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### RESEARCH ARTICLE

#### EFFECTIVENESS OF CAREGIVER MEDIATED PSYCHOSOCIAL INTERVENTIONS ON KNOWLEDGE, COPING OF CAREGIVERS OF CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER AT SELECTED SETTINGS

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#### Abstract

**Background:** In India, prevalence of ADHD among adolescents is 7.1%. The prevalence of ADHD range for children aged 8-15 years was between 7.6% to 15%. There is a need to improve the knowledge and coping of the caregivers of children with ADHD, in order to enhance the level of knowledge on ADHD in caregivers and to promote the coping strategies of caregivers of children with ADHD.

**Aim and objective:** To assess the effectiveness of the caregiver mediated psychosocial intervention on knowledge and coping 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. A structured knowledge questionnaire and Craver's brief cope inventory was used as the data collection tool.

**Results:** It was revealed that in experimental group, the overall mean knowledge score of caregivers in pre-test was 6.80 knowledge and it was 11.20 in post-test with the mean difference of 4.40 and t value was found to be 7.06, which showed high statistical significance. In experimental group the overall mean coping score of caregivers, in pre-test was 60.33 and it was 82.20 in post-test with the mean difference of 21.87 and t value was found to be 14.97, which showed high statistical significance.

**Conclusion:** The study concluded that the caregiver mediated psychosocial intervention was effective in enhancing knowledge and increasing the effective coping among caregivers of children with ADHD.

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**Introduction:-**

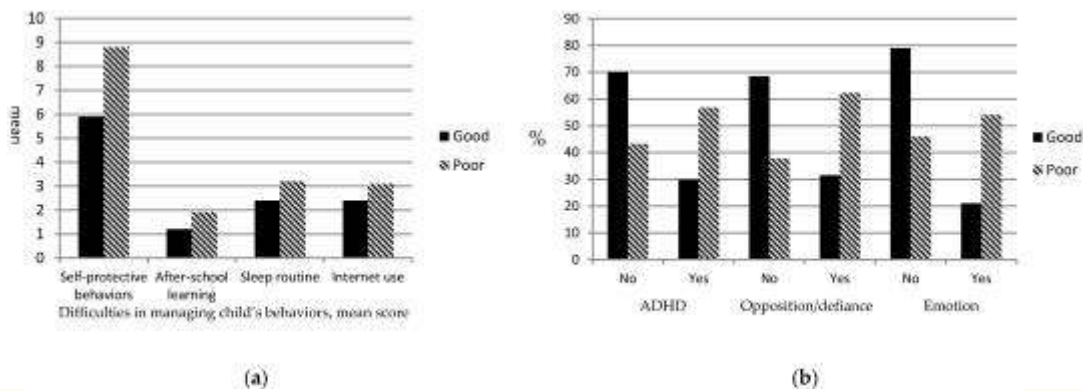
It is estimated that over 40,000 children have ADHD, with an average prevalence rate of roughly 6.4%. ADHD is a mental illness that impedes children's social and cognitive development and is characterized by impulsivity, hyperactivity, and inattention.<sup>1</sup>

Based on statistical data, the prevalence of ADHD in Iran and the USA is between 2% and 20%. Additionally, according to the DSM-5, the prevalence rate of this disease is 2.5% in adults and 5% in children and almost 33% of patients who are referred to Iran's mental occupational treatment institutions have ADHD.<sup>2</sup>

ADHD is one of the most common juvenile psychiatric illnesses. Both hereditary and environmental variables are important contributors to the disorder. Without the right care, children with ADHD may experience physical harm, emotional dysregulation problems, poor connections with peers and family, underachievement in school, comorbid behaviors, and/or mood disorders.<sup>3</sup>

In order to manage the symptoms of Attention Deficit Hyperactivity Disorder (ADHD) which affect family life, parents of children with ADHD employ a variety of coping mechanisms. A total of 14 empirical studies were found to be pertinent to the investigation. Coping methods are evaluated using a wide range of instruments. It was discovered that compared to parents of usual children, parents of children with ADHD utilized more avoidant-focused coping mechanisms. Compared to mothers of normally developing children, mothers of ADHD children utilized more indirect methods and sought out noticeably more support. This analysis emphasizes the significance of investigating parents' coping techniques in more detail in order to support good coping strategies for parents of ADHD children and assist them in finding resources for support.<sup>4</sup>

