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Prevalence of attention deficit/hyperactive disorder in school going children

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Objectives : To find out the prevalence of ADHD in school going children and to study the effect of gender & socio demographic variables on ADHD children. Attention Deficit Hyperactive Disorder (ADHD) is disorder of childhood and adolescence characterized by a pattern of extreme pervasive, persistent and debilitating inattention, over activity and impulsivity (APA, 1994). ADHD is one of the most prevalent chronic health disorders affecting school age children. It is also the most frequently occurring problem in neuro-psychiatric disorders of children (Szymanski & Zolotor, 2001). Attention Deficit Disorder with Hyperactivity (ADHD) has been recognized as one of the major public health problem in a number of Western countries as well as in developing countries. The prevalence of this syndrome is difficult to specify since it varies greatly with the diagnostic criteria employed, the population of children studied and method of investigation. Also the prevalence of ADHD in school going children is increasing day by day and it has become a burning problem for the teachers and parents. Thus, the present study will be helpful in identifying students with ADHD and for their better management. Methodology: The sample of the study consisted of 370 student studying in various schools (Saskiya Prathmic Shala, chowbe colony, Saskiya Prathmic Shala, Genious Public School & Sharda Public School Mana basti) of Raipur (C.G.). The sample covered students studying in I, II, & III standards of age range 6 to 11 years. All students fulfilling their inclusion and exclusion criteria were selected. Result will be discussed in paper.

Keywords: attention deficit hyperactive disorder (ADHD)

Attention Deficit Hyperactivity Disorder (ADHD) is a disorder of childhood and adolescence characterized by a pattern of extreme pervasive, persistent and debilitating inattention, over activity, and impulsivity (APA, 1994). ADHD is one of the most prevalent chronic health disorders affecting school age children. It is also the most frequently occurring neuro-psychiatric disorder in children (Szymanski & Zolotor, 2001).

The DSM IV stated prevalence of ADHD, 3 to 5% of school children, is notably higher than rates reported for hyperkinetic behaviour disorder in Europe. The prevalence of ADHD in school going children is increasing day by day and it has became a burning problem for the teachers and parents. Thus, the present study will be helpful in identifying students with ADHD children for their better management of the children.

Aim of the study

- To find out prevalence of ADHD in school going children.
- To study effect of gender & socio demographic variables on ADHD children.

Hypotheses of the study

- There will be presence of ADHD in school going children.
- There will be no ADHD in school going children.
- There will be no significant gender difference among ADHD children.

Method

Participants

The sample of the study consisted of 370 student studying in various schools of Raipur (C.G.). The sample covered students studying in I, II, & III standards of age range 6 to 11 years.

Inclusion criteria

- Age range 6 to 11 years
- Children from I to III std.

Exclusion criteria

- Long term physical illness.
- Comorbid mental illness

Instruments

Self made semi-structured socio demographic data sheet.

ADHD Symptom Checklist-4 (Teacher's rating scale) (Gadow & Sprafkin, 1999): The ADHD symptom checklist-4 is a 50 item rating scale given by Kenneth D Gadow (Phd) and Joyce Sprafkin (PhD) to be completed by Parents and teachers to monitor response to treatment for ADHD and oppositional defiant disorder. The ADHD-SC-4 contains the symptoms of DSM IV disorders, the peer conflict scale (which measures peer aggression), and the stimulant side effects checklist (to monitor medication). It is a treatment monitoring instrument for children between 3 to 18 years old.

The ICD-10 International Statistical Classification of Mental and Behavioural Disorders (WHO, 2007): The International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) is a coding of diseases, signs and symptoms, abnormal findings, complaints, social circumstances and external causes of injury or diseases.

Procedure

List of all schools of Raipur were drawn, out of which two Government and two Private schools were selected randomly. After taking consent of school authorities, children were taken. Equal number of boys (185) and girls (185) were selected matched with respect to age, sex & education. Socio-demographic details were collected for each child with the help of their class-teachers & school records.

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After taking information, children were rated on ADHD symptom checklist-4, based on DSM-IV criteria, but today ICD-10 diagnostic criteria is more acceptable for the diagnosis, so children were diagnosed as ADHD using ICD-10.

Results

Table 1. (a) Showing mean & SD of age of sample group.

VARIABLES	N	MEAN	SD
AGE	370	8.127	1.60033

Mean age & SD of school going children is 8.127 years and 1.60 respectively

Table 1 (b). Showing frequency & percentage (%) of personal details of children.

