

Research Article

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Prevalence of attention deficit hyperactivity disorder among urban school children

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ABSTRACT

Background: Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood onset psychiatric disorders. Prevalence among school children varies from 1% to 20%. Western literature on this disorder has grown but in India only few studies have been done. Evaluation of prevalence of ADHD in school age children can help clinicians to consider the diagnosis of ADHD. Early intervention minimizes negative impact of this disorder. The main objective is to study the prevalence of ADHD among urban school going children.

Methods: Nine hundred and ninety seven (540 males and 457 females) school children (aged between 6 to 12 years) from 3 government aided English medium schools of Bengaluru were selected for the study. Teachers and parents of these children were asked to complete a ten item Conner's index questionnaire for each of these children. Those with the scores of >15 were considered positive. Parents of children whose scores were positive for ADHD were interviewed by a psychiatrist and ADHD was diagnosed based on DSM-IV diagnostic criteria.

Results: 23 (2.3%) children were diagnosed to have ADHD. Of 23 children, 18 (78.26%) were boys and 5 (21.74%) were girls. The mean age of boys with ADHD was 10.2 years and the mean age of girls with ADHD was 7.6 years. The male to female ratio was 3.6:1.

Conclusions: ADHD is one of the prevalent psychiatric disorders in school children. ADHD symptoms are frequently reported by teachers and parents by means of DSM-IV based questionnaire. This study recommends diagnosis and treatment of school children with ADHD.

Keywords: Attention deficit hyperactivity disorder, Conner's index questionnaire, School children

INTRODUCTION

The first reliable description of ADHD comes from England in early 20th century. The prevalence of this disorder varies from 1% to 20% depending on the diagnostic criteria, the population of children studied and the source of information. Around 60% of ADHD children will carry some of their behavior in adulthood.¹

The cardinal symptoms are inappropriate levels of inattentiveness, motor over-activity and impulsivity. The symptoms must appear in at least two contexts, for duration of atleast 6 months, have an onset before age of 7 years and cause significant functional impairment.² Recent reports highlight behavioral, social, familial and academic difficulties in school age children with ADHD as compared to their counterparts without ADHD.³

Despite considerable research, ADHD remains one of the most difficult diagnoses to categorize as evidenced by frequent changes in the diagnostic criteria in the various edition of the DSM.² In the last decade the western literature on this syndrome has grown but in India only a few studies have been done.¹ Evaluation of prevalence of ADHD in school age children can help clinicians to consider the diagnosis of ADHD. Early intervention minimizes negative impact of this disorder. On the other hand delay in diagnosis and treatment of ADHD may result in developmental problems, disturbances in family functioning and psychiatric problems such as substance abuse.^{4,5}

METHODS

A cross sectional, descriptive study approved by the institutional ethical committee was conducted from January 2012 to December 2012. Three government aided English medium schools of urban Bangalore were chosen and permission was taken from school authorities. 997 school children aged between 6 to 12 years were selected randomly from these 3 schools. Informed written consent was taken from parents of all the selected children before under taking the study. Children with epilepsy, chronic physical disability (deafness or visual problems) or on chronic medication were excluded.

Teachers and parents were asked to complete a ten item Conner's index questionnaire for each of these children. Score 15 was assumed as the cut-off point and those with the scores of more than 15 (parent's or teachers', and or both teachers' and parents) were considered positive. Parents of children with score >15 were invited to participate in the next step during which parents were interviewed directly, by involving a psychiatrist. By applying DSM-IV criteria the diagnosis of ADHD was made.

During the interview and evaluation process, a detailed history, physical and systemic examination was done. The enquiry was also done regarding co morbid conditions like anaemia, epilepsy, chronic asthma, lead exposure, chronic medication, academically under achiever, hypothyroidism and sleep impairment.

RESULTS

Out of the 997 school children (aged 6-12 years) screened, 540 (54.1%) were males and 457 (45.84%) were females. 41(4.11%) children had Conner's index questionnaire score of more than 15. Out of the 41 children positive on screening questionnaire, 23 (2.3%) children were found to have ADHD as per DSM IV criteria. Of 23 children, 18 (78.26%) were boys and 5 (21.74%) were girls. The mean age of boys with ADHD was 10.2 years and the mean age of girls with ADHD was 7.6 years. The male to female ratio was 3.6:1.