A study was conducted to determine how well nursing interventions affected parents of children with Attention Deficit Hyperactivity Disorder (ADHD) by reducing their feelings of guilt and stress and enhancing their coping mechanisms. This study used a quasi-experimental (one group pre/post) design. For this study, a purposeful sample of forty ADHD children and their parents were identified and enlisted. The study was carried out at Cairo University's Faculty of Medicine's Center of Social and Preventive Medicine's Child Psychiatry Clinic. The Parental Shame Scale, Caregiver Strain Questionnaire, and Brief Coping Orientation to Problems were the tools. The mean ratings of the pre- and post-intervention periods differed significantly in all statistically significant ways with respect to knowledge, strain, feeling of guilt, and coping. Parents' knowledge and coping in the post-intervention period and their feelings of shame in the pre-intervention period were found to be statistically significantly correlated, both before and after the intervention. Additionally, there was a statistically significant relationship between pre-intervention strain and coping as well as pre- and post-intervention strain. However, no statistically significant association found between the other variables. The nursing intervention was successful in reducing the parents' feelings of guilt and stress and in helping them cope. Education authorities will be interested in using this research, particularly those who are concerned with bridging the gap between home and school to support young people with ADHD.<sup>5</sup>



**Fig-1:-** Poor Mental Health in Caregivers of Children with Attention-Deficit/Hyperactivity Disorder and child's behaviour

(a) Difficulties in Managing ADHD Child's Behavior and (b) Worsened Psychological Symptoms between Caregivers with Good and Poor Mental Health.

**Source:** Int J Environ Res Public Health. 2021 Sep 16;18(18):9745.

**Statement of the problem**

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

**Objectives:-**

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

**Null Hypotheses**

1. **NH<sub>1</sub>:** There is no significant difference between the pre and post-test level of knowledge and coping of caregivers of children with ADHD between the experimental and control group.
2. **NH<sub>2</sub>:** There is no correlation between the mean differed knowledge and coping scores of the caregivers of children with ADHD in experimental and control group
3. **NH<sub>3</sub>:** There is no significant association of the selected background variables with the mean differed knowledge and coping of the caregivers of children 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 knowledge and coping of the caregiver

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. Sample of 30 caregivers (15 each in Experimental and Control Group), who fulfilled the inclusion criteria. These samples were caregivers and children with ADHD 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. had sensory impairment or physically challenged.
3. were diagnosed to have dyslexia.

**Children who were 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- Knowledge of caregivers of children with ADHD:** A structured knowledge questionnaire was used with Multiple Choice Questions. It consists of meaning, causes, risk factors, clinical features, diagnostic studies, pharmacological and non-pharmacological management of ADHD. The scoring and interpretation were based on the following as  $\geq 75\%$  is Adequate level of knowledge,  $51 - 74\%$  is Moderate level of knowledge and  $\leq 50\%$  is Inadequate level of knowledge.

##### **Section D- Coping of the caregivers of children with ADHD**

This was assessed through Craver's Brief cope inventory and the dimensions included were Problem Focused Coping (PFC), Emotion Focused Coping (EFC), Avoidant Focused Coping (AFC). The scoring and interpretation were based on the following as: PFC - 0 - 16, EFC - 0 - 24, AFC - 17 - 32 for Ineffective coping and PFC - 17 - 32, EFC - 25 - 48, AFC - 0 - 16 for Effective coping.

#### **Data collection procedure**

##### **Phase 1:**

Sampling selection- 15 samples each in experimental and control group by purposive sampling technique from the selected special schools

##### **Phase 2:**

The demographic data was collected and pretest level of knowledge and coping of caregivers were assessed using questionnaires in experimental and control group. On the same day, for experimental group intervention package was started.