Variables	Group	N	%
Sex	Male	185	50
	Female	185	50
Birth order	First	80	21.6
	Middle	186	50.6
	Last	103	27.8
Religion	Hindu	367	99.2
	Muslim	3	0.8
Socio-economic status	Lower	308	83.2
	Middle	62	16.8
Residence	Rural	91	24.6
	Urban	279	75.4
Standard/class	Std. I	102	27.6
	Std. II	138	37.3
	Std. III	130	35.1
Medium of study	Hindi	322	87
	English	48	13
Relationship with teacher	Good	353	95.4
	Satisfactory	15	4.1
	Poor	2	0.5
Relationship with peer	Good	340	91.9
	Satisfactory	25	6.8
	Poor	5	1.4
Family income	Up to 3000	219	59.2
	3001-6000	133	35.9
	6001-9000	18	4.9
Academic performance	Pass	300	80.8
	Fail	70	18.9
School	Private school	54	14
	Government school	316	85

Among percentages of both sexes (50%), 50.6% were middle born child as per their birth order and 99.2% were Hindus. High majority of the sample were in the lower socio economic status (83.2%), high percentage of students were from urban areas (75.4 %), majority of percentage, i.e., (37.3 % &35.1% were from in II & III std.), it was found that high number of children 87% belonged to hindi medium schools, relationship with teacher and peers was found to be good and satisfactory, i.e., 95.4% & 91.9% respectively, high percentage of total family income was Rs 3000/-, i.e., 59.2%. Academic performance was found to be highly satisfactory on 80.8% of students. 85% of students were from government school.

Table 2: Showing frequency and percentage (%) of ADHD presence and absence as per ADHD symptom checklist

Variables	N		%	
	Absent	Present	Absent	Present
ADHD inattentive type	345	25	93.2	6.8
ADHD hyperactive-impulsive type	360	10	97.3	2.7 type
ADHD combined type	361	9	97.6	2.4
Oppositional defiant disorder	361	9	97.6	2z.4

Majority of the school going children had inattentive type ADHD (6.8%) & 2.7% had ADHD hyperactive-impulsive type.

Table 3: Frequency and percentage of ADHD severity

Variable	Group	N	(%)
ADHD inattentive type	None	345	93.2
	Low	10	2.7
	Moderate	11	3
	High	4	1.1
ADHD hyperactive-impusive type	None	360	97.3
	Low	3	0.8
	Moderate	5	1.4
	High	2	0.5
ADHD combined type	None	361	2
	Low	97.6	0.5
	Moderate	4	1.1
	High	3	0.8
Oppositional defiant disorder	None	9	7.6
	Low	3	0.8
	Moderate	2	0.5
	High	4	1.1
Peer conflict	None	364	98.4
	Low	0	0
	Moderate	1	0.3
	High	5	1.4

ADHD inattentive type is most severe (4.1%) among all other types.

Table 4: Showing frequency & percentage (%) of absence & presence of ADHD, according to ICD-10 diagnosis.

Variables	N	%
Absent	358	96.8
Disturbance of activity & attention	7	1.9
Adhd+conduct disorder	5	1.4

Two types of ADHD is most frequently found in school going children, i.e., Disturbance of activity & attention (1.9%) & ADHD with conduct disorder (1.4%), but in majority (96.8%) ADHD symptoms were absent.

Table 5: Presence of ADHD and gender differences

Variables	Groups				X^2
	Boys		Girls		
	N	%	N	%	
Disturbance of activity & attention	6	1.60	1	0.30	8.851**
Hyperkinetic conduct disorder	5	1.4	0	0	
Absent	174	47	184	49.7	

Both gender shows significant difference (p< 0.01) in presence of types of ADHD.

Table 6: Showing significant different between presence & absence of various types of ADHD with socio-demographic variables.

