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RESEARCH ARTICLE

EFFECTIVENESS OF CAREGIVER MEDIATED PSYCHOSOCIAL INTERVENTIONS ON BEHAVIOUR, ACADEMIC PERFORMANCE OF CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER AT SELECTED SETTINGS

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Abstract

Background: The children with ADHD struggle to acquire extended behavioural sequences, especially when it comes to response location.
Aim and objective: To assess the effectiveness of the caregiver mediated psychosocial intervention on behaviour and academic performance of the caregivers of children with ADHD.
Materials and Methods: A quantitative approach with a quasi-experimental non-equivalent control group design was chosen for the study involving 30 caregivers who were selected using a non-probability purposive sampling technique. The paediatric symptom checklist and Du Paul's academic performance rating scale was used as the data collection tool.
Results: It was revealed that in the experimental group 100% had maladaptive behaviour score in pretest and in post-test it was 66.67% had adaptive behaviour score. However, in control group 100.00% had maladaptive behaviourscore both in pretest and post-test. In experimental group 46.67% had poor academic performance score in pretest and in post-test 86.67% had good academic performance score. However, in control group 53.33% had poor academic performance score in pretest and in post-test 54.33% had poor academic performancescore.
Conclusion: The study concluded that the caregiver mediated psychosocial intervention was effective in enhancing behaviour and increasing the academic performance of children with ADHD.

Introduction:-

One of the most prevalent mental illnesses in children, Attention Deficit Hyperactivity Disorder (ADHD) has a dismal outlook if treatment is not received. BehaviouralParent and Teacher Training (BPT) is a recommended psychosocial evidence-based treatment for children in preschool and school age groups. The fundamental tenets of

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BehaviourModification Therapy (BMT) include the following: rewarding adaptive behaviour, discouraging or punishing non-adaptivebehaviour, and using stimuli control strategies.[1]

The children with ADHD struggle to acquire extended behavioural sequences, especially when it comes to response location. Learning difficulties with extended behavioural sequences can eventually result in poor development of self-control and verbally regulated behaviour. It was revealed that an altered reinforcement processes occur in ADHD and offers a novel method for examining the moment-to-moment dynamics of behavior.[2]

Medications were combined with multicomponent cognitive behaviour therapy as the primary treatment for ADHD when broad outcomes (such as disability, caregiver stress, and behavioural improvement) were taken into account. There was some evidence of a minor benefit on non-symptom outcomes from mindfulness. The non-pharmacological therapy was risk-free.[3]

A long-term study looked at the relationship between low motivationMaladaptive Achievement Strategies (MAS) and two externalizing behavioural problems of Attention-Deficit Hyperactivity Disorder (ADHD) and conduct disorder (CDs), as well as the effects these issues have on academic achievement. It was discovered that there was a reciprocal effect between MAS and ADHD symptoms between Grades 5 and 6 in the cross-lagged analysis. Additionally, both areas were poor predictors of academic success in the future. No cross-lagged effects were observed with CDs or MAS, despite the fact that they were both adversely connected with later academic achievement, correlated, and relatively stable over time. The ways in which these various forms of externalizing problem behaviours interact over time with students' MAS and academic performance appear to vary. Compared to students with CDs, students with ADHD symptoms are probably more susceptible to having bad learning experiences and developing MAS.[4]

Students with ADHD frequently perform poorly in school. It was determined whether adults with higher levels of ADHD symptomatology had different school experiences from those with lower or no symptoms. The respondents were categorized into three groups (low, medium, and high) based on the Adult ADHD Self Report Scale (ASRS) questionnaire results, based on the symptomatology of ADHD that was evident. It was investigated that school experiences examined their behaviour grades, attendance records, expulsion records, and other school-related documents.Youngsters who had more severe symptoms of ADHD had a much higher chance of being expelled, receiving notes for misbehaviour, being disruptive or forgetful, and receiving reprimands from educators.The findings demonstrated that children with higher levels of ADHD symptomatology have more behavioural issues at school, receive more reprimands, and get more negative comments from teachers about their attendance and tardiness.[5]

Statement of the problem

A quasi-experimental study to assess the effectiveness of caregiver mediated psychosocial interventions on behaviour, academic performance of children with Attention Deficit Hyperactivity Disorder at selected settings, Chennai.