##### **Phase 3:**

1. The investigator started caregiver mediated psychosocial interventions by orienting the caregivers to the daily routine.
2. All these activities took 30-40 minutes to complete one session
3. All activities given daily for 10 days and reinforcement given till 10<sup>th</sup> day
4. Day 1, 2 - CMPI for knowledge of caregivers of children with ADHD to a group of 15 with 5 caregivers in each group, for a period of 30 minutes with the use of power-point presentation and flash cards.
5. Day 3, 4 - CMPI for coping of caregivers of children with ADHD: The intervention focussed on mindfulness exercises, self-reflective journaling and autogenic relaxation techniques for the coping of the caregivers on 1st and 2<sup>nd</sup> day to a group of 15 with 5 caregivers in each group, for a period of 20 minutes duration.

##### **Phase 4:**

1. Day 5 - Post test was conducted for both the groups
2. In control group, usual school routine for caregivers of children with ADHD and special school routine for children with ADHD. Wait list interventions after 10<sup>th</sup> 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:-

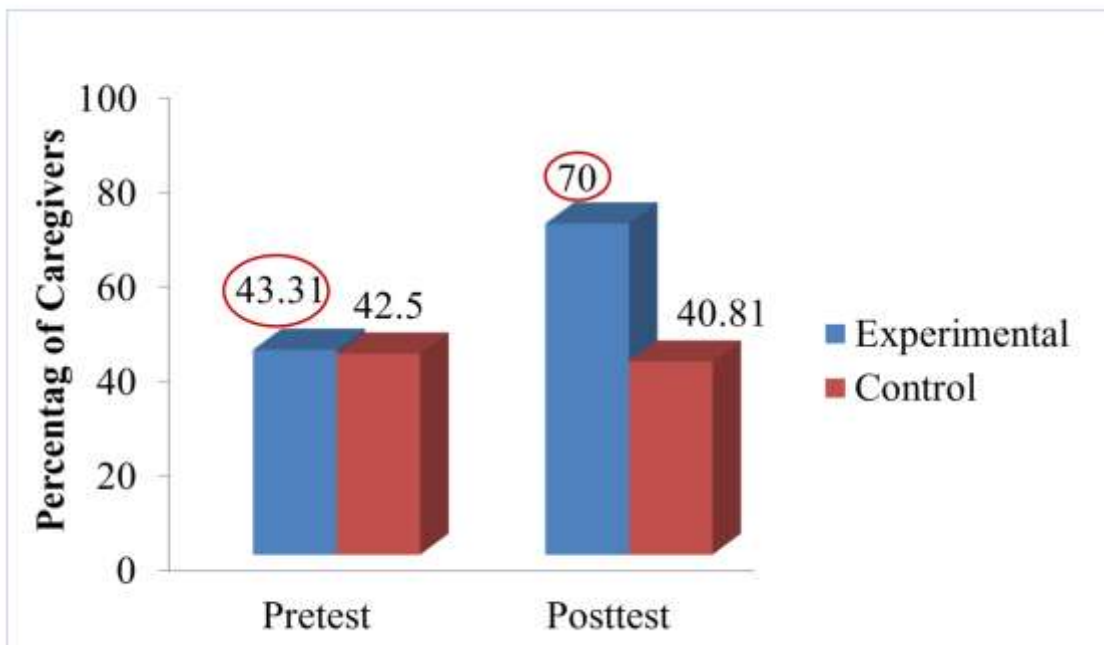
### Demographic variables of the caregiver:

It was revealed that 100% of the caregivers were female both 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 have no siblings.

### Assessment and comparison of overall pre and post-test level of knowledge in the experimental and control group



**Figure 2:-** Percentage distribution of overall pre-test and post-test level of adequate knowledge regarding ADHD among caregivers in the experimental and control group.

Figure 2 depicts the analysis of the pre-test level of knowledge in which the samples in both groups had an inadequate level of knowledge regarding ADHD and in post test in experimental group most of them had adequate level of knowledge and whereas in control group there were no statistical changes observed.

**Table 1:-** Comparison of pre-test and post-test mean differed domain wise knowledge score among the caregivers within the experimental and control group N=30.

