

Attention-Deficit/Hyperactivity Disorder in Child Psychiatry: Diagnostic Challenges, Comorbidities and Comprehensive Management in a Clinical Context in Senegal

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Abstract

Attention-Deficit/Hyperactivity Disorder (ADHD) is a persistent neurodevelopmental disorder characterized by impairing levels of inattention, disorganization, and/or hyperactivity-impulsivity. Worldwide prevalence is estimated at approximately 5% among school-aged children. In Senegal, child and adolescent psychiatry is an emerging specialty facing major structural and sociocultural challenges. Social perceptions of the “agitated” or “distracted” child frequently oscillate between ordinary behavioral turbulence and mystical or religious interpretations, often delaying access to specialized medical care. In addition, the scarcity of standardized diagnostic tools validated in African settings complicates the establishment of accurate epidemiological data. This article is a narrative review illustrated by two clinical cases and aims to explore the clinical reality of ADHD in Dakar, with particular emphasis on the complexity of psychiatric comorbidities and current therapeutic limitations. The study is based on a review of recent literature, an analysis of DSM-5 diagnostic criteria adapted to local clinical practice, and an in-depth examination of two children followed at a diagnostic and treatment center in Dakar between December 2024 and October 2025. The findings highlight frequent delays in diagnosis due to cultural interpretations of agitation and the masking effect of excessive early screen exposure. Management remains severely limited by the near-total unavailability of psychostimulants, particularly methylphenidate,

on the national market. Consequently, non-pharmacological interventions—including psychoeducation, parent training, educational support, and cognitive remediation—play a central role despite remaining difficult to access. ADHD in Senegal requires an integrative and multidisciplinary approach. Strengthening early screening capacities and improving access to pharmacological and psychosocial interventions should be considered major public health priorities in order to reduce the academic, social, and emotional burden associated with this disorder.

Keywords

ADHD, Child Psychiatry, Comorbidity, Multimodal Management, Neurodevelopmental Disorders

1. Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterized by persistent symptoms of inattention, hyperactivity, and impulsivity that interfere with a child's daily functioning [1].

ADHD is among the most common psychiatric disorders in childhood, with an estimated worldwide prevalence ranging between 5% and 7% among school-aged children [2]. More recent studies suggest that prevalence may reach approximately 8% in certain populations [3].

Children with ADHD frequently experience significant difficulties in several domains, including academic achievement, social relationships, emotional regulation, and behavioral organization. These impairments may persist in adolescence and adulthood and are associated with an increased risk of later psychiatric disorders [4].

The diagnosis of ADHD relies primarily on clinical assessment integrating information obtained from parents, teachers, and healthcare professionals. However, ADHD symptomatology is heterogeneous and may overlap with other neurodevelopmental or psychiatric conditions. Moreover, the high frequency of comorbid disorders represents a major source of diagnostic complexity [5].

In low-resource countries, diagnostic difficulties are further aggravated by limited specialized services and insufficient child mental health infrastructures [6].

In Senegal, child psychiatry is a rapidly developing discipline but continues to face substantial challenges. Social perceptions of the “agitated” or “distracted” child often fluctuate between ordinary educational difficulties and mystical or religious interpretations, delaying specialized medical consultation. Furthermore, the lack of standardized diagnostic tools validated for African populations complicates the establishment of an accurate epidemiological profile.

This article aims to explore the clinical reality of ADHD in Dakar by emphasizing the complexity of comorbidities and the current therapeutic deadlocks, while proposing avenues for improving comprehensive care. In this context, clinical

analysis of individual situations appears essential for better understanding diagnostic determinants and guiding therapeutic strategies.

2. Methodology

2.1. Study Design

The present study was based on a qualitative and descriptive approach combining:

1. A theoretical synthesis of current data regarding the neurobiology and genetics of ADHD, as well as major explanatory models proposed by authors such as Barkley.

2. A retrospective clinical analysis of cases followed at the Educautisme diagnostic and treatment center in Dakar.

This type of study aimed to highlight the diagnostic and therapeutic challenges associated with ADHD, particularly those related to psychiatric comorbidities.

Clinical interviews were conducted between December 2024 and October 2025.

The clinical cases were selected according to the following criteria:

- Multidisciplinary follow-up for at least six months within the same care setting.
- Children aged between 5 and 12 years.
- Active school enrollment.
- Syndromic profiles suggest ADHD.

Clinical assessment was performed by a child psychiatrist using DSM-5 criteria and detailed developmental and family histories to identify environmental and perinatal risk factors.

Additional investigations included pre-therapeutic laboratory assessments, psychological evaluations, and speech and language assessments when clinically indicated.

2.2. Data Collection

Clinical data were collected through several complementary sources.

