

# Effectiveness of Planned Teaching Programme in Terms of Knowledge of Teachers on Attention Deficit Hyperactivity Disorder in Children

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## ABSTRACT

**Introduction:** Attention Deficit Hyperactivity Disorder (ADHD) is a neurological and psychiatric condition which mainly affects school going children, adolescent and even adults. There is a constant prototype of inattention, hyperactivity or both. Such children suffer from numerous types of behavioural problems.

**Aim:** To identify children (6-9 years) with symptoms of ADHD and to evaluate the effectiveness of Planned Teaching Programme (PTP) in terms of knowledge of teachers on ADHD.

**Materials and Methods:** A quasi experimental pre-test and post design study was conducted in the Frank Anthony Public School, Lajpat Nagar, New Delhi, India. The study duration was from December 2015 to March 2016. Total of 40 teachers and 100 children were included. A structured knowledge questionnaire and standard Diagnostic Statistical Manual (DSM)- V criteria was used for collection of data. Mean, median and standard deviation value of pre-test and post-test knowledge scores of teachers were calculated and chi-square values were obtained to find association between post-test knowledge score of

teachers on ADHD and selected demographic factors. The p-value <0.05 was taken as level of significance.

**Results:** The prevalence of ADHD in study population was 4%. Most of the teachers (65%) were in the age group of 35 years and above with the mean age being  $36.53 \pm 5.90$  years. Majority (55%) of children included under study fall under the age group 8-9 years followed by 45% in the age group 6-7 years. The mean post-test knowledge scores of teachers were higher than mean pre-test knowledge score and the obtained mean difference of 9.31 was found to be statistically significant. A significant association was observed between post-test knowledge scores and professional education and years of teaching experience ( $p<0.05$ ).

**Conclusion:** Planned teaching programme was effective in enhancing the knowledge of the teachers regarding ADHD and early identification of children presenting with symptoms of ADHD should be made as it is effective in a scenario like that of India to reduce the burden on society and health care system.

**Keywords:** Diagnostic statistical manual V criteria, Prevalence, Primary school children

## INTRODUCTION

The ADHD in children is an emerging problem. More number of children, suffering with this disorder is being identified each day. It is essential for the teachers to know about ADHD to lessen the burden of punishment on such children who become the victims of both teachers' and parents' wrath because of changes in behaviour which are beyond their control [1]. Accurate diagnosis of ADHD is often complicated because: (a) many of the problems associated with ADHD are also characteristic of other childhood behaviour disorders; (b) ADHD is often co-morbid with other psychiatric and developmental disorders; and (c) children with ADHD are a heterogeneous population whose symptoms vary among settings, caregivers and task complexity [1-3].

Classroom teachers have been considered one of the most valuable sources of information with regard to diagnosis of ADHD because they have daily exposure to children in a variety of clinically relevant situations [4]. In addition, teachers are in a position to provide critical diagnostic information because problem behaviours characteristic of ADHD are most likely to occur in the school environment where strong demands are placed on children's regulatory skills [5].

The need of the study was felt by the investigator realising the importance of the issue and to reduce the burden on the society. The investigator felt the need to sensitise and educate the teachers on ADHD in children and help them identify children with symptoms of ADHD. Therefore, the main purpose of the study was to identify children with symptoms of ADHD and to develop and evaluate the effectiveness of the PTP in terms of knowledge of teachers on ADHD in children and its management.

## MATERIALS AND METHODS

A quasi experimental pre-test and post design study was conducted in the Frank Anthony Public School, Lajpat Nagar, New Delhi, India. The study duration was December 2015 to March 2016. The permission to conduct the study was given by RAK College of Nursing, Ministry of health and family welfare via No. 7-2/2015. In the present study, population comprised of the primary school teachers and children studying in classes 2<sup>nd</sup> to 5<sup>th</sup>. A pilot study was conducted in which 20 teachers and 30 parents were selected and after that in main study the sample consisted of 40 primary school teachers and 100 children from various sections of classes 2<sup>nd</sup> to 5<sup>th</sup> of the selected school. Sampling technique used to select teachers was total enumeration and children were selected on a random basis for the study.

