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Research Article

Effectiveness of self-instructional module on knowledge regarding Attention Deficit Hyperactive Disorder among primary school teachers in selected schools of Gangtok Sikkim

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Abstract:
Attention Deficit Hyperactive Disorder is a common behavioural disorder that affects about 10% of school age children. About 7% children worldwide have Attention Deficit Hyperactive Disorder. In rural India population, the prevalence of Attention Deficit Hyperactive Disorder is 3.66%. The main aim of the study was to find out the effectiveness of self-instructional module on Attention Deficit Hyperactive Disorder among the primary school teachers. The investigators adopted a pre-experimental research design among seven selected schools through simple random sampling. A total of 80 primary school teachers were selected using the purposive sampling technique. Self-instructional module and structured knowledge questionnaire was prepared and sent for validation. Pretesting and reliability was done and found reliable($r = 0.8$). Firstly, pretest session was conducted using structured knowledge questionnaire to assess the knowledge of primary school teachers on Attention Deficit Hyperactive Disorder. Self-instructional module(SIM's) was administered on the 4thday after the pretest session. After 14 days of SIM's distribution, posttest was conducted to assess the effectiveness of self-instructional module. The findings reveal that majority 60% of primary school teachers have average knowledge in the pre-test and 86.25% had good knowledge in the post-test. The calculated paired 't' test value 't = 11.259' was found to be statistically significant at $p<0.05$ level. The study concluded that educational material in the form of self-instructional module helped the teachers to improve their knowledge on Attention Deficit Hyperactive Disorder. The gained in the knowledge from the Self-instructional module will help them to identify and manage children with Attention Deficit Hyperactive Disorder in future.

Key Words: Effectiveness, Self-instructional Module, Knowledge, Attention Deficit Hyperactive Disorder, Primary school teachers.

Introduction

Education is the process of facilitating learning or the acquisition of knowledge, skills, value, belief and habits[1]. Education is a powerful tool by which economically and socially marginalized adults and children can lift themselves out of poverty and participate fully as citizens [2]. Daily, five days of a week, children spend most of their time in classrooms and other school settings. In school they are expected to follow rules, behave in a socially appropriate ways, participate in academic activities and not disrupt the learning process or activities of others. Teachers have to see that the skills and knowledge that form part of the curriculum became part of learner's own competence, and teach the learners to behave in a manner that meets organizational, cultural and social expectations. The work of the teacher becomes much more demanding when some learners have Attention Deficit Hyperactive Disorder (ADHD), as their problems with attention span, impulse control and activity level frequency interfere with activities in the classroom and socially[3].

Attention Deficit Hyperactivity Disorder (ADHD) is a chronic condition that affects millions of children and often continues into adulthood. It includes a combination of persistent problems, such as difficulty sustaining attention, hyperactivity and impulsive behaviour. Children with Attention Deficit Hyperactive Disorder also struggle with low self-esteem, troubled relationships and poor performance in school[4].

School is the unique setting for the early detection and effective management of ADHD. For children with ADHD to function successfully within the classroom setting, appropriate and efficient intervention strategies are required. Teachers need a broad knowledge about this condition in order to understand the needs of the children and to plan effective behaviour modification strategies[5].

Attention Deficit Hyperactive Disorder is a common behavioural disorder that affects about 10% of school-age children. Boys are about three times more likely than girls to be diagnosed with it. Attention Deficit Hyperactive Disorder symptoms are present over a longer period of time and happen in different settings. It effects the child's ability to function socially, academically, and at home[6]. Children with ADHD also have a high comorbidity rate with other disorders, which may exacerbate the academic performance of these students. Chances of children with ADHD also have an anxiety disorder (25%), major depression (25%), oppositional defiant disorder

(35%) and conduct disorder (20-56%). Therefore, teachers may have a more difficult time teaching this children[7]

Teachers have to cope with more learners in their classes and diverse needs, such as those who have ADHD. To be able to put inclusive education into practice a teacher need to accommodate and recognize the unique diversities of the children in class. To do this effectively the teacher needs to be fully informed about these diversities. In creating welcoming and accommodating classrooms for all learners, it is important for teachers to organize their environments according to the diversity of needs of the learners in the class[8].