Objectives:-

1. To assess and compare the level of behaviour and academic performance of children with the ADHD between the experimental and control group.
2. To assess the effectiveness of caregiver mediated psychosocial interventions on behaviour and academic performance of children with ADHD.
3. To correlate the mean differed behaviour and academic performance scores of children with ADHD.
4. To associate the selected background variables with the mean differed behaviour and academic performance of children with ADHD in experimental and control group

Null Hypotheses

1. **NH_1:** There is no significant difference between the pre and post-test level of behaviour and academic performance of children with ADHD between the experimental and control group.
2. **NH_2:** There is no correlation between the mean differed behaviour and academic performance scores of children with ADHD in experimental and control group
3. **NH_3:** There is no significant association of the selected background variables with the mean differed behaviour and academic performanceofchildren with ADHD in experimental and control group

Materials and Methods:-

The research design used for this study was quasi experimental. Independent variable for the study was Caregiver Mediated Psychosocial interventions (CMPI)devised by the investigator and the dependent variables were behavior, academic performance of the children with ADHD

There were Demographic variables (9), Lifestyle variables (16), Past health history (5) in caregivers. The study was conducted at Saksham special school, Chitlapakkam and Brio Learning centre special school, Arumbakkam. There were 14 demographic variables, 10 Lifestyle variables, 8 Past health history variables in children. Sample of 30Children with ADHD (15 each in Experimental and Control Group), who fulfilled the inclusion criteria and consented to participate in the study.

The samples were selected based on the following:

Inclusion Criteria:

Caregiver who

1. were currently taking care of children with ADHD.
2. were either parents or blood relatives of children with ADHD
3. could understand English or Tamil.
4. were either male or female.

Children who were

1. diagnosed with ADHD between the age group of 6-11 years.
2. both boys and girls
3. studying in special schools in Chennai.
4. diagnosed with other comorbid psychiatric disorders like Oppositional Defiant Disorder, Conduct Disorder, Anxiety and Bipolar disorder, Bell's palsy.

Exclusion Criteria:

Caregiver who

1. were diagnosed to have psychiatric illness
2. hadsensory impairment or physically challenged.
3. were diagnosed to have dyslexia.

Children who were

1. mentally challenged.

Development and description of the tool

The tool for data collection had 4 sections:

Section A-Demographic variables of caregivers of children with ADHD

Age in years(completed), Gender, Educational status, Religion, Marital status, Type of family, Occupation, Income of family (In Rupees), Number of children in the family other than the child with ADHD

Section B-Demographic variables of children with ADHD

Age of onset of ADHD in years, Family structure, Education of father, Education of Mother, Place of domicile, Type of residence

Section C- Behaviour of children with ADHD

W. Gardner, K. Kelleher'spediatric symptom checklistwas used for assessing the behaviour of the child. Internalizing behaviour (IAB), Attention seeking behaviour (ASB) and Externalizing behaviourn (EXB). The scoring and interpretation were based on the following as: IAB – 6 – 10, ASB – 8 – 10, EXB – 8 – 14 for Behavioural problem and IAB – 0 – 5, ASB – 0 – 7, EXB – 0 – 7 for Acceptable behaviour

Section D- Academic Performance of children with ADHD

Academic performance rating scale was used for assessing the academic performance of the child with ADHD. Learning ability (LA)**,** Impulse control (IC)**,** Study skills (SS)**,** Social withdrawal (SW). The scoring and

interpretation were based on the following as Forward Scoring(FS): LA – 6-15, IC – 4 -10, SS – 8-20 and Reverse Scoring (RS): LA – 6 – 10,
IC – 6 – 10, SS – 4-5, SW – 13-25 for Poor academicperformance and Forward Scoring(FS): LA – 16-32, IC – 11-20, SS – 8-20 SW – 5-12 and Reverse Scoring(RS): LA – 2-5, IC – 2-5, SS – 1-3, SW – 5-12 for good academic performance

Data collection procedure

Phase 1:

- Sampling selection- 15 samples of caregivers and children with ADHD each in experimental and control group by purposive sampling technique respectively from the selected special schools

Phase 2:

- The demographic data was collected and pretest level of behaviour, academic performance of children was assessed using questionnaires in experimental and control group. On the same day, for experimental group intervention package was started through the caregivers.

Phase 3:

- The investigator started caregiver mediated psychosocial interventions by orienting the caregivers to the daily routine.
- All these activities took 30-40 minutes to complete one session
- All activities given daily for 10 days and reinforcement given till 10^{th} day
- Day 4,5,6 - Caregiver Mediated Psychosocial intervention for academic performance of children with ADHD. The investigator performed a video assisted teaching on the memory game, coloured counting game, spell train exercise, and play sorting game for logical reasoning on day 4,5,6 to a group of 15 with 5 caregivers in each group, for a period of 20 minutes duration.

Phase 4:

- Post test of caregivers on 10^{th} day to assess the behaviour and academic performance of children in both the groups
- In control group, usual routine for caregivers of children with ADHD and special school routine for children with ADHD. Wait list interventions after 10^{th} day.

Ethical considerations

The study proposal and plan were granted formal ethical approval by the International Centre of Collaborative Research which is the official ethics review board of the Omayal Achi College of Nursing, Chennai, India. Consent was obtained from the Head of the Institution, and the principal of selected special schools, Chennai. Written informed consent was obtained from the participants after a clear explanation of the study purpose, type of data required, nature of commitment, participation, procedure and potential benefits, and the right to withdraw from the study at any point of time was explained. Confidentiality of all personal details disclosed by the samples was maintained and full privacy was assured.