Domains	Maximum Score	Pretest				Posttest			
		Experiment		Control		Experiment		Control	
		Mean score	% of mean score	Mean score	% of mean score	Mean score	% of mean score	Mean score	% of mean score
Disease Condition	3	1.53	51.00%	1.33	44.33%	2.27	75.67%	1.4	46.67%
Risk Factors	1	.40	40.00%	0.27	27.00%	.67	67.00%	0.33	33.00%
Symptom	3	1.33	44.33%	1.4	46.67%	1.93	64.33%	1.4	46.67%
Diagnostic Studies	2	.67	33.50%	0.73	36.50%	1.60	80.00%	0.8	40.00%
Pharmacological Management	2	.60	30.00%	0.73	36.50%	1.47	73.50%	0.8	40.00%
Non-pharmacological management	3	1.40	46.67%	1.4	46.67%	1.93	64.33%	1.40	46.67%
Academic Performance of the Child	2	.87	43.50%	0.67	33.50%	1.33	66.50%	0.80	40.00%
<b>TOTAL</b>	16	6.80	42.50%	6.53	40.81%	11.20	70.00%	6.93	43.31%

Table 1 shows each domain wise percentage of knowledge score between experimental and control group. The overall domain mean percentage of knowledge difference score among the children with ADHD in pretest was 42.50%, in post- test it was 70.00% in experimental group. However, in control group the pretest overall mean percentage of knowledge score is 40.81%, whereas in post-test it was 43.31% which inferred that the caregiver mediated psychosocial intervention helped in experimental group.

**Table 2:-** Comparison of mean pre-test and post-test knowledge gain score among caregivers within the experimental and control group. N=30

Group	Group				Mean difference	Student paired t-test
	Pre-test		Post-test			
	Mean	SD	Mean	SD		
Experimental	6.80	1.61	11.20	1.61	4.40	t=7.06 p=0.001***(S)
Control	6.53	1.41	6.93	1.58	0.40	t=1.87 p=0.07(NS)

NS = Not significant  $P > 0.05$  not significant

S= Significant \*\*\* $p \leq 0.001$  very high significant

Table 2 reveals that in experimental group the overall mean knowledge score of caregivers in pre-test was 6.80 and it was 11.20 in post-test with the mean difference of 4.40 and whereas in control group this score was 6.53 in pre-test and 6.93 in post-test, with the mean difference of 0.40. The distribution showed a very high statistical significance observed in the experimental group at  $p \leq 0.05$  whereas there was no statistical significance observed in control group.

The table3 reveals that in the experimental group 66.67% had effective coping score in pre-test and and in post-test 100% had good coping score. However, in control group 73.33% had ineffective coping score in pre-test and 76.67% had ineffective coping score in post-test.

**Table 3:-** Assessment and comparison of overall pre and post-test level of coping between the experimental and control group.

Assessment	Level	Experimental		Control		Chi square test
		n	%	n	%	
Pretest	Ineffective	5	33.33	4	73.33	$\chi^2=0.16$ P=0.69(NS)
	Effective	10	66.67	11	26.67	
	Total	15	100.00	15	100.00	
Posttest	Ineffective	0	0.00	2	76.67	$\chi^2=8.75$ P=0.001**(S)
	Effective	6	100	13	23.33	
	Total	15	100.00	15	100.00	

NS-Not significant P&gt;0.05 notsignificant

S= Significant \*\*\*p≤0.001 very high significant

**Table 4:-** Comparison of pre-test and post-test mean differed domain wise coping scores among the caregivers of children with ADHD within the experimental and control group. N=30

Domains of coping	Pretest			Post-test		
	% Mean score of experimental	% of mean score control	% of mean difference	% Mean score of experimental	% Mean score of control	% of mean difference score
Problem Focused Coping	41.25%	39.78%	1.47%	77.50%	40.84%	36.66%
Emotion Focused Coping	51.94%	54.44%	-2.50%	65.83%	55.00%	10.83%
Avoidant coping	69.38%	69.78%	-0.40%	80.63%	71.25%	9.38%
<b>TOTAL</b>	53.87%	54.64%	-0.77%	73.39%	55.60%	17.79%

Above table 4 shows each domain wise percentage of coping score between experimental and control group. The overall domain mean percentage of coping among the caregivers of children with ADHD in pretest was 53.87% and in post- test it was 73.39% in experimental group. However, in control group the pretest overall mean percentage of coping is 54.64%, whereas in post-test it was 55.60% which inferred that the caregiver mediated psychosocial intervention helped the caregivers to improve the coping score in experimental group.