Semi-structured interviews were conducted to gather information necessary for medical and developmental history-taking.

The two cases were compared according to:

- ADHD subtype and severity.
- Presence or absence of comorbidities.
- Socio-familial environment.
- Impact on schooling.
- Therapeutic interventions.
- Behavioral observations during consultations.
- Neuropsychological assessments.

Neuropsychological evaluations included the Hayling Junior Test, TAP attention tests, and WISC-V cognitive assessment, allowing exploration of executive functioning and attentional capacities.

Additional examinations included:

- Wake and sleep EEG when neurological differential diagnoses were suspected.
- Biological investigations for pre-treatment evaluation.
- Brain CT scan when clinically indicated.
- Clinical psychological assessment.
- Speech and language evaluation.

2.3. Data Analysis

Collected data underwent qualitative clinical analysis aimed at identifying:

- Developmental history and family antecedents.
- Behavioral and emotional characteristics.
- Executive and attentional functioning.
- Family and educational dynamics.
- Environmental factors, including screen exposure.
- Associated psychiatric and neurodevelopmental comorbidities.
- Therapeutic strategies implemented.

3. Results

After reviewing the available medical records, two clinical cases were selected because they were representative of the diagnostic and therapeutic challenges commonly encountered in daily clinical practice.

3.1. Clinical Profiles

Clinical analysis revealed considerable heterogeneity in ADHD manifestations.

Psychomotor agitation remained the primary reason for consultation in boys, whereas academic failure was more frequently emphasized in girls. However, inattentive symptoms appeared to constitute the most disabling manifestations over the long term despite being less immediately visible to caregivers and teachers.

Attention and concentration difficulties represented the main concerns expressed by both parents and teachers and had a direct impact on school performance.

These difficulties included:

- Marked distractibility.
- Poor persistence in academic tasks.
- Organizational difficulties.
- Behavioral impulsiveness.

These symptoms frequently resulted in academic underachievement and relational difficulties, contributing to reduced self-esteem.

3.2. Comorbidities

The most frequently observed comorbidities included:

- Specific learning disorders.
- Anxiety disorders.
- Oppositional defiant disorder.

- Language disorders.

3.3. Therapeutic Interventions

Management strategies mainly relied on:

- Parent psychoeducation.
- Educational interventions.
- School accommodations.
- Cognitive remediation.
- Multidisciplinary follow-up.

3.4. Clinical Illustrations

3.4.1. Case No. 1: Predominantly Inattentive ADHD Associated with Academic Difficulties

This case illustrates the close relationship between ADHD and learning disorders. The child presented with slowed task execution and cognitive fatigability which, in the absence of appropriate intervention, progressively led to reduced self-esteem and secondary anxiety.

Reason for Consultation

R.M. attended consultation with his mother because of concentration difficulties observed both at home and at school from the age of three years. According to the mother, he was unable to maintain attention on an activity for more than approximately fifteen minutes. These symptoms were associated with progressively declining academic performance and marked frustration intolerance with rapid mood fluctuations.

Developmental and Family History

No significant pathological perinatal antecedents were reported apart from substantial maternal stress during pregnancy.

The child exhibited mild psychomotor developmental delay with delayed walking according to parental reports. Language acquisition appeared after eighteen months.

Attention difficulties and poor compliance with instructions were observed from early childhood. Schooling during the COVID-19 pandemic was characterized by repeated interruptions and absenteeism related to asthma.

Academic difficulties were first identified during preschool years. In kindergarten, the implementation of individualized educational support partially improved attentional capacities. At the time of the study, the child was attending first grade, and grade repetition had eventually been accepted by the family.

Both parents described childhood traits suggestive of hyperactivity.

Family and Social Environment

R.M aged eight years was the youngest child in a family of four children. Both parents were employed in executive professions.

Family dynamics were characterized by limited paternal involvement and impulsive interactions. The father described a turbulent childhood and a history of

alcohol and tobacco consumption. Frequent maternal absences related to professional travel during the child's early years were also reported.

Behaviourally, the child displayed moderate motor impulsivity, manageable psychomotor agitation, low frustration tolerance, and a tendency to ignore instructions without associated physical or verbal aggression.

Social functioning remained globally preserved, with satisfactory peer relationships and adequate interactions with siblings.

Psychiatric and Neuropsychological Assessment

Clinical examinations showed good eye contact and adequate response to name calling.

Spontaneous verbal production was limited but coherent. The child understood instructions but did not consistently comply with them. During activities, he participated appropriately but rapidly lost interest and shifted from one task to another.

Psychological evaluation using the Hayling Test, TAP attention assessment, and WISC-V revealed attentional deficits, selective attention focused on preferred interests, and delayed neurodevelopmental maturation.