Teachers play a major role in the identification and assessment of children's academic and behavioural problems and make primary decision how to help them. Teachers find aggressive behaviour to be of a more serious nature than withdrawn behaviour and that is why children with emotional disturbances are often ignored at schools[9].

In US it affects nearly 8% (4-7 years), America it affects 11% (4-7 years) and in India 3% of school age children boys 6 to 8 times more affected than girls[10]. The Global prevalence of ADHD is 5.29% in children, 7.1% in adolescent and 3.4% in adult[11]. According to CDC 6.4 million children (4 to 7 years) were affected in 2011. As in 1997 to 2006 it was 3% and from 2003 to 2011 it raised to 5%[12]. The percentage of children with an ADHD diagnosis continues to increase, from 7.8% in 2003 to 9.5% in 2007 and to 11.0% in 2011[13].

In the state of Delhi, India the prevalence of ADHD in 2014 is 28.5% in children belonging to the age group of 9-11 years, 40.9% in age group of 12-14 years and 30.6% in 15-17 years[14]. The World Health Organization (WHO) 2013 estimated that 39 million people are affected with Attention Deficit Hyperactive Disorder[15]. In March 2014 Global Attention Deficit Hyperactive Disorder prevalence for males aged 5 to 19 years is 2.2 (Global Attention deficit disorder resource centre)[16]. In March 2015 about 7% children worldwide has Attention Deficit Hyperactive Disorder (Health Day News)[17]. According to a recent population-based study using DSM-IV criteria, 15.5% of school children enrolled in Grades 1 to 5 have Attention Deficit Hyperactive Disorder [18]. According to Innovative journal of medical and health science (2016) prevalence of Attention Deficit Hyperactive Disorder in rural Indian population was 3.66%[19]. Based on the above literatures, the researcher found that primary school teachers plays an important role in shaping the students future and there is high prevalence rate in Global as well as in India. The researcher felt a need to conduct this study, to improve the knowledge of primary school teachers so that it will help in making difference in educational and social development of the child.

Objectives

1. To develop and validate the self-instructional module on Attention Deficit Hyperactive Disorder for Primary School Teachers.
2. To assess the knowledge of primary school teachers on Attention Deficit Hyperactive Disorder before administration of Self-instructional module.
3. To find out the effectiveness of self-instructional module.
4. To find out the association between pre-test knowledge of primary school teachers regarding Attention Deficit Hyperactive Disorder with their selected variables.

Material and Methodology:

The investigators aimed to assess the knowledge on Attention Deficit Hyperactive Disorder among 80 primary school teachers of selected primary schools of Gangtok, Sikkim. The investigators adopted a quantitative pre-experimental one group pre-test post-test research design. Purposive sampling technique was used for selection of the sample based on the inclusion criteria of the study. Tools and content for Self-instructional module were prepared and sent for validation to 7 experts. Reliability of tool was done and found to be 'r = 0.08'. The data for final study was collected after getting clearance from the Institution Ethical committee, permission from the head of schools and written consent from the participants. Pretest session through pre-designed questionnaires was conducted on the 1st day of the data collection period and SIM's was distributed to the samples on the 4th day. Post-test session was conducted on the 14th day of the data collection period using the same pre-designed questionnaire. After the final data collection, analysis and interpretation was done using the descriptive and inferential.

Results and Discussion:

The study findings shows that majority 36 (45%) of the Primary teachers falls under age group of 20-30 years and majority 72(90%) were females. Majority 42 (52.5%) were Graduate and 38 (37.5%) had teaching experience of 1-3 years. Majority 75 (93.75%) of the primary teachers have not heard about ADHD and 79 (98.75%) primary teachers does not have anyone at home with ADHD and 73 (91.25%) had not undergone any training on behavioral management for the school students. Majority 70 (87.5%) had not managed students with ADHD and 71 (88.75%) had not found any difficulty in handling children/students with ADHD (Table 1).

Table 1: Frequency and percentage distribution of demographic variables.

