

Prevalence of attention deficit hyperactivity disorder among primary school children

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■ **ABSTRACT** : This is an attempt to adjudge prevalence of Attention Deficit Hyperactivity Disorder (ADHD) among primary school children. The sample comprised of 26 (20 boys and 6 girls) ADHD children from eight Government Kannada medium schools situated in Dharwad city of Karnataka state. The children age ranged between 10 and 12 years. Diagnostic and statistical manual –IV was used to identify ADHD children by the class teacher. The result revealed that prevalence of ADHD among the children ranged between around 3 to 13 per cent with an average prevalence was 6 per cent. The prevalence of ADHD among boys was higher than girls and ratio was 3:1.

■ **KEY WORDS** : Prevalence, Attention deficit hyperactivity disorder, Primary school children

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Attention deficit hyperactivity disorder (ADHD) is generally considered to be developmental disorder, largely neurological in nature affecting childhood population. The disorder is typically present itself during childhood and is characterized by persistent pattern of inattention and hyperactivity/impulsivity.

Attention deficit hyperactivity disorder (ADHD) is one of the most commonly diagnosed behaviour disorders of childhood. In recent year, increasing number of pre-schoolers appears to be manifesting the core symptoms of ADHD. Diagnosis of ADHD in very young children is difficult as high activity level, impulsivity and short attention span are to some extent age appropriate characteristic of normal pre-school children. ADHD is one of the most commonly referred problems to child guidance clinics in the United States with as one third to one half of all clinic referred children displaying ADHD symptoms either alone /in combination with other disorders (Barkley, 1990).

The behaviour of children with ADHD at different ages was naturally different in frequency, severity and type, although most children with ADHD will have problems throughout their lives, but their symptoms tend to decline in prevalence and intensity as they grow older, because

inattention and hyperactivity-impulsivity decline in all children in the process of socialization. As many as 25 per cent to 50 per cent of children with ADHD do outgrow their problems to cope with it effectively (Hart *et al.*, 1996).

It is possible that ADHD in girls may go unrecognized and it is under reported. Teachers usually fail to recognize and report inattentive pattern of behaviour unless they are also accompanied by the disruptive symptoms which normally associated with boys (McGee and Fehan, 1992). These findings suggest that sampling referral biases may contribute to ADHD's being reported to occur more often in boys than in girls. However, the extent to which biases can explain gender differences in the prevalence of ADHD is little known at present. Girls with ADHD are a highly under studied group, although the way in which the disorder is expressed and the severity of most symptoms are similar for boys and girls (Silverthron *et al.*, 1996). Boys and girls with ADHD do not differ in impulsivity academic performance, social functioning or fine motor skills and they display comparable patterns of parent-child interactions, have similar rates of ADHD in relatives and showed the same response to stimulant medications (Befera and Barkley, 1984; Faraons *et al.*, 1991) When gender differences are found, boys 14 showed more

hyperactivity, more accompanying aggression and antisocial behaviour and greater impairment in executive functions and girls showed greater verbal and non-verbal intellectual impairment (Gaub and Carlson, 1997; Seidman *et al.*, 1997).

The prevalence of ADHD in population was 5-10 per cent among school age children and it was reported that males to be more often affected than females, with male and female ratio ranging from 3:1 to 9:1 (Bener *et al.*, 2006). McArdle *et al.* (1995) found that at a symptomatic level, hyperactivity proved common in both 7-8 year old and 11-12 year old children. Further, hyperkinesias was more common in boys than in girls. The prevalence of ADHD was 18 per cent when the diagnosis made using DSM-IV criteria (Guardiola *et al.*, 2000).

A total of 2000 primary school students, ages 6-12 are assessed on ADHD and identified overall prevalence of 9.4 per cent, who have a higher score for ADHD symptoms (Bener *et al.*, 2006). The prevalence of ADHD in childhood population have been estimated 3-7 per cent (APA, 2002). Stephen *et al.* (2003) have reviewed a total of 50 studies on ADHD from MEDLIN and concluded that ADHD is a behavioural disorders that effects upto 1 in 20 children in the USA and non-USA population and they recognized that ADHD was not purely an American disorder and that the prevalence of this behavioural disorder in many countries was in the same range that in the USA (Stephan *et al.*, 2003). The best estimate revealed that ADHA affects about 3 per cent to 5 per cent of all school age children as many as 2 million or more children in North America. An average of one child in every class room requires help for this problem (APA, 1994; Szatmari, 1992).

