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Soni Mathunni
Lecturer, Mar Sleeva College of
Nursing, Palai, Kerala, India

Dr. Sunita Sharma
Lecturer, National Institute of
Nursing Education, PGIMER,
Chandigarh, Punjab, India

Dr. Adarsh kohli
Professor, Department of
Psychiatry, PGIMER,
Chandigarh, Punjab, India

Dr. Sandhya Ghai
Principal, National Institute of
Nursing Education, PGIMER,
Chandigarh, Punjab, India

Skill development programme of teachers for identification of attention deficit hyperactivity disorder among primary school children in selected government schools of Chandigarh

Soni Mathunni, Dr. Sunita Sharma, Dr. Adarsh Kohli and Dr. Sandhya Ghai

Abstract

Attention Deficit Hyperactivity Disorder (ADHD) is the most commonly diagnosed neuropsychiatric disorders in children. The present study was conducted in selected three Government schools in Chandigarh (UT) for identification of ADHD among primary school children in the age group of 5-12 years. The primary behavioral symptoms of ADHD are inattentiveness, impulsivity and hyperactivity. The research approach was quantitative and research design used was operational research. Sample size was 33 teachers and 165 primary school children from schools. The tools used were questionnaire for assessment of knowledge (KADDS), profile sheet for schools, socio-demographic datasheet of teachers, Vanderbilt ADHD diagnostic teacher rating scale, observational checklist, skill development programme for teachers and feedback opinionnaire. Observation, demonstration, re-demonstration along with lecture and discussion were the techniques used to collect data. The results showed statistical significant difference in knowledge and skill of teachers after the training programme as the mean knowledge score in pretest and post-test were 41.17% and 88.5% respectively and mean performance score was 3.18 ± 1.07 before and 8.30 ± 0.63 after training.

Keywords: teachers, school children, KADDS (knowledge of attention deficit disorders scale), ADHD (attention deficit hyperactivity disorder)

1. Introduction

Mental health is one of the most crucial component in a child's holistic development. Children who are mentally healthy have a constructive value in their lives and are able to perform their roles and functions well at home, in school or in community. Mental health problems occurs when a child is incapable of learning healthy behavioural/social/coping skills or lags behind in achieving the developmental and emotional milestones necessary for problem solving. Recent evidence by WHO indicates that childhood neuropsychiatric disorders will upsurge proportionately by over 50% by 2020 and would be the most common foundation for illness, mortality and debility among children^[1, 2].

ADHD is the utmost common neuro-developmental conditions of childhood. The DSM-V defines ADHD as a condition of repeated patterns of inattention and/or hyperactivity-impulsivity that interferes with functioning or development in which 6 or more of the symptoms have continued for at least 6 months to a degree that is inconsistent with developmental level and symptoms are present in two or more settings for e.g. at home, school or work; with friends or relatives or in other activities which has an uninterrupted harmful impact on the social, academic or occupational functioning of the child and several symptoms necessarily have been present before the age of 12 years^[3, 4].

A mental health professional can function much more effectively by taking care of both preventive and promotive aspects, by working with the school teachers with the objectives of sensitizing them to the presence of problems in mental health among school children, to improve their attitudes towards such children and to prepare them to contribute effectively in identifying and meeting the needs and problems of children. It is significant to recognize the early signs and symptoms of ADHD to avoid complications in later life.

Correspondence
Soni Mathunni
Lecturer, Mar Sleeva College of
Nursing, Palai, Kerala, India

The recent trend in the field of mental health is a shift from hospital to community based care or community mental health which has mental health care in schools as one of the main components.

Although there are no confirmed ways to prevent ADHD itself, identifying and treating the disorder at an early stage can prevent many of the complications associated with this disorder and since, deficits has been found in the knowledge of ADHD among the school teachers, the current study was an endeavor to promote early detection of cases and skill development of primary school teachers in identifying and managing children with ADHD for improving the teachers knowledge and skills, recognizing the needs of such children, handling them effectively in the classroom or referring them to the experts by means of education and demonstration by investigator. Hence, the need was felt to conduct the proposed study.