Results:-

Demographic variables of the caregiver:

It was revealed that 100% of the caregivers were female in the experimental and control group and majority 66.67% of the caregivers were graduate or post graduates in experimental group whereas in control group more than half 53.33% were graduates/ post graduates. Majority 66.67% of the caregivers were in nuclear family in experimental group whereas in control group 73.33% were in nuclear family.

Demographic variables of the children:

It was revealed that majority 80.00% of the children were diagnosed with ADHD in the age group of 4-5 years in both experimental and control group. Majority 86.67% of the children were first child in birth order in experimental group and whereas in control group majority 80.00% of the children were first child in birth order. Majority 80.00% of the children have no siblings in the experimental group and whereas in control group 66.67% of the children had no siblings

Table 1:- Assessment and comparison of overall pre and post-test level of behaviour in the experimental and control group.**N=15**

Pre-test	Behavioural score	Experimental		Control		Chi square test
		n	%	n	%	
	Maladaptive behaviour	15	100%	15	100.00%	$\chi 2$=0.14 P=0.71 (NS)
	Adaptive behaviour	0	0.00%	0	0.00%	
Posttest	Maladaptive behaviour	5	33.33%	10	100.00%	**$\chi 2$=16.67 P=0.001***(S)**
	Adaptive behaviour	10	66.67%	0	0.00%	

NS= Not significant p>0.05

*****significant at p≤0.001 level**

The above table reveals that the experimental group 100% had maladaptive behaviourscore in pretest and in post test it was 66.67% had adaptive behavioural score. However, in control group 100.00% had maladaptive behaviourscore in both pretest and in post-test.

Table 2:- Comparison of pre test and post test percentage of mean domain wise behaviour gain score among children with ADHD between experimental and control group. **N=15**

Domains of Behaviour	Pretest			Posttest		
	% of experimental	% of control	% of difference	% of experimental	% of control	% of mean score
Internalizing Behavior	75.30%	67.30%	8.00%	42.00%	66.00%	-24.00%
Attention Seeking Behavior	74.00%	76.00%	-2.00%	45.30%	70.70%	-25.40%
Externalizing Behavior	74.29%	71.93%	2.36%	49.07%	70.00%	-20.93%
TOTAL	74.50%	71.76%	2.74%	45.88%	69.03%	-23.15%

The above table shows each domain wise percentage of behaviour score between experimental and control group. The overall domain mean percentage of behaviour difference score among the children with ADHD in pretest was 74.50%, in post-test it was 45.88% in experimental group. However, in control group the pretest overall mean percentage of behaviour difference score is 71.76%, whereas in post-test it was 69.03% which inferred that the caregiver mediated psychosocial intervention helped the caregiver to improve the behaviour of the children in experimental group.

Table 3:- Comparison of pre test and post test domain wise percentage distribution mean behaviour score among the children with ADHD in experimental and control group. **N=15**

Domains	Maximum Score	Pretest				Post-test			
		Experiment		Control		Experiment		Control	
		Mean score	% of mean score	Mean score	% of mean score	Mean	% of mean score	mean score	% of mean score
Internalizing Behavior (Anxiety/Mood Disorder)	**10**	4.20	42.00%	6.73	67.30%	7.53	75.30%	6.60	66.00%
Attention Seeking Behavior (ADHD, ADD)	**10**	4.53	45.30%	7.60	76.00%	7.40	74.00%	7.07	70.70%
Externalizing Behavior (ODD, ADD, Mood & Conduct Disorder)	**14**	6.87	49.07%	10.07	71.93%	10.40	74.29%	9.80	70.00%
TOTAL	**34**	15.60	45.88%	24.40	71.76%	25.33	74.50%	23.47	69.03%

Above table shows each domain wise percentage distribution of behaviour score of children in the experimental and control group. In pre- test the percentage distribution of behaviour score was same in both groups. In post-test,

percentage distribution significantly decreased in all domains of behaviour in the experimental group, whereas in the control group no marked change was inferred.

