD and is often associated with greater severity of cognitive, adaptive, and language impairments. In our cohort, 8.2% of children with ASD presented with epilepsy, slightly lower than prevalence reported in recent studies (10–25%), which may reflect the sample size, recruitment from a specialized clinical center rather than a population-based cohort, or differences in seizure detection methodology [1-6].

Children with ASD and comorbid epilepsy in our study exhibited more unfavorable cognitive and adaptive profiles than those without epilepsy, with 15% presenting intellectual disability versus 4% in the non-epileptic group, alongside overall reduced adaptive functioning. These findings align with recent evidence demonstrating that epilepsy is an independent risk factor for lower IQ and greater adaptive difficulties in children with ASD [3-9]. Furthermore, some studies suggest that age at epilepsy onset and developmental regression may modulate these associations, partially explaining variability across cohorts [3-9].

Regarding language development, 93% of children with ASD and epilepsy had initial speech and language difficulties, with 73% demonstrating poor developmental trajectories. These results are consistent with Zheng *et al*., who reported persistent delays in language and communication skills in children with ASD and epilepsy [10]. This highlights the importance of early, intensive speech-language interventions to optimize communication outcomes.

In terms of management, antipsychotic use to address behavioral disturbances was more frequent in children with ASD and epilepsy (18.75% vs 5.8% in children without epilepsy). This is consistent with Besag, who reported that epilepsy comorbidity is associated with more severe behavioral difficulties, often requiring pharmacological and multidisciplinary interventions [11].

Finally, functional and social impairments were pronounced in the comorbid group, with 74% demonstrating poor social integration and 85% not enrolled in school. These findings echo those of Murray *et al*., who reported that epilepsy limits school attendance

and social inclusion in children with ASD [7]. Collectively, these data emphasize the need for comprehensive care integrating educational, rehabilitative, and medical interventions to enhance autonomy and quality of life.

## CONCLUSION

Our study confirms that epilepsy is an aggravating factor in children with ASD, significantly affecting cognitive, language, behavioral, and social domains. In line with recent literature, these findings underscore the importance of early, individualized, multidisciplinary follow-up, and targeted interventions to optimize developmental outcomes and social inclusion for children with ASD and comorbid epilepsy.

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