In India, there are very few studies on prevalence of ADHD. So, an attempt is made to study the prevalence and status of Attention Deficit Hyperactivity Disorder among primary school children.

RESEARCH METHODS

Sample

The students of V standard were purposively selected

for the study because at this level the manifestation of ADHD was maximum. The sample consisted of 26 (20 boys and 6 girls) ADHD children of V standard from randomly selected eight Government primary Kannada schools situated in Dharwad city of Karnataka state.

Tool :

Diagnostic and statistical manual IV (DSM-IV) was used to assess the ADHD children. This was developed by American Psychiatric Association (1994). It consisted of two subscales, such as inattention and hyperactivity/impulsivity, having 13 and 15 items, respectively.

RESEARCH FINDINGS AND DISCUSSION

The results of the present study as well as relevant discussions have been presented under following sub heads:

Prevalence of ADHD :

Attention Deficit Hyperactivity Disorder is a neurological disorder initially appearing in childhood which manifest symptoms, such as inattention and hyperactivity/impulsivity.

The results of Table 1 indicates that the prevalence of ADHD among the boys ranged from 2.50 to 13.63 per cent and the average prevalence of ADHD was 8.73 per cent. Among the girls, minimum percentage was 2.38 and maximum percentage of ADHD was 8.33 per cent. The average prevalence of ADHD among the girls was 2.91 per cent. The result of overall total of ADHD children manifested that the prevalence of ADHD among the students of V standard ranged from 2.38 to 10.00 per cent with an overall prevalence of 5.98 per cent (Fig. 1). Though both boys and girls had ADHD but percentage of prevalence of ADHD among the boys was higher compared to the girls and the ratio was 9:3. These results supported the findings of Pineda *et al.* (1999), Benjasuwantep (2004) and Abiodun *et al.* (2007). The higher prevalence of ADHD among boys may due to the fact of discriminative socialization process, where boys are given more freedom for

Table 1 : Prevalence of attention deficit hyperactivity disorder (ADHD) among boys and girls

School No.	Strength			ADHD		
	Boys	Girls	Total	Boys	Girls	Total
1.	32	12	44	3 (9.37)	0	3 (6.81)
2.	23	7	30	3 (13.04)	0	3 (10.00)
3.	48	33	81	4 (8.33)	0	4 (4.94)
4.	40	48	88	1 (2.50)	4 (8.33)	5 (5.68)
5.	31	24	55	3 (9.67)	1 (4.16)	4 (7.27)
6.	33	23	56	3 (9.09)	0	3 (5.35)
7.	-	42	42	0	1 (2.38)	1 (2.38)
8.	22	17	39	3 (13.63)	0	3 (7.69)
Total	229	206	435	20 (8.73)	6 (2.91)	26 (5.98)

Note: Value given in parenthesis is percentage

expression of emotional and behavioural manifestation among Indian families irrespective of religion, caste and creed or may be due to genetic reasons the disorders are in higher proportion among boys than girls.

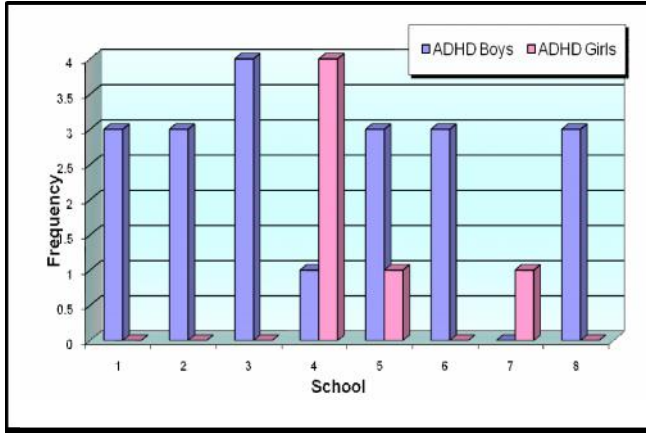


Fig. 1: Prevalence of ADHD among the boys and girls

Status of inattention :

Inattention is the lack of ability of child to focus one’s attention in particular activity like school work, project activity etc.

