



Original Article

Clinical Profile of Neurodevelopmental Disorders in Children at a Tertiary Health Care Centre: A Cross-Sectional Study

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OPEN ACCESS

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Received: 15-01-2026

Accepted: 11-02-2026

Available online: 28-02-2026

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ABSTRACT

Background: Neurodevelopmental disorders (NDDs) are a heterogeneous group of conditions with onset in early childhood, characterized by impairments in cognition, communication, social behavior, and motor skills.

Objective: To study the clinical profile, demographic characteristics, and associated comorbidities of children diagnosed with neurodevelopmental disorders at a tertiary health care center.

Methods: A descriptive cross-sectional study was conducted among children aged 1–12 years presenting with developmental concerns. Diagnosis was based on DSM-5 criteria and standardized developmental assessment tools.

Results: Intellectual disability was the most common diagnosis followed by cerebral palsy, attention-deficit/hyperactivity disorder and Autism. Developmental delay was the most common presenting complaint followed by hyperactivity and poor social interaction. Behavioural issues, malnutrition and enuresis were common comorbidities.

Conclusion: Early identification and multidisciplinary management are essential for improving outcomes in children with neurodevelopmental disorders.

Keywords: Neurodevelopmental disorders, autism spectrum disorder, ADHD, intellectual disability, children.

INTRODUCTION

Neurodevelopmental disorders (NDDs) are a group of conditions with their onset in the early childhood during developmental period, characterized by deficits in personal, social, academic, or occupational functioning. These include autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), intellectual disability (ID), communication disorders, and specific learning disorders.

Globally, neurodevelopmental disorders are increasingly recognized due to improved diagnostic criteria and increased awareness. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), provides standardized criteria for classification and diagnosis of these disorders, facilitating uniform clinical assessment. Children presenting to tertiary care centers often have more complex clinical profiles, including multiple comorbidities and risk factors, necessitating detailed evaluation and multidisciplinary care. Children and adolescents with NDDs face various impairments and comorbidities, leading to complex medical, educational, and social support needs. This situation increases the financial and social burden on families. Additionally, these children with neurodevelopmental disorders are more vulnerable to abuse and neglect compared to their non-disabled peers.

Early identification of developmental issues can help to initiate early intervention at appropriate time and can help to improve the prognosis and quality of life.

OBJECTIVES

- To assess the demographic profile of children diagnosed with neurodevelopmental disorders.

- To evaluate the clinical presentation and types of neurodevelopmental disorders.
- To identify associated comorbidities and risk factors.

MATERIALS AND METHODS

Study Design and Setting

A descriptive cross-sectional study conducted at a tertiary health care center over one year July 2024 to June 2025.

Study Population

Children aged 1–12 years presenting with developmental concerns.

Inclusion Criteria

Diagnosed with neurodevelopmental disorder.
Consent obtained from caregivers

Exclusion Criteria

Severe illness where detailed assessment was not possible

Data Collection

Data was collected in predesigned format. Demographic details, detail developmental history, Clinical examination, DSM-5 diagnostic criteria, Developmental screening test (DST) for developmental assessment. Binet kamat test (BKT) used for IQ assessment.

Statistical Analysis

Statistical analysis was done using SPSS version 26. Data analyzed using descriptive statistics percentage, frequency.

RESULTS

Total 96 participants were included in the study.

1. Age Distribution: Maximum children were in 3-8 years age group.

Age	Distribution
1-3 years	19%
3-8 years	60%
8-12 years	21%

2. Gender distribution: Male preponderance is seen.

Gender	Distribution
Male	66%
Female	34%

3. Distribution of Disorders: Most common disorder was intellectual disability (40%) followed by cerebral palsy, ADHD (25%) and Autism spectrum disorder (20%).

Disorders	Distribution
Intellectual Disability	40%
Cerebral palsy	30%
ADHD	25%
Autism Spectrum Disorder	20%
Specific learning disorder	10%
Communication Disorder	5%
Hearing loss	3%

4. Clinical Presentation

Most common presentation was Developmental delay (58%), followed by hyperactivity (55%), Poor social interaction (40%), Repetitive behaviors and academic difficulties.