[N=80]

Demographic variables	Frequency	%
1. Age in years		
20-30	36	45
31-40	34	42.5
41-50	7	8.75

50 and above	3	3.75
2. Gender		
Male	8	10
Female	72	90
3. Educational status		
Graduate	42	52.5
Postgraduate	14	17.5
B.Ed	11	13.75
Any other specify	13	16.25
4. Years of teaching experience		
1-3 years	38	47.5
4-6 years	13	16.25
7-10 years	10	12.5
More than 10 years	19	23.75
5. Have you ever heard about ADHD?		
Yes	5	6.25
No	75	93.75
If yes , source of information;		
Internet	1	1.25
Books, Online, Newspaper	1	1.25
Resource person in T.I.S	1	1.25
Informational channel	1	1.25
Health reports, Doctor	1	1.25
5.1 Do you have anyone at home with ADHD?		
Yes	1	1.25
No	79	98.75
If yes, specify whether;		
Son	-	-
Daughter	1	1.25
Niece	-	-
Nephew	-	-
Cousin	-	-
Others	-	-
5.3 Have you ever undergone any training on behavioural management for the school students?		
Yes	7	8.75
No	73	91.25
If yes, mention the topic;		
How to deal with behavioural issues in class	2	2.5
Child psychology	1	1.25
Classroom management	2	2.5
School Management	2	2.5
6. Have you ever managed students with ADHD		
Yes	10	12.5
No	70	87.5
If yes, mention any one grade		
UKG	1	1.25
Grade I	2	2.5
Grade II	4	5
Grade III	1	1.25
Grade IV	1	1.25
Grade V	1	1.25
7. Do you find any difficulty in handling children/students with ADHD		
Yes	9	11.25
No	71	88.75

If yes, why;		
Difficulty attention in class	2	1.25
2. Difficulty completing task	1	1.25
3. Such kids are very emotional. Slight wrong moments makes the kid withdraw from everyone	1	1.25
4. They are making too much noise and not listening	1	1.25
5. Because they are very restless	2	2.5
6. They are distracted frequently	1	1.25
7. Because its needed to make him/her concentrate	1	1.25

Table 2, shows the pretest knowledge score of primary school teachers on ADHD, out of 80 primary teachers majority 29 (36.25%) had good knowledge, 48 (60%) had average knowledge and 3 (3.75%) had poor knowledge on ADHD. Post-test score shows out of 80 primary teachers majority 69 (86.25%) had good knowledge, 11 (13.75%) had average knowledge and none had poor knowledge on ADHD. This indicates increase in percentage of primary school teachers level of knowledge from average knowledge (60%) to good knowledge (86.25%).

Table 2: Frequency and percentage distribution of pretest and post-test knowledge among Primary school teachers

[N=80]

Knowledge	**Score**	**Pretest**		**Post-test**	
		Frequency	**Percentage (%)**	**Frequency**	**Percentage (%)**
Good	>50%	29	36.25	69	86.25
Average	25 – 50%	48	60	11	13.75
Poor	<25%	3	3.75	0	0

Table 3, shows the over-all area-wise frequency and percentage distribution of the correct response of primary school teachers of knowledge on ADHD.

Table 3: Over-all area wise frequency and percentage distribution of knowledge score [N=80]

Item	**Pre-test**		**Post-test**	
	f	**%**	**f**	**%**
Meaning				
The word ADHD stands for Attention Deficit Hyperactive Disorder	40	50	77	96.25
ADHD is diagnosed more commonly in boys	24	30	73	91.25
The onset of ADHD disorder is common in children	65	81.25	79	98.75
A child with ADHD has a problem with difficulty controlling behaviour	49	61.25	61	76.25
Causes				
ADHD is a hereditary disease	4	5	51	63.75
One of the factor that has high risk of developing ADHD	25	31.25	51	63.75
The incidence of developing ADHD is high in biological parents of child with this disorder	7	8.75	27	33.75
Areas of brain that control attention in children with ADHD are less active in children with ADHD	29	36.25	49	61.25
Behaviour of ADHD occur more commonly in children who have experienced emotional abuse	44	55	61	76.25
Behavioural management of ADHD children	59	73.75	72	90
Signs and Symptoms				
Children with ADHD usually exhibit inattentive, impulsive and hyperactive	41	51.25	72	90
The behaviour of a child with ADHD can be explained by increase sensitivity to external stimuli	53	66.25	50	62.5
Children with ADHD finish their task fast	53	66.25	63	78.75
ADHD children does not like to do things that require sitting still	33	41.25	55	68.75
ADHD children frequently interrupt others	47	58.75	58	72.5
ADHD children often tends to make careless mistakes	30	37.5	67	83.75
Children with ADHD often talk excessively	53	66.25	65	81.25
Classroom management				
A teacher should be able to handle child with ADHD by by giving positive	58	72.5	70	87.5