The level of inattention among the boys and girls was adjudged on the basis of raw score. The score of inattention between 20 and 30 was considered as the indicator of inattentive. The score from 31 to 39 was the indicator of highly

inattentive. The results of Table 2 depict that the score of the boys on inattention ranged from 29 to 37 with mean score of 32.40 and 2.60 standard deviation. Among 20 boys, 25.00 per cent were inattentive and 15 (75.00%) boys were highly inattentive. Among the girls, the scores on inattention ranged from 27 to 36 with mean value of 32.83 and 3.82 standard deviation. Among 6 girls, 33.34 per cent girls were inattentive and 4 (66.66%) girls were highly inattentive. The ‘t’ value of the boys and the girls on inattention was 0.321, which was not significant even at 0.05 level of significance. It indicated that there was no significant difference between the girls and the boys on inattention. The overall results of 26 children indicated that the score on inattention ranged from 27 to 37 with mean value of 32.61 and 3.21 standard deviation.

The results revealed that around 1/4th of the boys and 1/3rd of the girls were inattentive and 3/4th of the boys and 2/3rd of the girls were highly inattentive. These results confirmed that the boys and the girls of ADHD were similar in expressing their behavioural problems of inattention and majority of the boys and the girls were highly inattentive, but the percentage of prevalence of inattention was high among the boys.

Status of hyperactivity/impulsivity :

Hyperactivity/impulsivity is the behaviour problem in which children often fidget with hands/feet, squirm on seat, often run about excessively, restless, unduly noisy while playing and have difficulty to engage in quality and leisure activities at school and at home.

The level of hyperactivity/impulsivity among the boys

Table 2: Status of the boys and the girls on inattention			(n=26)
Classification and scores	Boys (n=20)	Girls (n=6)	Total (n=26)
Inattentive			
27	-	1 (16.67)	1 (3.85)
29	4 (20.00)	1 (16.67)	5 (19.25)
30	1 (5.00)	-	1 (3.85)
Total	5 (25.00)	2 (33.34)	7 (26.95)
Highly inattentive			
31	4 (20.00)	-	4 (15.35)
32	1 (5.00)	-	1 (3.85)
33	3 (15.00)	-	3 (11.55)
34	3 (15.00)	-	3 (11.55)
35	-	3 (49.19)	3 (11.55)
36	3 (15.00)	1 (16.67)	4 (15.35)
37	1 (5.00)	-	1 (3.85)
Total	15 (75.00)	4 (66.66)	19 (73.05)
Mean score of group	32.40	32.83	32.61
S.D	2.60	3.82	3.21

‘t’ value=0.321 NS

Note: Value given in parenthesis is percentage, S.D. standard deviation, NS = Non-significant

Table 3: Status of the boys and the girls on hyperactivity/impulsivity (n=26)			
Classification and scores	Boys (n=20)	Girls (n=6)	Total (n=26)
Hyperactive /impulsive			
31	-	1 (16.67)	1 (3.85)
32	-	1 (16.67)	1 (3.85)
Total	-	2 (33.34)	2 (7.70)
High hyperactive /impulsive			
33	1 (5.00)	-	1 (3.85)
34	2 (10.00)	-	2 (7.70)
35	2 (10.00)	-	2 (7.70)
36	2 (10.00)	-	2 (7.70)
37	3 (15.00)	-	3 (11.50)
38	2 (10.00)	2 (33.33)	4 (15.35)
39	4 (20.00)	-	4 (15.35)
40	2 (10.00)	2 (33.33)	4 (15.35)
41	2 (10.00)	-	2 (7.70)
Total	20 (100.00)	4 (66.66)	24 (92.30)
Mean of group scores	37.40	36.50	36.95
S.D.	2.60	3.69	3.29
't' value= -0.202 NS			

Note: Value given in parenthesis is percentage, S.D: standard deviation, NS= Non-significant