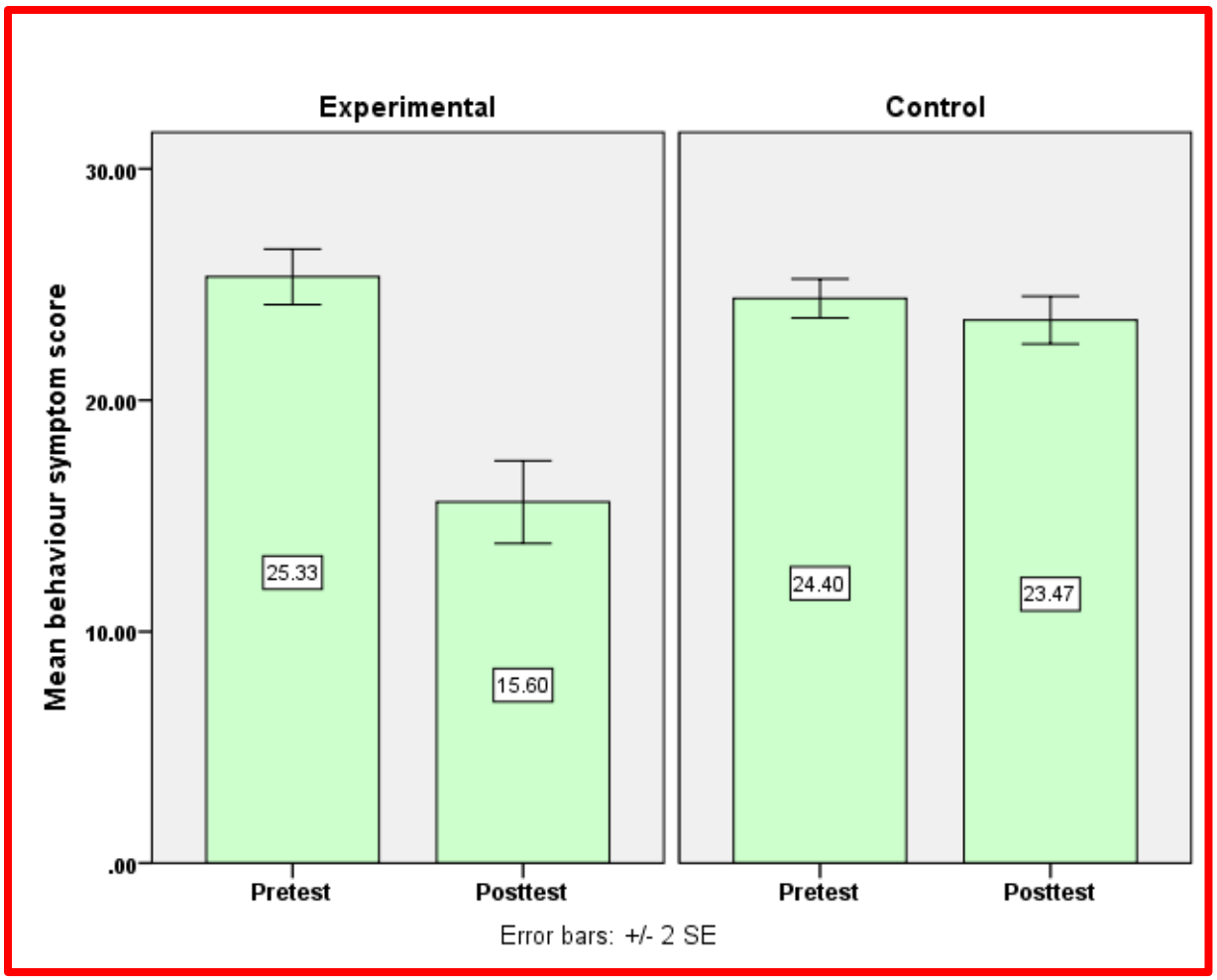

Fig 1:- Pre-test and post-test level of mean behaviour score among caregivers between experimental and control group.

Table 4:- Assessment and comparison of overall pre and post-test level of Academic Performance in the experimental and control group**.** **N=15**

Assessment	Level	Experimental		Control		Chi square test
		N	%	n	%	
Pretest	Poor	7	46.67%	8	53.33%	$\chi 2=0.14$ P=0.71(NS)
	Good	8	53.33%	7	46.67%	
	Total	15	100.00%	15	100.00%	
Posttest	Poor	2	13.33%	7	54.33%	**$\chi 2=3.96$ P=0.05*(S)**
	Good	13	86.67%	8	45.67%	
	Total	15	100.00%	15	100.00%	

NS- Not significant
*****significant at p≤0.001 level**

The table reveals that in experimental group 46.67% had poor academic performance score in pretest and in post-test 86.67% had good academic performance. However, in control group 53.33% had poor academic performance score in pretest and in post-test 54.33% had poor academic performance score

Table 5: -Comparison of mean pre-test and post-test of academic performance score among children with ADHD between the experimental and control group.**N=15**

Group	Group				Mean difference	Student paired t-test
	Pre-test		Post-test			
	Mean	SD	Mean	SD		
Experimental	67.93	2.89	83.40	6.43	15.46	**t=7.73 p=0.001***(S)**
Control	68.47	3.49	71.67	2.94	3.20	t=1.94 p=0.06(NS)

NS=Not significant
P>0.05 =High significant
S=Significant *** p≤0.001 =Very highly significant

The table reveals that in experimental group the overall academic performance mean score was 67.93 in pre-test and 83.40 in post-test and in control group academic performance mean score was 68.47 in pre-test and 71.67 in post-test. The comparison of mean differed score showed that there was very high statistically significant difference in the mean pre- test and post- test academic performance score at P≤0.001***(S) in experimental group.