reinforcement				
The study skills for ADHD children can be developed by breaking down instructions into simple steps and ask questions to ensure full understanding	49	61.25	69	86.25
When an ADHD children finds it difficult to read, the teacher should provide additional support to assist their reading	0	0	48	60
An ADHD child with poor handwriting can be improved by helping the child to practise writing letter shapes	55	68.75	62	77.5
The children with ADHD should be dealt by helping the child to practise writing letter shapes	64	80	74	92.5
When the child with ADHD struggles with attention span in the class the teacher should simulate interesting learning environment	50	62.5	60	75
The child will follow the rules only when the teacher give praise when a child follows a rule	26	32.5	49	61.25
Developing interest among children with ADHD in an area that is not of their interest can be done by asking the child to write down their ideas on the paper	22	27.5	37	46.25
For effective approach in completing the child's homework the teacher should follow the steps of time management, organization and rewards	46	57.5	59	73.75
A child's behavior with ADHD can be managed daily by stating clearly that the behaviour is unacceptable	11	13.75	34	42.5
The child's distractions in the classroom should be managed by keeping the teaching area free of distractions	9	11.25	34	42.5
Hyperactivity of a child with ADHD in a group can be managed by allow the noisier group to work away from the rest of the class	5	6.25	41	51.25
The child with ADHD who gets distracted by too much information on the board can be handle by keep less information in the board	19	23.75	49	61.25
Managing safety of a child with ADHD can be done by keeping the child's eye fixed on the teacher when giving instructions	5	6.25	36	45
The anger of a child with ADHD can be dealt by talk with the child	64	80	69	86.25
After the first period is over in order to make the ADHD child prepare for the next class the teacher should giving break after each class	28	35	30	37.5

Figure 1, depicts the component wise knowledge of the sample in terms of meaning, causes, signs and symptoms and classroom management. Pretest knowledge shows majority 55.6%, 41.2%, 53.7% and 42.7% and post-test is 90.6%, 65.7%, 76.8% and 60.7% respectively. This indicates that there is increase in knowledge score in each of the components in posttest.

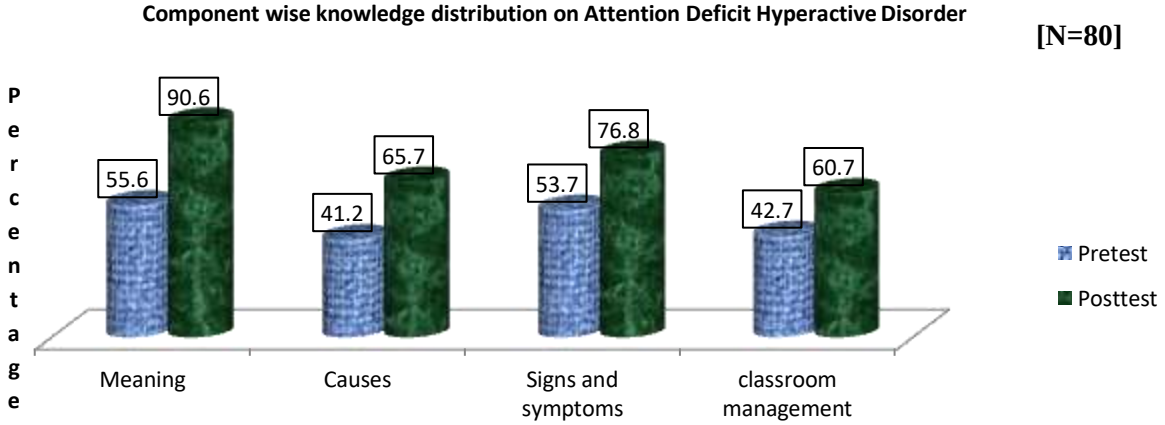

Figure 1: Cone diagram of frequency and percentage distribution on components of knowledge on Attention Deficit Hyperactive Disorder.