Table 4 : Status of the boys and the girls on ADHD (n=26)			
ADHD Score	Boys (n=20)	Girls (n=6)	Total (n=26)
ADHD Mild			
58	-	1 (16.67)	1 (3.85)
62	1 (5.00)	-	1 (3.85)
65	2 (10.00)	-	2 (7.70)
66	2 (10.00)	-	2 (7.70)
67	2 (10.00)	2 (33.32)	4 (15.35)
68	1 (5.00)	-	1 (3.85)
Total	8 (40.00)	3 (49.99)	11 (42.30)
Hyper ADHD			
69	3 (15.00)	-	3 (11.50)
70	2 (10.00)	-	2 (7.70)
71	1 (5.00)	-	1 (3.85)
73	2 (10.00)	1 (16.67)	3 (11.50)
75	1 (5.00)	1 (16.67)	2 (7.70)
76	-	1 (16.67)	1 (3.85)
77	3 (15.00)	-	3 (11.50)
Total	12 (60.00)	3 (50.01)	15 (57.70)
Mean of group scores	69.80	69.33	69.56
S.D.	4.36	6.77	5.56
't' value =-0.690			

Note: Value given in parenthesis is percentage, S.D: standard deviation, NS = Non-significant

and the girls was adjudged on the basis of raw score. The score of hyperactivity/impulsivity between 22 and 32 was considered as the indicator of hyperactive/impulsive. The score from 33 to 45 was the indicator of highly hyperactive/impulsive. The result of Table 3 manifested that the scores of boys on hyperactivity/impulsivity ranged from 33 to 41 with mean score of 37.40 and 2.60 standard deviation. Among 20 boys all were highly hyperactive/impulsive. Among girls the score on hyperactivity/impulsivity ranged from 31 to 40 with mean value of 36.50 and 3.99 standard deviation. Among 6 girls, 33.34 per cent were hyperactive/impulsive and 4 (66.68%) girls were highly hyperactive/impulsive. The 't' value of the boys and the girls on hyperactivity/impulsivity was -0.202, which was not significant even at 0.05 level of significance. It indicated that there was no significant difference between the girls and the boys on hyperactivity/impulsivity. The overall results of 26 children indicated that the scores on hyperactivity/impulsivity ranged from 31 to 41 with mean value of 36.95 and 3.29 standard deviation.

The study asserted that the percentage of prevalence of hyperactive/impulsive disorder among the boys was higher than the girls. But, the boys and girls were similar in intensity of expression of hyperactive/impulsive behaviours. These results support the observations of Lumley *et al.* (2002).

Status of ADHD :

Attention Deficit Hyperactivity Disorder is a neurological disorder initially appearing in childhood which manifests itself with symptoms, such as inattention and hyperactivity/impulsivity.

The level of ADHD among the boys and the girls was adjudged on the basis of raw score. The score of ADHD between 42 and 68 was considered as the indicator of ADHD. The score of ADHD at 69 and above was the indicator of hyper ADHD. The respondents were classified into ADHD and high in ADHD. The results of Table 4 denoted that the score of boys on ADHD ranged from 62 to 77 with mean of the score 69.80 and 4.36 standard deviation. Among 20 boys, 40.00 per cent were having ADHD and 12 (60.00%) boys were having hyper ADHD. Among girls, the scores on ADHD ranged from 58 to 76 with mean value of 69.33 and 6.77 standard deviation. Among 6 girls, 50.00 per cent were having ADHD and 3 (50.00%) girls were having hyper ADHD. The 't' value of the boys and the girls on ADHD was 0.690 which was not significant even at 0.05 level of significance. It indicated that there was no significant difference between the girls and the boys on ADHD. The overall results of 26 children indicated that the scores on ADHD ranged from 58 to 77 with mean value of 69.56 and 5.56 standard deviation.

These results connotated that about 60 per cent of ADHD boys and 50 per cent of ADHD girls were very high in manifestation of hyperkinesias and distractibility, variability

in task performance, inability to plan, deficit in role governing behaviour. Though, there was variation in percentage on intensity of expression of ADHD behaviour among the girls and the boys but statistically they were similar in ADHD. This result of study affirmed that the boys and the girls were similar in their expression of the behavior of ADHD. This result supports the conclusion of Sliverthron *et al.* (1996) that the ADHD expressed and the severity of most symptoms among girls and boys is same in status.

Conclusion :

The prevalence of ADHD among the students of V standard was 6 per cent and the ratio of the boys to the girls was 9:3. 73 per cent of the students were hyper ADHD, 73 per cent of the students were highly inattentive and 92 per cent of the students were highly hyperactive/impulsive in their behaviours.

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