Table 6:- Comparison of pre-test and post-test mean score percentage of academic performance among children with ADHD between experimental and control group.**N=15**

Domains of Academic performance	Maximum score	Pretest				Post-test			
		Experimental		Control		Experimental		Control	
		Mean score	% of mean score	Mean score	% of mean score	Mean	% of mean score	mean score	% of mean score
Problem Focused Academic performance	**30**	18.47	61.57%	18.73	62.43%	23.60	78.67%	19.27	64.23%
Emotion Focused Academic performance	**20**	15.73	78.65%	16.80	84.00%	19.67	98.35%	17.13	85.65%
Avoidant academic performance	**40**	14.93	37.33%	15.00	37.50%	26.73	66.83%	16.60	41.50%
Social withdrawal	**25**	18.40	73.60%	17.93	71.72%	13.40	53.60%	18.67	74.68%
TOTAL	**115**	67.93	59.07%	68.47	59.54%	83.40	72.52%	71.67	62.32%

The table reveals that in pre-test the academic performance mean score was 59.07%, in pre-test and 72.52% in post-test thus showing a significant improvement in academic performance in experimental group. However, in control group, the pre-test mean score was 59.54%, in post-test 62.32% which inferred that activities scheduled in caregiver mediated psychosocial interventions helped the caregivers to improve the academic performance score in experimental group.

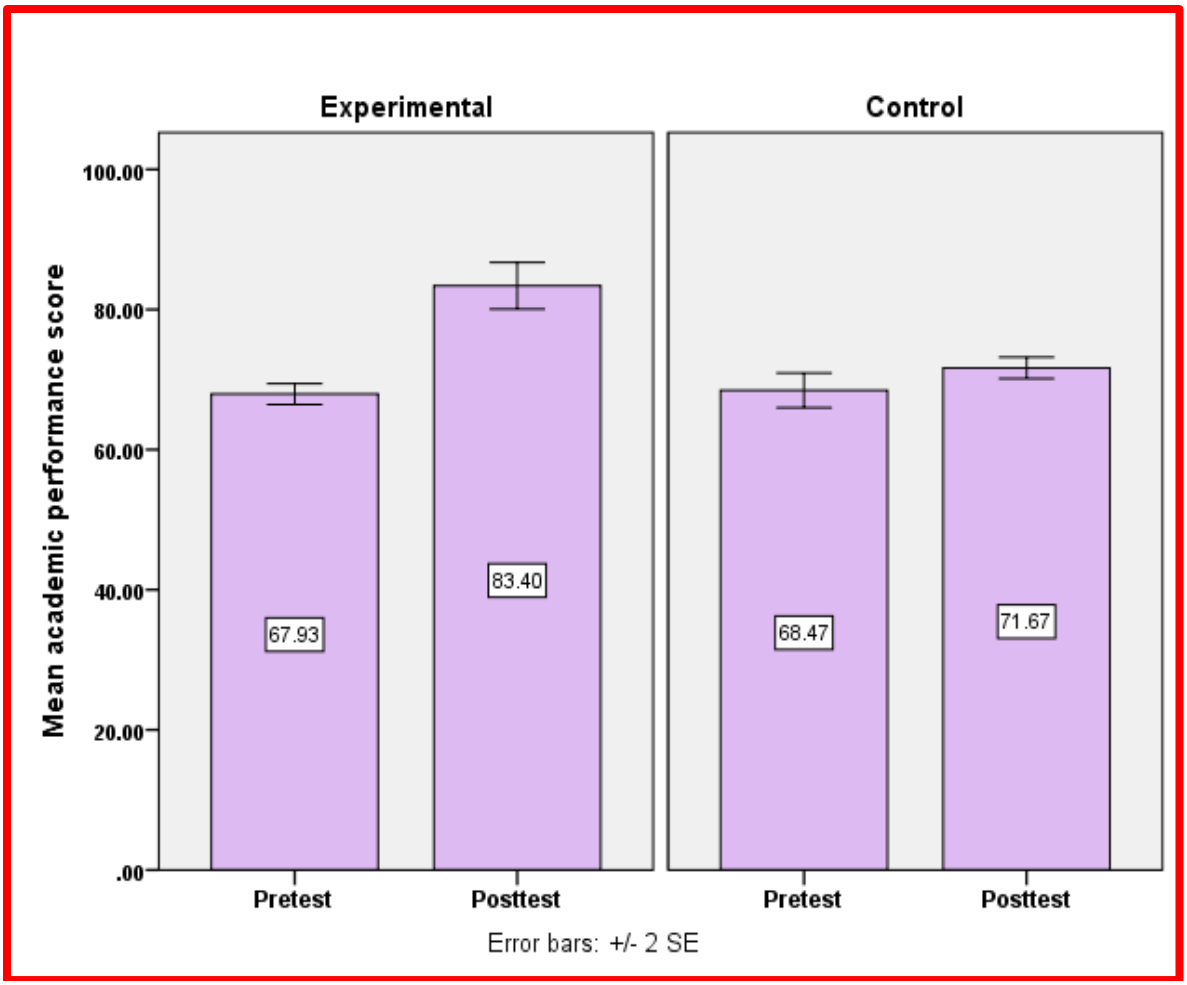

Fig 2:- Pre-test and post-test mean academic performance score among children between experimental and control group.