Differential Diagnosis

Wake and sleep EEG recordings were performed to exclude neurological conditions. Results were normal.

Therapeutic Management

A multidisciplinary management plan was implemented including:

- Semi-structured interviews and parent psychoeducation;
- School support with maintenance of individualized educational assistance;
- Home educational accommodations involving short work sessions, repeated instructions, scheduled breaks, and activity structuring;
- Psychomotor therapy and attentional remediation.

No pharmacological treatment was initiated because methylphenidate was unavailable in Senegal during the study period.

Outcome

Partial improvement in attentional abilities was observed following psychoeducational interventions and school support. Maintenance of a structured family environment and adapted educational assistance remained essential for promoting learning, socialization, and self-esteem.

3.4.2. Case No. 2: Psychomotor Agitation, Excessive Screen Exposure, and Language Delay

This case illustrates an increasingly frequent clinical challenge in Senegal: massive and early screen exposure. In this child, agitation and attentional deficits were intertwined with language delay, making differential diagnosis between primary ADHD and screen overexposure syndrome particularly difficult.

Reason for Consultation

M.T., aged five years and eight months, was brought up for consultation because of concentration difficulties and language delay observed since approxi-

mately one year of age both at home and in school settings.

The mother reported intensive screen exposure from early infancy. Following school enrollment around the age of two years, screen exposure was reduced, and slight language improvement was subsequently noted.

Developmental and Family History

M.T. was the eldest child in a monogamous family with one younger sister.

No major psychiatric family history was reported.

Psychomotor development appeared globally adequate during infancy, with first words and walking occurring around one year of age. However, developmental regression was later noted, particularly involving language abilities.

Communication progressively became predominantly non-verbal, with pointing and instrumentalization of adults replacing spontaneous verbal expression.

Psychiatric Assessment

Eye contact and response to name calling were appropriate.

Attention was severely impaired both at home and in school settings, although sustained focus was observed for restricted interests such as puzzles.

Language remained markedly limited, with very few spontaneous verbal productions.

Moderate psychomotor agitation and significant motor impulsivity were observed. The father described severe frustration intolerance associated with hetero-aggressive and occasionally self-aggressive behaviors.

Social interactions remained globally preserved with peers and family members.

Neuropsychological evaluation revealed increased sensory sensitivity and sensation-seeking behaviors. The Hayling Test demonstrated poor inhibitory control, whereas attention tests revealed selective attention strongly focused on preferred interests.

Differential Diagnosis

Wake and sleep EEG recordings and brain CT scan were normal.

The clinical presentation raised the possibility of early and excessive screen exposure syndrome associated with ADHD-like symptoms.

Oppositional defiant disorder was also considered because of persistent provocative and defiant behaviors toward authority figures.

Therapeutic Management

Multidisciplinary management included:

- Speech therapy interventions.
- Parent psychoeducation.
- Psychological support.
- Adapted educational strategies.
- Progressive reduction of screen exposure.

An atypical antipsychotic medication was introduced because of severe behavioral disturbances and aggressive outbursts. Positive behavioral effects were subsequently observed.

Methylphenidate treatment was not initiated because of its unavailability in Senegal.

Outcome

The child demonstrated progressive behavioral improvement, better acceptance of parental authority, and reduction of aggressive outbursts.

Following screen reduction and increased parental involvement, improvements were observed in verbal communication, autonomy, attention, concentration, and socio-familial interactions.

Management strategies primarily relied on:

- Parent psychoeducation.
- Educational interventions.
- School accommodations.
- Cognitive remediation.
- Multidisciplinary follow-up.

4. Discussion

4.1. Diagnostic Complexity of ADHD

The findings of this study confirm that ADHD diagnosis remains a major clinical challenge, particularly in low-resource settings such as Senegal.

This diagnostic complexity is related to the heterogeneity of symptom presentation, developmental variability, and the high prevalence of psychiatric and neurodevelopmental comorbidities.

ADHD is currently conceptualized as a neurodevelopmental disorder characterized by persistent symptoms of inattention, hyperactivity, and impulsivity leading to significant functional impairment across multiple areas of a child's life [1].

However, clinical manifestations vary considerably according to age, sex, sociocultural environment, and contextual demands. Hyperactivity tends to predominate in younger children, whereas attentional and executive difficulties become more apparent in older children and adolescents [7].

In our clinical context, children are frequently presented with associated anxiety disorders, learning disorders, oppositional symptoms, and psychosocial difficulties. These observations are consistent with international literature indicating that more than 70% of children with ADHD have at least one psychiatric comorbidity [5].