		ICD-10 Diagnosis						
Variable		Absent		ADHD		ADHD+Conduct		X2
		N	%	N	%	N	%	
Sex	Male	174	47	6	1.6	5	1.4	8.85**
	Female	184	49.7	1	0.3	0	0	
Birth order	1st born	76	20.5	2	0.5	2	0.5	2.56
	Middle born	180	48.6	3	0.8	3	0.8	
	Last born	102	27.6	2	0.5	0	0	
Religion	Hindu	356	96.2	7	1.9	5	1.4	0.06
	Muslim	2	0.5	0	0	0	0	
Ses	Lower	299	80.8	4	1.1	5	1.4	4.44
	Middle	59	15.9	3	0.8	0	0	
Residence	Rural	87	23.5	2	0.5	2	0.5	0.71
	Urban	271	73.2	5	1.4	3	0.8	
Class	Ist std.	101	27.3	1	0.3	0	0	16.61***
	IInd std	132	35.7	6	1.6	0	0	
	IIIrd std.	125	33.8	0	0	5	1.4	
Medium of study	Hindi	311	84.1	6	1.6	5	1.4	0.76
	English	77	12.7	1	0.3	0	0	
Relasionship with teacher	Good	350	94.6	3	0.8	0	0	237.56***
	Satisfactory	8	2.2	2	0.5	5	1.4	
	Poor	0	0	2	0.5	0	0	
Relasionship with peer	Good	339	91.6	1	0.3	0	0	308.96***
	Satisfactory	18	4.9	6	1.6	1	0.3	
	Poor	1	0.3	0	0	4	1.1	
Family income	3000	213	57.6	4	1.1	2	0.5	1.84
	3001-6000	127	34.3	3	0.8	3	0.8	
	6001-9000	18	4.9	0	0	0	0	
Academic performance	Pass	295	79.7	2	0.5	2	0.5	18.27***
	Fail	63	17	5	1.4	3	0.8	
School	Private	52	14.1	2	0.5	0	0	1.95
	Government	306	82.7	5	1.4	5	1.4	

Significant difference in sex ($p<0.01$), standard/class ($p<0.001$), relationship with the teacher ($p< 0.001$), relationship with the peer ($p< 0.001$) & academic performance ($p<0.001$).

Discussion

The present study attempts to understand prevalence of ADHD in school going children. The results indicate that among total sample of 370 students, 185 were boys and 185 were girls. The mean age of ADHD children is 8.12 years (Table-1), which is in accordance with the findings of Sandberg (1996).

Regarding frequency and percentage of absence and presence of ADHD (Table-2), results emphasize ADHD - inattentive type was more frequently present (6.8%), then ADHD Hyperactive-impulsive type (2.7%) and both ADHD combined type and ODD in equal (2.4%) each, supported by research of Wolraich, et al. (1996, 1998).

As per severity of ADHD (Table-3), results show that ADHD - inattentive type had been found to be most severely prevalent (4.1%), which was supported by the study done by Brown et al. 2001. According to ICD-10 diagnostic criteria, ADHD which is known as "Hyperkinetic Disorder" is of further 4 types Disturbance of activity & attention, Hyperkinetic Conduct Disorder, Other Hyperkinetic disorders and Hyperkinetic Disorders, Unspecified. In the present study, when the children were screened on these four categories, they fell only in two categories i.e., Disturbance of activity & attention and Hyperkinetic Conduct Disorder. Out of total, 96.8% children were not having any type of ADHD, but as per ICD-10 diagnosis of ADHD total 3.3% (APA, 2000) were having ADHD, out of which 1.9% were found to have Disturbance of activity & attention and 1.4% of them were having Hyperkinetic Conduct Disorder, supported by study done by Biderman (2005) and Jindal (2002) .

In case of significant differences among ADHD children and control group with socio-demographic correlates (Table-5), presence of ADHD differed significantly with sex variable ($p<0.01$). As per ICD-10, presence of ADHD was 3% in boys and only 0.3% in girls. Also supported by DSM-IV (APA, 2000) and Barkley (2000).

In terms of their classes/standards children differed significantly, 1.6% were studying in IInd std. With respect to their relationship with teachers and peers, significant difference was seen in children. Out of total ADHD children, 1.9% were having satisfactory, but 0.5% poor relationship with their teachers, which might be due to the reason that because of the nature of their problem .

In table no.5, 1.9% were having satisfactory and 1.1% poor relationship with peers, supported by Woodward and Ferguson, 1991; Hann and Borek, 2001; Hodgens et al., 2000; Bagwell et al., 2001. Academic performance differed significantly with presence of ADHD. Among all ADHD children, 2.2% of them have failed and only 1% passed, supported by findings of Frick and Colleagues (1991).

Disturbance of activity & attention type of ADHD was present in 1.6% of boys and 0.3% of girls, whereas Hyperkinetic Conduct Disorder was absent in girls population, but 1.4% prevalent in boys sample, supported by Biderman, 2005 and Jindal, 2002. So, on basis of above results ADHD is present in 3.3% among general population and more prevalent in boys.

The teachers & parents should be made aware about ADHD signs & symptoms through campaigns, awareness programmes, etc., and also about management of ADHD. Early detection of symptoms is necessary for its better management in childhood itself, which will encourage positive mental health among all children.

Limitations of the study

- The sample collected were more from government schools than private schools.
- Only teacher's evaluations about problems were taken for analysis of data.

Future Directions

- Equal sample should be collected from govt. and private schools.
- Parental evaluation should be taken.

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