Table 7:- Correlation of mean differed level of behaviour gain score and academic performance gain score among caregivers between experimental and control group. **N=15**

Groups	Correlation between	Mean gain score Mean±SD	Karl Pearson Correlation coefficients	Interpretation
Experimental group	Behaviourscore Vs academic performance gain score	9.73±3.24 15.47±7.74	r= 0.36 P=0.001***	There is a significant positive fair correlation between behaviourscore and academic performancegain score. It means behaviour score decreases their academic performance gain score also increases fairly
Control group	Behaviourscore Vs academic performance gain score	0.93±2.12 3.20±2.75	r= 0.16 P=0.44	In control group there is not significant positive poor correlation between behaviourscore and academic performance gain score. It means behaviour score increases their academic performance gain score also decreases poorly

The table depicts the correlation of mean differed level ofbehaviour score and academic performance gain score among children between experimental and control group using Karl Pearson correlation coefficient. Positive fair correlation was identified between the behaviour score and academic performance gain score with the r value of 0.36 which was significant at P≤0.001 in experimental group. Poor positive correlation was identified between the behaviour gain score and academic performance gain score with the r value of 0.16 which was not significant in control group. It means behaviour score decreases their academic performance gain score also increases.

Table 8:- Association between the behaviour score and caregivers' demographic variables in experimental group.

N=15

Demographic variables		**Behaviour score**						**N**	**F-test/t-test**
		Pretest		**Post-test**		**Post-test-Pretest**			
		Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**		
Caregiver	Parent	24.82	1.94	14.73	2.87	10.09	3.56	11	**t=2.29**
	Blood Relative	26.75	2.99	18.00	4.24	8.75	2.22	4	**p=0.05*(S)**
Age	<30 years	23.67	.58	15.67	3.06	8.00	2.65	3	**F=4.33**
	31-40 years	25.86	1.95	13.71	2.43	12.14	2.61	7	**p=0.05*(S)**
	41-50 years	23.50	.71	17.00	2.83	6.50	2.12	2	
	>50 years	27.00	3.61	19.00	4.58	8.00	2.00	3	
Gender	Male	.	.	.	.	.	.	0	t=0.00
	Female	25.33	2.32	15.60	3.46	9.73	3.24	15	p=1.00(NS)
	Others	.	.	.	.	.	.	0	
Educational status	Non-literate	.	.	.	.	.	.	0	**F=6.44**
	Primary school	.	.	.	.	.	.	0	**p=0.01*(S)**
	Middle school	.	.	.	.	.	.	0	
	High school	.	.	.	.	.	.	0	
	Higher secondary	24.00	.82	17.75	1.89	6.25	1.50	4	
	Graduate/ post-graduate	25.60	2.55	14.90	3.81	10.70	2.67	10	
	Professional	28.00	.	14.00	.	14.00	.	1	
	Others (Specify)_____	.	.	.	.	.	.	0	

NS=Not significant
P>0.05 =High significant
S=Significant *** p≤0.001 =Very highly significant

The table depicts the association of the selected caregivers' demographic variableswith the behaviour difference score in the experimental group. The computation using one way ANOVA F test/t-test revealed that based on the age of the caregiver had association at $p < 0.05$ level and based on the caregiver's educational statushad maladaptive behaviour gain score at $p< 0.01$ level and other variables did not infer any statistical significance in the experimental group

Table 9:- Association between the behaviour score and children demographic variables in experimental group.

N=15

Demographic variables		**Behaviour score**						**n**	**F-test/t-test**
		Pretest		**Post-test**		**Post-test-Pretest**			
		Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**		
Age	6 -7 years	24.80	2.17	17.40	.89	7.40	2.30	5	**F=4.13**
	8-9 years	24.00	.71	14.40	3.44	9.60	3.29	5	**p=0.05*(S)**
	10-11 years	27.20	2.59	14.30	5.15	12.90	3.42	5	
Gender	Male	24.91	1.76	15.64	2.58	9.27	3.04	11	t=0.90
	Female	26.50	3.51	15.50	5.80	11.00	3.92	4	p=0.38(NS)
	Others	0.00	0.00	0.00	0.00	0.00	0.00	0	
	One	25.67	2.52	16.00	1.73	9.67	1.53	3	
	Two	0.00	0.00	0.00	0.00	0.00	0.00	0	

	Three	0.00	0.00	0.00	0.00	0.00	0.00	0	
	Others(specify) _____	0.00	0.00	0.00	0.00	0.00	0.00	0	
	> 5	28.00	2.00	20.77	5.51	7.23	4.04	3	

NS=Not significant
P>0.05 =High significant
S=Significant *** p≤0.001 =Very highly significant

The above table depicts the association of the selected demographic variables of children with the behaviour score in the experimental group. Based on the age of the children with ADHD had maladaptive behaviour gain score at p <0.05. The computation using one way ANOVA F test/t-test revealed that the other children's demographic variables did not infer any statistical significance in the experimental group

Table 10:- Association between the behaviour score and children demographic variables in experimental group.