Symptoms/Signs	Frequency
Developmental delay	58%
Hyperactivity	55%
Poor Social interaction	40%
Repetitive Behaviors	35%
Academic difficulties	30%

5. Comorbidities

Most common comorbidity was behavioral issues (30%), followed by Malnutrition, Enuresis, encopresis, epilepsy and sleep disorders.

Comorbidity	Frequency
Behavioral issues	30%
Malnutrition	28%
Enuresis	25%
Encopresis	21%
Epilepsy	20%
Sleep disorders	16%

6. Risk Factors

Most common risk factor was perinatal complications (35%), followed by Low birth weight, positive family history, Prematurity, birth asphyxia.

Risk factors	Frequency
Perinatal complications	35%
Low birth weight	25%
Positive Family history	20%
Prematurity	18%
Birth asphyxia	15%
NICU stay	28%

DISCUSSION

The present study provides insight into the clinical and demographic profile of children with neurodevelopmental disorders (NDDs) presenting to a tertiary health care center. The findings highlight the predominance of Intellectual disability, male preponderance, frequent developmental delay as an initial complaint and the presence of multiple comorbidities and perinatal risk factors.

In our study we found male preponderance male children were 66% and female 34%. Similar results found in study done by Bahal M et al¹, Kumar G et al², Lagunju IA et al³ and Yang Y et al⁸.

In our study most common risk factor was perinatal complications (35%), followed by Low birth weight, positive family history, Prematurity, birth asphyxia. Arora NK⁴ et al also reported perinatal complications as most common risk factor. Jois RS et al¹¹ reported higher incidence of NDDs in very and extreme preterm babies.

In this study, Intellectual disability emerged as the most common neurodevelopmental disorder, followed by cerebral palsy, attention-deficit/hyperactivity disorder (ADHD) and Autism spectrum disorder. Similar result found in a study done by Bahal M et al where they found Intellectual disability the most common NDD followed by ADHD.¹

In a study by Kumar et al² the most common neurological conditions were childhood seizures (69%) and developmental delay (9.7%), with some overlap of conditions. Banoo et al⁵ reported that in Kashmir, seizures, cerebral palsy, and CNS infections were the most frequent neurological disorders. Arora et al. [1] found that in a study of 651 patients in Kolkata, 55.6% were children with autism spectrum disorder (ASD) the most common disorder.⁴ Elbasan B et al⁷ reported cerebral palsy as most common presenting disorder whereas Yang Y⁸ et al found ADHD as most common disorder.

In our study we found most common age of presentation 3- 8 years (60%), where as in Kumar et al² in their study found 5-10 years as most common age of presentation. This highlights that children get diagnosed late missing the important early intervention period which is important for improving the prognosis and overall quality of life.

Most common presentation was Developmental delay (58%), followed by hyperactivity (55%), Poor social interaction (40%), Repetitive behaviors and academic difficulties.

Most common comorbidity was behavioral issues (30%), followed by malnutrition, Enuresis, encopresis, epilepsy and sleep disorders. Khatun R⁹ et al reported malnutrition in 47.8 % children with NDD and also found that malnutrition was more common in children residing in rural areas. Alabaf S et al¹⁵ also reported high incidence of epilepsy, enuresis and other physical problems in children with NDD.

CONCLUSION

Neurodevelopmental disorders are a significant and increasing cause of pediatric morbidity. Early diagnosis, timely referral, early intervention and multidisciplinary management are essential to improve outcomes.

Limitations: Single-Centre study, Limited sample size, No longitudinal follow-up.

Recommendations: Routine developmental screening, early intervention programs, Increased awareness among caregivers, strengthening referral systems.

Acknowledgements: We thank the patients and their families for their participation. Dr Lovina Singhani for her contribution.

Funding: Nil

Conflict of Interest: None

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