2. Material and Methods

An operational study was conducted after obtaining ethics clearance from the Institutional Ethical Committee. Permission was obtained from District Public Instructions and District Education Officer, UT, Chandigarh for conducting the study. The study was conducted among the teachers and primary school children (studying in 1-5th classes) of selected three Government schools (Sectors 11A, 37B, 45A) in Chandigarh (U.T.) Multistage sampling technique was employed to select the schools and study subjects whereby the schools within 10 kms of PGIMER, Chandigarh were selected through simple random sampling technique (Lottery method) and the total enumeration sampling technique was carried out to select the teachers from the accessible population whereas the children were selected through stratified sampling technique. A total of 33 teachers and 165 primary school children who fulfilled the inclusion and exclusion criteria were enrolled in the study. Pilot study was conducted in Government high school, Sector-12, Chandigarh.

Data was collected during the months of July-September, 2016 by using observation and interview schedule. The tools included profile of the schools, socio-demographic profile of the teachers and children, KADDS questionnaire, Vanderbilt ADHD diagnostic teacher rating scale. Permission was obtained for using the scale. KADDS questionnaire is a standardized tool having 39 items for assessment of in depth knowledge on ADHD. It has three specific subscales i.e. General knowledge, Causes and diagnosis, Treatment. The Vanderbilt ADHD diagnostic teacher rating scale is a standardized tool having 43 items with a likert scoring on two parameters-behaviour and performance (academic and classroom behavior).

Content validity of the tool and skill development programme was done by the experts in the field of Nursing, Psychology and Psychiatry. The consent form and the tool were translated from English to Hindi by the researcher prior to the administration for checking translation validity. Data was collected in three phases: In the first phase, training of investigator was done in Psychology OPD, PGIMER, Chandigarh in the month of June, 2016 for identification of children with ADHD. Skill development programme was developed by the investigator. Identification data sheets for the selected schools were filled. Study subjects who met the inclusion and exclusion criteria were selected. Assessment of the baseline

knowledge of ADHD was done in teachers using interview schedule which included filling of socio-demographic data and pretest KADDS questionnaire by the teachers. Operationalization of skill development programme was done for teachers to identify children with ADHD by Vanderbilt ADHD diagnostic teacher rating scale. The skill development programme included lecture on ADHD, demonstration of applying Vanderbilt ADHD diagnostic teacher rating scale for identifying ADHD cases and an information booklet which included general information of ADHD, definition, nature, prevalence, causes, signs and symptoms, different types, risks involved, diagnosis, educational assessment, management at school and prognosis of ADHD. Then one hour observation of primary school children was done in each class by the investigator in the presence of teacher. Child assent form was obtained from the school children and consent was taken from their parents. Return demonstrations were taken from each teacher everyday for 5 consecutive days till the time they were fully trained and all the teachers performed successfully within 5-6 days. In phase 3, evaluation of efficacy of teachers in using Vanderbilt ADHD diagnostic teacher rating scale to identify children with ADHD was done through observational checklist and the reliability of the study was checked by using inter-rater reliability (Cohen's Kappa) method by investigator in which each child was observed simultaneously by two raters at the same time in each class and reevaluation of 10% identified children was done by an expert Psychologist. The tool was found to be reliable (0.92 and 0.86) with almost perfect strength of agreement.

After one week, post-test was conducted by KADDS questionnaire and feedback regarding the implemented programme was obtained from each teacher by using feedback opinionnaire. The clinically significant ADHD cases were referred to the experts in the field of Psychiatry in PGI.

Analysis and interpretation of data was done using descriptive and inferential statistics. Data was analyzed using Statistical Package for Social Sciences (SPSS version 20.0). In descriptive statistics percentage, mean and standard deviation were used to analyze the data. In inferential statistics, ANOVA with repeated measure, one way ANOVA, independent t test, paired t test, chi square test including Mc Nemar test were employed to determine the level of significance. Findings of the study were presented through tables, figures and graph. The p value <0.05 was considered statistically significant.

3. Results

Profile of the school teachers

Table 1 depicts the personal profile of the school teachers which shows that around 45.5% teachers were in the age group of 31-40 years. Majority (72.7%) were females. Most (81.8%) of the teachers were in the ever married category (married or divorced).

Table 1a shows the professional profile of the school teachers. As per the years of experience, most (54.5%) of the teachers were having 1-10 years of experience. On the basis of level of education, 51.5% teachers were post graduates whereas 48.5% teachers were educated upto graduation level. On the basis of professional qualification, 33.3% teachers were degree holders whereas 66.7% were diploma/certificate holders. On the basis of teaching

subjects 97.0% teachers were class teachers teaching all the subjects and only 3.0% teachers were teaching language subjects. 93.9% teachers did not had any special training/course in child psychology and 87.9% had never attended any conference/workshop on ADHD.