N=15

Demographic variables		**Behaviour score**						**n**	**F-test /t-test**
		Pretest		**Post-test**		**Post-testPretest**			
		Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**		
Family monthly Income in Rupees	<2000	0.00	0.00	0.00	0.00	0.00	0.00	0	t=0.00 p=1.00(NS)
	2001-4000(Lower class)	0.00	0.00	0.00	0.00	0.00	0.00	0	
	4001-8000(Lower middle class)	0.00	0.00	0.00	0.00	0.00	0.00	0	
	8001-17000(Upper middle class)	0.00	0.00	0.00	0.00	0.00	0.00	0	
	>17001(Upper class)	25.33	2.32	15.60	3.46	9.73	3.24	15	
Total number of members in family	Upto 5	24.67	1.92	12.79	2.87	11.88	3.20	12	**t=2.17**
	> 5	28.00	2.00	20.77	5.51	7.23	4.04	3	**p=0.05*(S)**

NS=Not significant
P>0.05 =High significant
S=Significant *** p≤0.001 =Very highly significant

The above table depicts the association of the selected demographic variables of children with the behaviour difference score in the experimental group. The computation using one way ANOVA F test/t-test revealed thatbased on the total members of family more than 5 had impact on the maladaptive behaviour gain score of children at p=0.05 and other domains of children's demographic variables did not infer any statistical significance in the experimental group

Table 11:- Association between the academic performance gain score and children's demographic variables in experimental group.**N=15**

Demographic variables		**Academic performance gain score**						**n**	**F-test/t-test**
		Pretest		**Post-test**		**Post-test-Pretest**			
		Mean	**Standard Deviation**	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**		
Caregiver	Parent	60.55	3.83	87.11	3.59	26.56	4.45	11	**t=2.52**
	Blood Relative	59.75	2.22	80.00	2.16	20.25	3.63	4	**p=0.03*(S)**
Age	<30 years	62.00	5.29	81.67	4.51	19.67	9.71	3	F=0.25
	31-40 years	59.57	3.15	82.14	3.58	22.57	5.91	7	p=0.86(NS)
	41-50 years	62.50	3.54	83.00	4.24	20.50	.71	2	
	>50 years	59.00	2.00	82.33	2.08	23.33	3.21	3	
Gender	Male	.	.	.	.	.	.	0	t=0.00
	Female	60.33	3.42	82.20	3.23	21.87	5.66	15	p=1.00(NS)
	Others	.	.	.	.	.	.	0	
	Primary school	.	.	.	.	.	.	0	
	Middle school	.	.	.	.	.	.	0	

	High school	.	.	.	.	.	.	0	
	Higher secondary	60.50	3.32	85.00	1.41	24.50	3.51	4	
	Graduate/ post-graduate	60.10	3.75	81.50	3.10	21.40	6.20	10	
	Professional	62.00	.	78.00	.	16.00	.	1	
	Others (Specify)_____	.	.	.	.	.	.	0	

NS=Not significant
P>0.05 =High significant
S=Significant *** p≤0.001 =Very highly significant

The above table depicts the association of the selected demographic variables of children with the academic performance gain score in the experimental group. The computation using one way ANOVA F test/t-test revealed that children who had parents as caregiver had better academic performance gain score and hence statistically significant at p<0.05. All the other domains did not infer any statistical significance in the experimental group.

Table 12:- Association between the academic performance gain score and children's demographic variables in experimental group.**N = 15**

Demographic variables		**Academic performance gain score**						**N**	**F-test/t-test**
		Pretest		**Post-test**		**Post-test-Pretest**			
		Mean	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**		
Religion	Christian	62.00	.	85.00	.	23.00	.	1	F=0.84 p=0.39(NS)
	Hindu	60.00	3.72	82.58	3.09	22.58	5.84	12	
	Muslim	61.50	2.12	78.50	2.12	17.00	4.24	2	
	Others (Specify)__	.	.	.	.	.	.	0	
Type of family	Nuclear	60.40	4.01	85.30	3.53	24.90	4.21	10	**t=2.15 p=0.05*(S)**
	Joint	60.20	2.17	80.22	2.92	20.02	3.96	5	
	Others (Specify)	.	.	.	.	.	.	0	

NS=Not significant
P>0.05 =High significant
S=Significant *** p≤0.001 =Very highly significant