Inclusion criteria were both male and female school teachers, teachers willing to participate in the study and children in classes 2<sup>nd</sup>-5<sup>th</sup> whose parents were willing to participate and return the filled in questionnaire and teachers who were not willing to participate and the parents who have not returned the filled questionnaire were excluded from the study. The research design for the study is shown in [Table/Fig-1a,b].

Group	Planning	Implementation
Teachers	Development of tool for identification of children with ADHD Development of PTP on ADHD Content validity by experts Try out and reliability of tool	Day 1- Pre-test on ADHD in children and its management to assess knowledge Day 2-PTP regarding ADHD in children and its management Day 8-Post-test on ADHD in children and its management

**[Table/Fig-1a]:** Schematic representation of the research design.  
PTP: Planned teaching programme

Group		Identification of children with ADHD
Teachers	Parents	
Collection of background information of child from teachers and other information pertaining to child's behaviour using structured questionnaire DSM-V criteria	Obtaining background information of child and information regarding child's behaviour by using structured questionnaire DSM-V criteria	<ul style="list-style-type: none"> <li>• Collection and analysis of data</li> <li>• Identification of children with symptoms of ADHD using structured questionnaire DSM-V criteria</li> <li>• Counselling of parents through school counsellor</li> <li>• Referral to institution/ agency for diagnosis and follow-up from school.</li> </ul>

[Table/Fig-1b]: Plan for data collection and analysis.

A Standard tool, DSM-V criteria was used by teachers for identification of children with symptoms of ADHD [6]. Information from parents about the behaviour of their child was collected using the same tool by sending the questionnaire to their home through their child and receiving back the same within next 2-3 days.

A structured knowledge questionnaire was prepared for assessing the knowledge of school teachers regarding ADHD in children. Standard guidelines using DSM-V criteria were used for assessing the prevalence and identification of children with ADHD. The tool was developed after extensive review of research and nonresearch related literature, taking opinion of experts and the investigator's professional experience into consideration.

#### Structured knowledge questionnaire consisted of two sections:

Section I comprised items seeking information on background data such as age, sex, marital status, general education, professional education, teaching experience, prior knowledge about ADHD.

Section II comprised of 50 knowledge items covering the following content areas:

General behaviour of children/child development, Concept of ADHD, Behaviour of ADHD child, Management of ADHD and Role of parents and teachers in ADHD. The test items were objective type. Out of 50 items, 12 were multiple choice and 38 were 'yes' and 'no' type. Each item had a single correct answer. Every correct answer was accorded a score of one point and every wrong answer was assigned zero score. Thus, the maximum score was 50 on the structured knowledge questionnaire. The domains of objectives and content areas are shown in [Table/Fig-2].

Sl. No.	Content area	Domain of objectives			
		Knowledge	Comprehension	Application	Total no. of items
1.	Child development	1, 7, 9, 19, 20, 21, 25,	2, 4, 6, 8, 11, 12, 15, 17, 22,	3, 10, 13, 16, 18, 23,	22
2.	Concept of ADHD	27, 28, 5, 24	26, 29, 30	31	8
3.	Behaviour of ADHD child	34, 39, 40, 41, 45, 48, 49	42, 43, 44		10
4.	Management of ADHD	33, 50, 14	-	36, 38	5
5.	Role of parents and teachers in ADHD	37, 47	-	32, 35, 46	5
	Total	23	15	12	50

[Table/Fig-2]: Content and objective wise distribution of scores on structured knowledge questionnaire for assessment of knowledge of primary school teachers regarding ADHD in children and its management.

To ensure the content validity of the tool, it was submitted to 10 experts, including five nursing experts in the field of paediatric nursing and psychiatric nursing, three experts from paediatric medicine, one psychiatrist and one psychologist. Out of 60 items, 44 had 100% agreement and were retained without any change and the remaining six were retained after modification of language and 10 were discarded. For identification of children with ADHD, standard DSM-V criteria was taken. Pretesting of structured knowledge questionnaire was done on 15 primary school teachers

and responses obtained on record sheet using DSM-V criteria for identifying children with symptoms of ADHD was done to check for the clarity of items, their feasibility and practicability. It was administered to 10 teachers in the school and 10 parents of children in class 3<sup>rd</sup>. The performa was sent to the parents through their child. The subjects chosen were similar in characteristics to those of the population under study.