Knowledge score of the school teachers as per knowledge of attention deficit disorders scales (KADDS) before and after training

Table 2 compares teachers mean knowledge scores and standard deviation for correct, don't know and incorrect responses to all 39 questions of the total KADDS scale (Maximum score 39), as well as to the general knowledge subscale (16 questions), the causes and diagnosis subscale (10 questions) and the treatment subscale (13 questions) in the pretest and the posttest. In the pretest, the mean knowledge score and standard deviation was found to be 41.17 ± 3.95 whereas in the posttest the mean knowledge score and standard deviation was found to be 88.5 ± 2.25. The t value of the knowledge scores of teachers in the pretest and the posttest is 24.27 and the mean difference is 18.45. Since p<0.001, it was found that there is a significant difference in the pretest and posttest knowledge scores of teachers.

Socio demographic profile of the primary school children

Most (44.2 %) of the Primary school children were in the age group of 5-6 years and majority (77.6%) of the children are males and 33.3% of the children were studying in 1st school grade. (Table 3)

Prevalence of attention deficit hyperactivity disorder among primary school children as per scoring by teachers on vanderbilt ADHD diagnostic teacher rating scale

Among a total of 165 children about 58.7% children were having the disorder whereas around 41.2% did not show any symptoms of the disorder. (Table 4).

Performance score of the teachers in using Vanderbilt ADHD diagnostic teacher rating scale in sequential observations

In baseline data, most of the teachers showed average performance score (yellow colour bar) but in the observation 4, majority of the teachers had significantly developed the skills and reached the excellent category (blue colour bar). (Figure 1).

The line graph shows an increase in the teachers mean performance score from observation 0 (Baseline) to observation 4 as the mean score of all the observations were 3.18±1.07, 5.12±0.89, 6.18±0.80, 7.36±0.65 and 8.30±0.63 respectively. Overall there was sharp rise in mean

performance score between observation 0, observation 1, and observation 2 though in observation 3 and observation 4, the mean score was increased but in a steady pattern. (Figure 2)

Feedback of teachers regarding skill development programme on ADHD

Opinion of the teachers regarding training programme on identification of ADHD was sought. Majority of the teachers (97.0 %) found that the training programme was very good with Mean ± SD 1.03± 0.17. The teachers gave suggestions and remarks on the feedback opinionnaire by thanking the investigator for increasing their knowledge. (Table 5).

Table 1: Personal profile of the school teachers, N=33

Personal characteristics	n(%)
*Age (yrs)	
21-30	09 (27.3)
31-40	15 (45.5)
41-50	00(0.0)
51-60	09 (27.3)
Gender	
Male	09(27.3)
Female	24(72.7)
Marital status	
Ever married	27(81.8)
Never married	06(18.2)

* Mean Age (Yrs)±SD:2.2±1.1, Range(Yrs): 26-59

Table 1a: Professional profile of the school teachers, N=33

Professional characteristics	n(%)
**Total years of experience	
1-10 yrs	18(54.5)
11-20yrs	09(27.3)
21-30 yrs	04(12.1)
31-40 yrs	02(6.1)
Level of education	
Upto graduation	16(48.5)
Post graduation	17(51.5)
Professional qualification	
Diploma/certificate	22(66.7)
Degree (B.Ed./M.Ed.)	11(33.3)
Subjects taught by teacher	
All	32(97.0)
Languages (Hindi, Punjabi)	01 (3.0)
Any special training/course in child psychology	
Yes	02(6.1)
No	31(93.9)
Any conference/workshop attended on ADHD	
Yes	04 (12.1)
No	29 (87.9)

**Mean Experience (Yrs)± SD:2.70±0.9 Range(Yrs): 1-31

Table 2: Knowledge score of the school teachers as per Knowledge of Attention Deficit Disorders Scales (KADDS) before and after training, N=33

Scale/Subscale	Mean knowledge score (Mean percent score)± SD		Mean difference	t value, df, p value
Overall knowledge score (39 items)	Pretest 16.06(41.17)± 3.95	Posttest 34.52(88.5)± 2.25	18.45	24.27, 32, <0.001 [#]
Subscale				
General knowledge (G) (16 items)	5.58(34.8)±2.25	13.91(86.9) ±1.20		
Causes and Diagnosis (D) (10 items)	5.88(58.8) ±1.43	9.36(93.6) ±0.82		
Treatment (T) (13 items)	4.61(37.5) ±1.71	11.15(85.7) ±1.30		