Out of 23, 11(47.82%) were hyperactive /impulsive type, 7 (30.45%) were inattentive type and 5 (21.73%) children were diagnosed to have combined type of ADHD. 13 (47.82%) children were academically under achievers.

DISCUSSION

In our study the prevalence of ADHD among school children aged 6-12 years was 2.3%. Epidemiological studies reveal prevalence rates ranging widely from 1-23% depending upon the definition used and the population sample.^{6,7} Prevalence estimates based on a behavioural definition which assesses symptoms shown at a single point of time is found in 10-20% of general population in India and west.^{8,9} Prevalence estimates based on a psychiatric definition according to DSM criteria, with specific inclusion criteria, onset of symptoms, duration and impairment is found in 5-10% of general population, while this prevalence declined to 1-2% in the studies based on ICD criteria for hyperactivity.⁶

Shealy estimated prevalence between 3-20% depending on the age, the criteria, and the instrument used.¹⁰ According to kurtzke, epidemiological studies report in a higher prevalence, which should be considered as estimated or screening prevalence.¹¹ Many false positives, may be included. In a two stage study from Brazil, 9.7% of 1013 students were positive using sent checklist.¹²

The diagnosis of ADHD is a challenging problem because differentiation of cardinal symptoms of ADHD from temperamental characteristics and routine behaviours of school children is very difficult. So, both over diagnosis and under diagnosis may occur. Lower rates in our study may be attributable to under recognition and delay of parents in seeking treatment for their children or to the hesitance of some clinicians in diagnosing ADHD in these children.

On the other hand, there is some controversy in the literature whether ADHD is a biological disorder or cultural disorder. A review study suggested that cultural differences are one of the factors that affect the prevalence of ADHD.¹³ Reports of informants are basic tools for the diagnosis of ADHD and acceptable behaviours are different by attitude, therefore ADHD may be cultural dependent.

In the present study it was seen that prevalence of ADHD increases with age. ADHD was found to be significantly more prevalent in boys than girls, with male to female ratio of 3.6:1, comparable with the result of the study by Mohamed F et al, which also reported a higher prevalence of ADHD in boys than girls with the ratio 2.7:1.¹⁴ The gender differences strengthen the evidence for a biologically based, often genetically transmitted, etiology for hyperkinetic disorder. Consistent with the results of other studies, Predominantly Hyperactive –

Impulsive type of ADHD was seen in majority of children with ADHD.²

Children with ADHD had academic and behavioural problems. 47.82% of children with ADHD had academic difficulties like, repeating the same class again, failing in one or more school subjects. Behavioural problems reported among ADHD children were aggressiveness, destructiveness, temper tantrums and bed wetting. Similar behavioural problems including thumb sucking, nail biting, lying and stealing were reported in 60% of children with ADHD in an Indian study, including 60% of them having academic difficulties. In the same study they also reported peer difficulties like not being liked by classmates, being rejected, not having a single good friend in three-fourth of children with ADHD.²

In a study of ADHD among psychiatric out patients, ADHD was associated with the first born status, was significantly more common in children belonging to a lower social class and the incidence of slow development was higher among children with ADHD.¹

One limitation of this study was severe ADHD cases were not available. In our study after completing 10 item Conner's index questionnaire, we have carried out direct interview of parents of children with positive screening test, by applying DSM-IV criteria. Since we have used DSM-IV criteria, rather than ICD -10 criteria for the diagnosis of ADHD, the chances of getting the diagnosis is 3 to 4 times more.

CONCLUSION

ADHD is one of the prevalent psychiatric disorders in school children. ADHD symptoms are frequently reported by teachers and parents by means of DSM-IV based questionnaire, which is simple to administer. The prevalence of ADHD increases with age. In addition to the symptoms of ADHD, these children also had significant behaviour and academic problems. The occurrence of behavioural problems in children with ADHD may require multiple diagnosis rather than ADHD alone.

In children diagnosed with ADHD, a reduction in hyperactive behaviour often occurs with age. However, other symptoms associated with ADHD can become more prominent with age, such as inattention, impulsivity and disorganisation and these exert a heavy toll on young adult functioning and hence this study recommends diagnosis and treatment of school children with ADHD.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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