Table 4 shows the mean value of pretest and posttest knowledge scores of primary school teachers which are 15.66 and 23.98 respectively. Median of pretest and posttest are 16 and 25.5. The data also shows the post-test median percentage score (31.88%) was much higher than the pre-test median percentage score (20%)

Table 4: Pre-test/Post-test Mean, Median, Standard deviation and Standard error of knowledge scores among primary school teachers[N=80]

Knowledge	Mean	Median	Minimum score	Maximum score	Standard deviation	Standard error
Pretest	15.66	16	6	23	3.99	0.45
Posttest	23.98	25.5	12	32	5.29	0.59

Table 5 below, shows that in the pre-test, the mean score of knowledge was 15.66 with S.D 3.99 whereas in the post test the mean score of knowledge was 23.98 with Standard deviation 5.29. The mean improved score was 8.32. The calculated paired 't' value of t = 11.259 was found to be statistically significa at P < 0.05 level. This clearly shows that the self-instructional module on ADHD among primary school teachers had significant improvement in their level of knowledge in the post test.

Table 5: Effectiveness of self-instructional module on knowledge of ADHD among primary school teachers N=80

Knowledge	Mean	Standard deviation	Mean improved score	Paired t value	p value	Remarks
Pretest	15.66	3.99	8.32	11.529	0.05	Significant
Posttest	23.98	5.29				

"t" (79) = 3.45 p<0.05

Figure 2, depicts that there is increase in knowledge score of primary teachers regarding Attention Deficit Hyperactive Disorder as the line graph is pointing towards good knowledge in post-test than in pre-test.

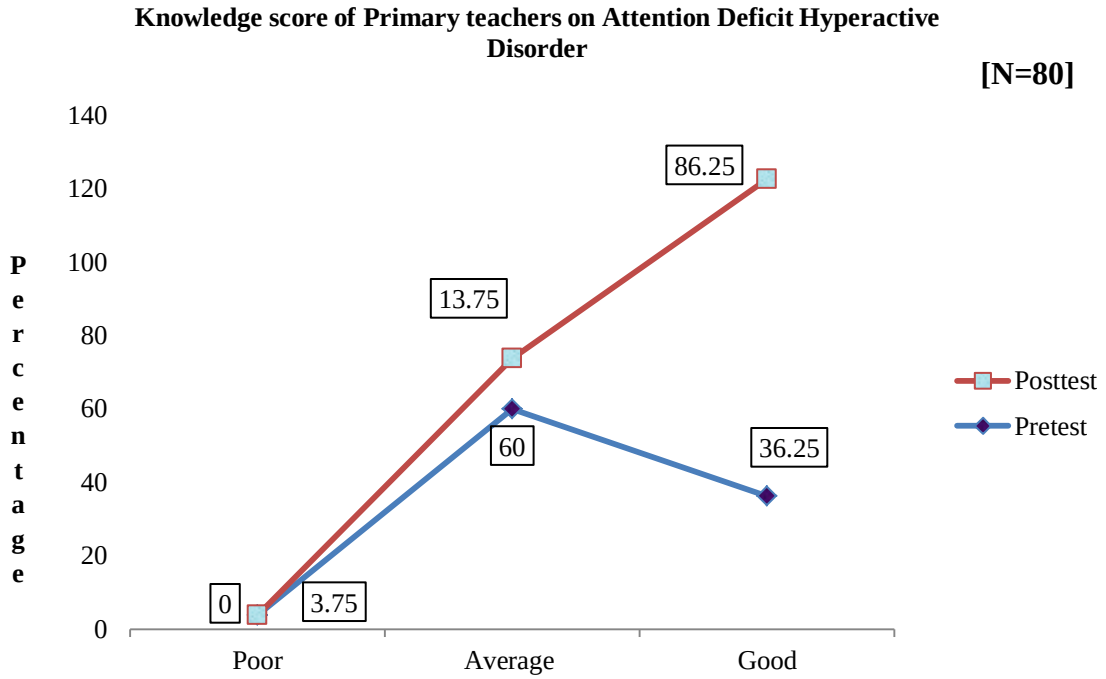

Figure 2: Comparison of knowledge score of subjects before and after administration of Self Instructional Module.