[#]Statistically significant (p<0.05)

Table 3: Socio demographic profile of the Primary school children, N=165

Personal characteristics of children	N (%)
*Age(yrs)	
5-6	73(44.2)
7-8	49(29.7)
9-10	38(23.0)
11-12	05(3.0)
Gender	
Male	128(77.6)
Female	37(22.4)
School grade	
1	55(33.3)
2	25(15.2)
3	30(18.2)
4	30(18.2)
5	25(15.2)

* Mean (Yrs) \pm SD : 1.85 \pm 0.8 Range (Yrs) : 5-12

Table 4: Prevalence of Attention deficit hyperactivity disorder among primary school children as per scoring by teachers on Vanderbilt ADHD diagnostic teacher rating scale, N=165

Symptoms of ADHD	N (%)
Present	97(58.7)
Absent	68(41.2)

Table 5: Feedback of teachers regarding skill development programme on ADHD, N=33

S. No.	Feedback	N (%)
1	Very good (>45)	32(97.0)
2	Good (36-45)	01(3.0)
3	Average (26-35)	----
4	Poor(\leq 25)	----

Maximum score 50 (100%)
Mean \pm SD 1.03 \pm 0.17 Range 0-50

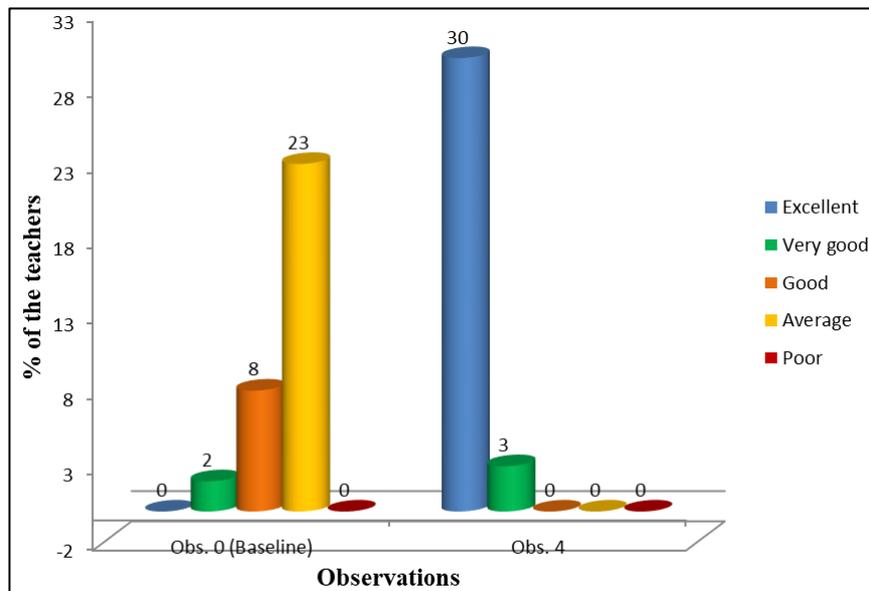


Fig 1: Category wise performance score of the teachers in using Vanderbilt ADHD diagnostic teacher rating scale

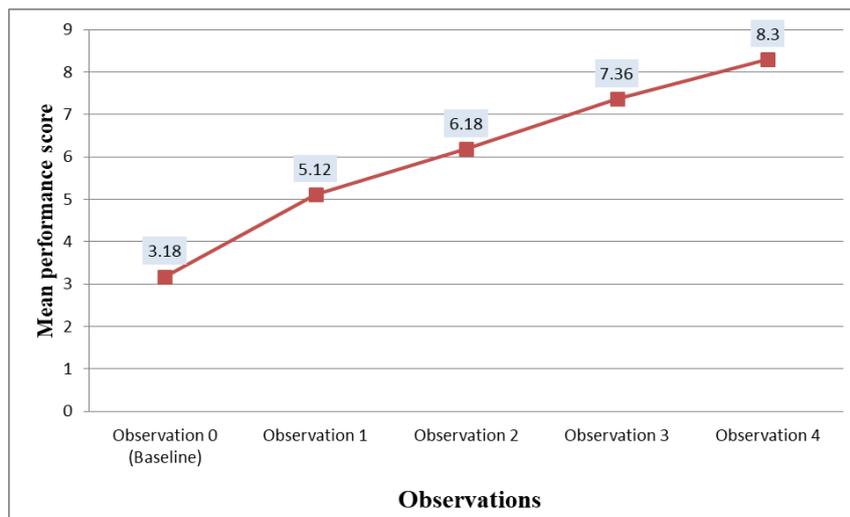


Fig 2: Mean performance score of the teachers regarding Vanderbilt ADHD diagnostic teacher rating scale in sequential observations, N=33