The non-specific nature of ADHD symptoms exposes clinicians to both underdiagnosis and overdiagnosis. In African contexts, academic difficulties related to poverty, malnutrition, psychological trauma, or educational deprivation may sometimes be incorrectly interpreted as ADHD. Conversely, hyperactive behaviours may be trivialized as merely reflecting a child's temperament or inadequate parenting practices [8].

Several African studies have highlighted delayed diagnosis of neurodevelopmental disorders due to shortages of specialized professionals, lack of culturally adapted standardized tools, and sociocultural perceptions of psychiatric disorders [9] [10].

International recommendations therefore emphasize the importance of multi-

dimensional assessment involving parents, teachers, and healthcare professionals [11].

4.2. Executive Function Impairment

Contemporary neuropsychological models conceptualize ADHD as a disorder of executive functioning rather than merely a behavioural disorder [7].

Executive functions include:

- Behavioral inhibition.
- Working memory.
- Cognitive planning.
- Cognitive flexibility.
- Emotional regulation.

Children with ADHD frequently experience difficulties delaying responses, sustaining attention, organizing activities, and regulating emotions in frustrating situations.

In our study, academic difficulties appeared more closely related to executive dysfunction than to global intellectual impairment.

These impairments have major consequences for academic achievement and social adaptation.

4.3. Differential Diagnosis and Cultural Factors

Diagnosing ADHD in African contexts raises specific issues related to environmental, educational, and sociocultural factors.

The Senegalese clinician must often distinguish between genuine neurodevelopmental symptoms and manifestations secondary to psychosocial adversity or medical conditions.

Conditions frequently encountered in sub-Saharan Africa, including iron deficiency, chronic malnutrition, and perinatal neurological injuries, may contribute to attentional and cognitive impairments [12].

In many African societies, agitation and impulsivity may be interpreted as educational, spiritual, or moral issues rather than neurodevelopmental disorders [13].

Such perceptions often delay access to specialized psychiatric care. Traditional educational practices emphasizing strict behavioural discipline may also exacerbate family and school conflicts around the child.

Furthermore, most ADHD screening tools were developed in Western contexts and remain insufficiently validated for francophone African populations.

4.4. Therapeutic Deadlock Related to Medication Access

One of the most alarming findings of this study concerns the extremely limited access to ADHD pharmacological treatments in Senegal.

Psychostimulants, particularly methylphenidate, are internationally recognized as first-line treatment for moderate-to-severe ADHD [11]-[14].

Numerous studies have demonstrated the efficacy of methylphenidate in improving inattention, hyperactivity, impulsivity, and academic functioning [15].

Nonpharmacological interventions, including psychological and allied health therapies, can improve broader functioning for children with ADHD (e.g. for anxiety, social skills, self-care). These interventions play an important role in holistic ADHD care, alongside pharmacological therapies that help to address core symptoms.[16]

However, methylphenidate is not currently widely available on the Senegalese market, creating significant inequalities in access to care and a major loss of opportunity for severely affected children.

4.5. Importance of a Multimodal Approach

Given current therapeutic limitations, psychosocial interventions occupy a central role in ADHD management in Senegal.

International guidelines recommend multimodal management combining psychosocial interventions, educational accommodations, and pharmacological treatment when available [11].

Parent-training programs have demonstrated effectiveness in reducing disruptive behaviours and improving family functioning [17].

Psychoeducation is also essential. Explaining to parents and teachers that the child is not “misbehaving intentionally” but presenting with a neurodevelopmental disorder helps reduce guilt, stigma, and punitive attitudes [18].

Educational accommodation may include:

- Structuring academic tasks.
- Reducing environmental distractions.
- Using short and repetitive instructions.
- Scheduling regular breaks.
- Positive behavioral reinforcement.

However, implementation of these strategies remains difficult in Senegal because of overcrowded classrooms, insufficient teacher training regarding inclusion, and lack of institutional support systems.

5. Conclusions

ADHD is a common neurodevelopmental disorder whose diagnosis and management require a multidimensional and culturally sensitive approach.

In Senegal, ADHD is no longer a “disease of wealthy countries” but a daily clinical reality increasingly encountered in child psychiatry consultations.

The development of early screening strategies and multimodal intervention programs represents a major challenge for improving the care of children with ADHD.

Key Recommendations

1. Advocacy for medication availability in Senegal through collaboration with

health authorities to facilitate access to psychostimulants.

2. Training and awareness programs target general practitioners, pediatricians, psychologists, and especially teachers.

3. Promotion of multidisciplinary and medico-educational centers integrating speech therapy, psychomotricity, cognitive remediation, and psychotherapy.

4. Development of culturally adapted diagnostic tools validated for African populations.

Public awareness campaigns regarding excessive early screen exposure and neurodevelopmental risks.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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