The above table depicts the association of the selected demographic variables of children with the academic performance gainscore in the experimental group. Based on the type of family, nuclear family had significant association with the children's demographic variables at P =0.05.The computation using one way ANOVA F test/t-test revealed that the other children's demographic variables did not infer any statistical significance in the experimental group

Table 13:- Association between the academic performance gain score and children's demographic variables in experimental group. **N = 15**

Demographic variables		**Academic performance gain score**						**n**	**F-test/t-test**
		Pretest		**Post-test**		**Post-test-Pretest**			
		Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**		
Age	6 -7 years	68.60	1.82	78.40	1.52	9.80	3.92	5	**F=3.99 p=0.05*(S)**
	8-9 years	65.80	2.95	84.60	4.67	18.80	5.72	5	
	10-11 years	69.40	2.88	88.60	8.35	19.20	7.62	5	
Gender	Male	67.27	2.53	82.64	5.78	15.36	6.42	11	t=0.08 p=0.94(NS)
	Female	69.75	3.40	85.50	8.58	15.75	11.93	4	
	Others	0.00	0.00	0.00	0.00	0.00	0.00	0	
	6-7	68.67	5.13	82.00	6.93	13.33	11.93	3	
	8-9	0.00	0.00	0.00	0.00	0.00	0.00	0	
	10-11	0.00	0.00	0.00	0.00	0.00	0.00	0	
	Self-employed/ skilled	70.00	.	78.00	.	8.00	.	1	

	Unskilled/ landless labourer	66.50	4.95	82.50	6.36	16.00	1.41	2	
	Homemaker	68.00	2.76	84.00	6.77	16.00	8.41	12	
	> 5	67.33	2.52	77.49	11.27	10.16	13.32	3	

NS=Not significant
P>0.05 =High significant
S=Significant *** p≤0.001 =Very highly significant

The table depicts the association of the selected demographic variables of children with the academic performance score in the experimental group. The computation using one way ANOVA F test/t-test revealed that based on the age,10-11 years age group of the children had better academic performance gain score at p=0.05 and other domains of children's demographic variables did not infer any statistical significance in the experimental group

Table 14:- Association between the academic performance gain score and children demographic variables.
N=15

Demographic variables		**Academic performance gain score**						**N**	**F-test/t-test**
		Pretest		**Post-test**		**Post-test-Pretest**	**Pretest**		
		Mean	**SD**	**Mean**	**Mean**	**SD**	**Mean**		
Family monthly Income in Rupees	<2000	0.00	0.00	0.00	0.00	0.00	0.00	0	t=0.00 p=1.00(NS)
	2001-4000(Lower class)	0.00	0.00	0.00	0.00	0.00	0.00	0	
	4001-8000(Lower middle class)	0.00	0.00	0.00	0.00	0.00	0.00	0	
	8001-17000(Upper middle class)	0.00	0.00	0.00	0.00	0.00	0.00	0	
	>17001(Upper class)	67.93	2.89	83.40	6.43	15.47	7.74	15	
Total number of members in family	Upto 5	68.08	3.06	87.95	5.43	19.87	6.60	12	**t=2.17**
	> 5	67.33	2.52	77.49	11.27	10.16	13.32	3	**p=0.05*(S)**

NS=Not significant
P>0.05 =High significant
S=Significant *** p≤0.001 =Very highly significant

The above table depicts the association of the selected demographic variables of children with the academic performance gain score in the experimental group. Total number of family members who were up to 5, had significant association with the children's demographic variables at p=0.05. The computation using one way ANOVA F test/t-test revealed children's demographic variables did not infer any statistical significance in the experimental group

Nursing Implications
Nurses should exhibit professional responsibility by educating caregivers on caregiver mediated psychosocial interventions of ADHD through teaching, counselling and clinical roles. They should provide holistic care in the Mental Health OPD unit, considering the physical and mental changes which are expected to occur induring the development of children with ADHD. The nurse must select and organise the learning experience for children with ADHD and must train novice nurses wherein the caregivers will be trained to modify the behaviour and improve the academic performance of children with ADHD. The behaviour modifications and academic performance exercises will be executed through caregivers and demonstrationof these techniques by Mental Health nurses in the Mental health OPD unit using caregiver mediated psychosocial intervention will help in the promotion of health and to disseminate the findings of the research through conferences, seminars, and by publishing in nursing journals and websites.

Limitations:-
The investigator found that the caregiver mediated psychosocial intervention to the research participants was a bit time consuming and also faced difficulty in locating extensive international and national reviews on behaviour and academic performance among children.

Conclusion:-

The study findings concluded that there was a significant difference in the behaviour and academic performance of children with ADHD in the experimental group after the caregiver mediated psychosocial intervention. Hence, the investigator recommends the utilisationof the caregiver mediated psychosocial intervention package by caregivers of children with ADHD and nurses in various settings for the benefit of caregivers of children with ADHD.

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