4. Discussion

ADHD is the utmost common mental illness in childhood. This disorder is associated with the core symptoms of inattentiveness, hyperactivity and impulsivity and a range of disturbing classroom behaviors (e.g., shouting out, leaving

seat, disturbing activities etc.) Subsequently, it is not anticipated that these students are at susceptibility for school failure. Furthermore, the diagnostic criteria in the DSM for mental disorders requires that the symptoms of hyperactivity-impulsivity or inattentiveness should be

present in two or more settings for e.g., at school and at home. It has been seen that it is often the teacher who provides the information for recognizing, suspecting or diagnosing ADHD as these symptoms usually disturb the academic performance or disrupt the rest of the class. Also, teachers are with children for maximum period of time throughout the year^[5,6].

A study was conducted in Mansoura, Egypt on the role of school teachers on identification of ADHD children and a training programme was implemented to improve the early detection of ADHD. The training programme was implemented through a 2-day workshop for 39 primary school teachers who completed a validated Arabic version of the ADHD rating scale for 873 primary school children. The results showed that the ADHD training workshop was effective in increasing teachers' knowledge of ADHD^[7]. In the present study also, training sessions were carried out for the primary school teachers regarding the identification of ADHD among primary school children.

A study was conducted in South Africa on 200 primary school teachers to investigate their knowledge of ADHD and its classroom management. The results suggested that the teachers had more knowledge regarding the general associated features of ADHD (65%) as compared to the symptoms and diagnosis (36%) and treatment (40%) of ADHD^[8] Whereas in the present study teachers showed results more than 85% in all the subscales.

In a study done by Shabana S in Nellore on Prevalence of ADHD among 100 primary school children aged 5-12 years concluded that among 100 children, 35% children had ADHD symptoms^[9]. However in the current study, among 165 children observed for ADHD in the age group of 5-12 years, almost 58.7% children were having the disorder and a majority (53%) of the children were having combined Inattentive/Hyperactive symptoms as per the Vanderbilt ADHD diagnostic teacher rating scale and similar results were depicted in a study conducted in Coimbatore district, India on 777 children aged between 6 and 11 years which showed that the prevalence of ADHD among the primary school children was found to be 11.33% which was higher among the males (66.7%) in comparison to that of females (33.3%)^[10].

A paper on ADHD and rating scales with a brief review of the Conners Teacher Rating Scale (1998) recommended the use of Conners Teacher Rating Scale as an assessment tool to diagnose and evaluate treatment procedures for children and adolescents with ADHD^[11] However, in the current study, the teachers rated the primary school children by Vanderbilt ADHD diagnostic teacher rating scale and successive observations of the skill performance score of the teachers was computed. As the number of observations by the teachers increased, their performance improved and they were fully trained in successful identification of ADHD cases.

In the current study, the clinically significant cases were referred to the experts in the field of Psychiatry in PGI and the opinion of the teachers regarding training programme on identification of ADHD was sought whereby majority of the teachers (97.0%) found the training programme very good with mean \pm SD of 1.03 ± 0.17 . The results suggests that there is a need of such types of training programmes for the teachers so that the optimal mental health of the children is ensured. It will be better for both the children and as well as

for the nation's development because they are the future of the nation.

5. Conclusions

Considering the findings of the study, it can be interpreted that the teacher can become knowledgeable and skillful in identification of ADHD cases if proper and planned training is implemented in an appropriate manner.

6. Recommendations

- Teachers training can prove beneficial for behavioural management and academic interventions (curriculum adaptations) of the children identified with ADHD.
- Similar study can be replicated in the other settings e.g. private schools with large sample for longer duration to support the findings.
- Training sessions by nurses will help to establish effective communication between the teacher and the Psychologist/Medical practitioner which includes the type and format of information needed by these experts to make a diagnosis and to establish treatment goals and target for intervention.
- It would also be beneficial if the knowledge and skills of the teachers regarding identification of ADHD among primary school children is refined or updated manually on a regular basis and interventions at the school level are implemented for children with ADHD.

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