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Student's Corner

# Cross Sectional Review of Children with ADHD presenting to an Outpatient Psychiatric Institute in Pakistan

A. Qureshi, D. Thaver
Medical Students, Aga Khan University Hospital, Karachi.

## Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most frequently diagnosed psychiatric disorders in children, with studies in the West reporting a prevalence of 10-20% in school-aged children.1,2 No figures are available for Pakistan; however, a study 3 in neighbouring India reports a prevalence of 8.1% among children referred to the Psychology outpatient department of a tertiary care hospital.

ADHD is defined as developmentally inappropriate poor attention span or age inappropriate hyperactivity and impulsivity or both.4 To meet the diagnostic criteria, the symptoms must appear in at least two contexts, be present for six or more months, occur before 7 years of age and there should be significant social or functional impairment.5 Subtypes include predominantly attention deficit (AD), predominantly hyperactive or impulsive (HI) and combined type (CT). According to various studies, differences have been found in the subtypes regarding age of presentation 6,7 and functional impairment8,9 including behavioural problems, peer interaction and academic performance.

The disorder presents more often in boys than in girls (3-5:1)8,10 and usually affects first-born boys. The onset is usually by three years of age but the diagnosis is not made until the child is in elementary school.4
Despite the lack of a specific neurophysiological or neurochemical basis for ADHD, it is predictably associated with conditions causing minimal brain damage.4 Hence, risk factors for the development of ADHD may include any prenatal, perinatal and postnatal problem that can be associated with brain damage. Serious head injuries, meningitis, hydrocephalus, and brain surgery can also increase the risk of developing ADHD.11

ADHD often accompanies another developmental disability and its presence should be considered a marker for other developmental or psychiatric conditions.11 An Indian study found 40% of children with ADHD to have some comorbid disorder.3 Comorbid conditions include Oppositional Defiant Disorder (ODD), Conduct Disorder (CD) and affective, anxiety and learning disorders.12
Most children with ADHD can be diagnosed confidently and managed optimally without any biomedical investigations or procedures. The mainstay of any pediatric evaluation of ADHD continues to be a meticulous history.11 This study reports local experience of ADHD.

## Materials and Methods

This was a cross sectional review carried out at The Institute of Behavioural Sciences (IBS), Karachi, an outpatient psychiatric institute. We reviewed the files of all children under 14 years of age who presented to IBS during a two year period (1998- 2000). Twenty-six children diagnosed with ADHD were included in this study.
Data concerning age, sex, age of onset, birth history, developmental history and comorbid conditions was collected and analyzed using SPSS. Frequencies and proportions were computed. Comparative analysis of the different subtypes was carried out using the Chi Square test and Fisher Exact test

where applicable.
The rationale for choosing a cross-sectional review of pre-existing records was that funds and time period to carry out the study were both limited. Also, the cross-sectional study would allow us to ascertain demographic and descriptive details, and allow us to compare our results with those from similar studies conducted in different regions.

## Results

There were twenty-six children between the ages 3-14 years, of whom 20 (76.9%) were boys and 6 (23.1%) were girls, with a ratio of 3:1. Amongst the boys, 9 (45%) were first born. Mean age at onset was found to be 4.48 years.
Seven (26.9%) children were diagnosed to have the Hyperactive subtype, 4 (15.4%) had the Inattentive subtype and 15 (57.7%) were diagnosed with the Combined subtype.

The diverse spectrum of presenting complaints included poor concentration, poor school performance, hyperactivity and impulsivity, restlessness, aggression and disruptive behaviour, irritability, carelessness and forgetfulness.
The most significant comorbids included mental retardation (MR) in 14 (53.8%) children, epilepsy in 2 (23.07%) children, and both comorbids present in 4 (15.4%) children. The Combined subtype was significantly associated with MR in our study (Fisher Exact p = 0.002).
Other comorbids included Conduct Disorder in 5 (19.2 %) and Oppositional Defiant Disorder in 3 (11.5%) children. A wide range of other comorbids included autistic disorder, enuresis, cerebral atrophy and cerebellar agenesis, childhood onset schizophrenia, childhood dissent disorder, major depressive disorder, tic disorder and expressive language disorder.
Possible causes for subtle brain damage that were found in the birth history included maternal problems like abnormal labor in 9 (34.6%) cases and eclampsia in 3 (11.5%) cases. Neonatal problems were present in a total of 10 (38.5%) cases which included sepsis, low birth weight, jaundice, seizures and prematurity (Table).
In the past medical history that was available for 22 children, head injury was identified in 3 (13.6%) children and a history of febrile seizures was present in 2 (9.1%) children.

Developmental history was positive for delayed milestones in 16 (61.5%) children. Twelve of these were reported to have both language and motor delay, 3 children had language delay only and 1 child had motor delay alone.

## Discussion

This study provides baseline demographic data for children with ADHD in Pakistan. Due to inherent limitations of an institution-based study, the results obtained permit only a broad view of what remains a challenging research issue.
The ratio of boys to girls with ADHD was similar to other reports from the West8,10 and 45% of the boys were first born.
Combined subtype was the most commonly diagnosed subtype. A large percentage of children (53.8%) were mentally retarded.
The combined subtype was significantly associated with MR (p=0.002) in this study. Other studies have also reported a higher frequency of the behavioral, peer and academic problems6,8 in the combined subtype.
A thorough history concerning prenatal, perinatal, and postnatal period was fortunately available. Therefore, the risk factors for minimal brain damage and its etiological association with ADHD as put forward by Western studies could be assessed in the children included in this study. Maternal risk

factors in our study included eclampsia and abnormal labor or delivery. Neonatal conditions included prematurity, low birth weight, sepsis, jaundice and seizures. A history of delayed milestones - motor, language or both, were reported in 61.5% of the children.
ADHD is one of the most highly prevalent psychiatric disorders in childhood and is associated with significant functional impairment. There is a great need for studies concerning this disorder in our country and we hope our study will provide a platform for such research in the future.

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