Table 6 shows the obtained chi value is not significant at 0.05 level of significant between knowledge and age, gender, educational status, years of teaching experience, training on ADHD, management of students with ADHD and handling of students with ADHD. The research hypothesis (H_2) cannot be established and null hypothesis is accepted.

Table 6: Association between pre-test knowledge of primary school teachers regarding Attention Deficit Hyperactive Disorder with their selected variables. [N=80]

S/No.	Demographic variables	Median	df		χ^2	Remarks
		16<	≥ 16			
1.	Age					NOT SIGNIFICANT
	20-30	22	14			
	31-40	10	24	3	7.59	
	41-50	4	3			
	51 and above	1	2			
2.	Gender					
	Male	6	2	1	2.69	NOT SIGNIFICANT
	Female	32	40			
3.	Educational status					
	Graduate	22	20			NOT SIGNIFICANT
	Postgraduate	5	9	3	2.17	
	B.Ed	4	7			
	Any other	7	6			
4.	Years of teaching experience					
	1-3	21	17			NOT SIGNIFICANT
	4-6	6	7	3	2.1	
	7-10	3	7			
	More than 10	9	10			
5.	Training on ADHD					
	5.1 Have you ever heard about ADHD?					
	Yes	5	1	1		NOT
	No	39	35			SIGNIFICANT
	5.1 Do you have anyone at home with ADHD?					
	Yes	1	0	-		NOT
	No	41	38			APPLICABLE
	5.2 Have you ever undergone any training on behavioral management for the school students?					
	Yes					NOT
	No	4	3	1		SIGNIFICANT
		38	35			
6.	Have you ever managed students with ADHD					
	Yes	9	1	1	1.2	NOT
	No	32	38			SIGNIFICANT
7.	Do you find any difficulty in handling children/students with ADHD					
	Yes					
	No	6	2	1	1.8	NOT SIGNIFICANT
		36	36			

df 1= 3.84, 3 = 7.81

Discussion in relation with other studies

The level of knowledge regarding ADHD among primary school teachers was assessed by using structured knowledge questionnaire. The sample size was 80. It denotes that in pre-test, the level of knowledge on ADHD among primary school teachers on analysis was majority 48 (60%) of primary school teachers had average knowledge, whereas in the post test, majority 69 (86.25%) of primary school teachers had good knowledge. A study conducted by Amal Shehata et.al in 2016 also shows a statistically significant difference between mean pre-test (47.41) and post-test (66.48) mean scores of teachers regarding all dependent studied variables (knowledge, attitude and behavioural management strategies) with children with ADHD[20]. The comparison of pre and post-test knowledge on knowledge of primary school teacher on ADHD reveals that the overall knowledge improvement mean was 8.32 with standard deviation 1.3. The paired 't' test value was 11.259, which is highly significant at p <0.005 level of significance. A study conducted by Liza Thankam Daniel in 2013, found that there was significant difference in mean knowledge score of primary school teachers before (9.71) and after (15.60) the administration of SIM on Early Symptoms of Childhood Psychiatric Disorders. The study also revealed that after the exposure of SIM, all of the primary school teachers had better scores in identification of and on early symptoms of childhood psychiatric disorders[21]. A study conducted by Jan Froelich in 2012 was found to have no statistically significant differences between the intervention group and the control group for age, gender or nationality. The Intervention and control groups differed both significantly on the ADHD score on pre- and post-testing measurements[22].

Conclusions:

The study concluded that educational material in the form of self-instructional module helped the teachers to improve their knowledge on Attention Deficit Hyperactive Disorder. The gained in the knowledge from the Self-instructional module will help teacher to identify and manage children with Attention Deficit Hyperactive Disorder in the classroom and other settings.

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