The structured knowledge questionnaire was provided to 15 teachers. The reliability coefficient for the knowledge test was calculated using Kuder-Richardson-20 formula and reliability was 0.93. For identification of children with symptoms of ADHD standard guidelines DSM-V criteria was used. Reliability was established using test-retest method and it came to be 0.86. PTP on ADHD in children and its management was developed based on the review of related research and non-research literature. It was designed for creating awareness among teachers regarding ADHD, behaviour of ADHD child and strategies for helping children with ADHD. The lecture-cum-discussion method was adopted for teaching. To ensure the content validity of the PTP, it was submitted along with criteria check-list to the same ten experts including five nursing experts in the field of paediatric nursing and psychiatric nursing, three experts from paediatric medicine, one psychiatrist and one psychologist. All of them had 100% agreement on the content of the PTP. Only suggestion given was to write some of the matter in the PTP like Pathophysiology as points for easy comprehension and explain causes in simple language. This was incorporated.

## STATISTICAL ANALYSIS

The data was collected and tabulated in Master Data Sheet and analysed by using both descriptive and inferential statistics. Data analysis was done using frequency and percentage distribution for describing the sample characteristics of both teachers and children. Mean, median and standard deviation value of pre-test and post-test knowledge scores of teachers, t-value to determine the significance of difference between mean pre-test and post-test knowledge scores and chi-square values to find association between post-test knowledge score of teachers on ADHD and selected demographic factors. The p-value <0.05 was taken as level of significance.

## RESULTS

Most of the teachers (65%) were in the age group of 35 years and above with the mean age being  $36.53 \pm 5.90$  years. Majority i.e., 90% of the respondents were female. Majority (82.5%) of the respondents were married while only 17.5% were single. Majority of the respondents had two children (50%), while 22.5% had one child [Table/Fig-3].

Majority (55%) of children included under study fall under the age group 8-9 years followed by 45% in the age group 6-7 years. Most of the children i.e., 40% are first born, 30% are second born and 15% each are last born and only child. Majority i.e., 45% of children belong to nuclear family, 32 % come from joint family, 20% belong to extended and 3% come from single parent families [Table/Fig-4].

It was observed that 96% children under study had no symptom suggestive of ADHD while 4% children presented with symptoms suggestive of ADHD.

The mean post-test knowledge scores of teachers were higher than mean pre-test knowledge score. The obtained mean difference of 9.31 was found to be statistically significant as evident from t value of 1.685 for degree of freedom (39) at 0.05 level of significance [Table/Fig-5].

Association between post-test knowledge score on ADHD and selected demographic factors was determined. There was no significant association between post-test knowledge scores of

Sl. No.	Sample characteristics	Frequency	Percentage
1	Age- 20-24 years	2	5
	25-29 years	4	10
	30-34 years	8	20
	35 and above	26	65
2	Male	4	10
	Female	36	90
3	Marital status- Single	7	17.5
	Married	33	82.5
	Widow	-	-
	Divorced	-	-
4	Number of children- One	9	22.5
	Two	20	50
	More than two	1	2.5
	None	10	25
5	General education- 10+2	3	7.5
	Graduate	10	25
	Post graduate	27	67.5
	Any other	-	-
6	Professional education- ETT	7	17.5
	B. Ed	27	67.5
	Any other	6	15
7	Teaching experience- Less than 1 year	2	5
	1-5 years	2	5
	6-10 years	8	20
	More than 10 years	28	70
8	Information on ADHD- Yes	6	15
	No	34	85

[Table/Fig-3]: Frequency and percentage distribution of teachers in terms of selected characteristics (N=40).

Group	Mean knowledge score		Mean (d)	SD (d)	SE	t-value	Median and range	
	Pre-test	Post-test					Pre-test	Post-test
School teachers	27.43	36.73	9.31	3.212	0.508	18.311*	27 (19-39)	36 (30-46)

[Table/Fig-5]: Mean, mean difference, standard deviation of difference, standard error of mean difference and t-value from pre-test and post-test knowledge scores of teachers.

(N=40); \*Significant at 0.05 level of significance, df (39) t=1.68

Sl. No.	Selected variables	Knowledge scores		Chi-square	df	p-value	
		Below median	Above median				
1.	Age	20-24 years	2	-	4.53	3	0.210
		25-29 years	1	3			
		30-34 years	3	5			
		35 and above	16	10			
2.	Sex	Male	3	1	0.72	1	0.397
		Female	19	17			
3.	Professional education	ETT	7	-	15.8	2	<0.001*
		B. Ed	9	18			
		Any other	6	-			
4.	Years of teaching experience	Less than 1 yr	2	0	9.48	3	0.024*
		1-5 years	2	0			
		6-10 years	7	1			
		More than 10 yrs	11	17			
5.	Exposure to information on ADHD	Yes	4	2	0.388	1	0.533
		No	18	16			

[Table/Fig-6]: Table showing association between post-test knowledge score of teachers on ADHD and selected demographic factors.

\*significant at 0.05 level of significance

## DISCUSSION

In the present study it was found that there are children displaying symptoms of ADHD in the general population studying in the selected school. These children manifest problems of inattention, and hyperactivity/impulsivity. The percentage distribution of children with symptoms of ADHD is 4% in the population under study. These findings were consistent with the findings of Hoseini BL et al., and Kulkarni M, who have described ADHD in their study [7,8]. Approximately, 5-10% of school age children are diagnosed to have ADHD. Hoseini BL et al., stated that ADHD is estimated to affect about 6-7% of people aged 18 and under when diagnosed via the DSM-IV criteria [7].

Present study findings are also supported by the study of Suthar N et al., [9]. It was a school based study on prevalence of parent-rated ADHD and associated parent-related factors in primary school children of Rajasthan. Total 1,000 children aged between 6 year and 12 year were selected from three different schools and their parents were given the National Innovative for Children's Health-care Quality (NICHQ) Vanderbilt Assessment Scale to be filled and returned. The prevalence of ADHD was 5.7% in school going children.

Present study findings also corroborate with the findings of Venkata JA and Panicker AS, [10], where the prevalence of ADHD between primary school children was found to be 7% in the age group of 6-7 years and increased thereafter in later years with highest prevalence of ADHD among children of age 9 to 10 years.

Farahat T et al., conducted a prevalence study of ADHD among primary school children in Menoufia Governorate, Egypt and the prevalence of ADHD was 6.9% and the male and female ratio was 3.5:1 [11]. Present study findings correlates with this study.

Sl. No.	Sample characteristics	Frequency	Percentage
1.	Age of child		
	6-7 years	45	45%
	8-9 years	55	55%
2.	Birth order		
	First born	40	40%
	Second born	30	30%
	Third born	15	15%
3.	Only child	15	15%
	Type of family		
	Nuclear	45	45%
	Joint	32	32%
	Single parent	3	3%
4.	Extended	20	20%
	Parent characteristics		
	Working father	75	75%
5.	Both parents working	25	25%
	Any specific behaviour change in the child during last 6 months		
	Yes	20	20%
5.	No	80	80%

[Table/Fig-4]: Frequency and percentage distribution of children in terms of demographic characteristics (N=100).

teachers and age, sex, and exposure to information on ADHD as evident from p-value of >0.05. There was significant association between post-test knowledge scores and professional education and years of teaching experience as evident from p-value of <0.05 [Table/Fig-6].

The PTP on ADHD in children and its management was found to be effective in improving the knowledge of teachers in selected school in the study. These findings are consistent with the findings of Sharma P and Ritu B [12]. In the study conducted by Sharma P and Ritu B there was a increase in mean post-test scores with a mean difference of 23.182 in experimental group and it was established that PTP was beneficial in imparting knowledge to teachers regarding ADHD in children [12].

### **Limitation(s)**

The study was confined to a small number of teachers from a selected school due to shortage of time. This limits the generalisation of the findings to only the study sample.

### **CONCLUSION(S)**

Structured/PTP was effective in enhancing the knowledge of the teachers regarding ADHD and children with symptoms of ADHD can be recognised and referred for treatment through education of teachers in this respect.

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