**Table 5:-** Comparison of mean pretest and post-test coping score among caregivers within the experimental and control group. N=30

Group	Group				Mean difference	Student paired t-test
	Pre-test		Post-test			
	Mean	SD	Mean	SD		
Experimental	60.33	3.42	82.20	3.23	21.87	t=14.97 p=0.001***(S)
Control	61.20	3.49	62.27	2.58	1.07	t=1.23 p=0.24(NS)

NS = Not significant P&gt;0.05 notsignificant

S= Significant \*\*\*p≤0.001 very high significant

The table 5 revealed that in experimental group the overall mean coping score of caregivers in pre-test was 60.33 knowledge and it was 82.20 in post-test with the mean difference of 21.87 and whereas in control group this score was 61.20 in pre-test and 62.27 in post-test, with the mean difference of 1.07. The distribution showed a very high statistical significance observed in the experimental group at  $p \leq 0.001$ , whereas there was no statistical significance observed in control group.

**Table 6:-** Correlation of mean differed level of knowledge gain score and coping gain score among caregivers between experimental and control group N=30

Groups	Variables	Mean gain score Mean±SD	Karl Pearson's Correlation coefficient	P value
Experimental group	Knowledge gain score Vs coping gain score	4.40±2.41 21.87±5.66	r= 0.45	P=0.001*** (S)
Control group	Knowledge gain score Vs coping gain score	0.40±0.83 1.07±3.37	r= 0.14	P=0.20 (NS)

NS=Not significant

P>0.05 =High significant

S=Significant \*\*\*  $p \leq 0.001$  =Very highly significant

The table 6 depicts the correlation of mean differed level of knowledge gain score and coping gain score among caregivers between experimental and control group using Karl Pearson correlation coefficient. Moderate positive correlation was identified between the knowledge gain score and coping gain score with the r value of 0.45 which showed very high statistical significance at  $P \leq 0.001$  in experimental group. Poor positive correlation was identified between the knowledge gain score and coping gain score with the r value of 0.14 which was not statistically significant in control group.

**Table 7:-** Association between the coping gain score and caregivers' demographic variables in experimental group N=30

Demographic variables		Coping gain score						n	F-test/t-test
		Pretest		Post-test		Post-test-Pretest			
		Mean	Mean	Mean	Mean	Mean	Mean		
Type of family	Nuclear	60.4	4.01	85.3	3.53	24.9	4.21	10	t=2.15 p=0.05* (S)
	Joint	60.2	2.17	80.22	2.92	20.02	3.96	5	
	Others (Specify)	.	.	.	.	.	.	0	
Occupation	Professional / Business head/ Executive	62	.	78	.	16	.	1	F=0.70 p=0.52(NS)

NS=Not significant

P>0.05 =High significant

S=Significant \*\*\*  $p \leq 0.001$  =Very highly significant

The table 7 depicts the association of the selected demographic variables of caregivers with the coping gain score in the experimental group.

The computation using one way ANOVA F test/t-test revealed that caregivers based on the type of family who were nuclear had better improvement in coping gain score and hence statistically significant at  $p < 0.05$ . All the other domains did not infer any statistical significance in the experimental group for knowledge and coping among the caregivers.



**Discussion:-****Comparison of level of knowledge:**

In experimental group the overall mean knowledge score of caregivers in pre-test was 6.80 knowledge and it was 11.20 in post-test with the mean difference of 4.40 and whereas in control group this score was 6.53 in pre-test and 6.93 in post-test, with the mean difference of 0.40. The distribution showed a very high statistical significance observed in the experimental group at  $p \leq 0.001$  whereas there was no statistical significance observed in control group.

The comparison of knowledge scores between the experimental and control group was calculated using an unpaired t-test. No statistically significant difference was found between the experimental and control group in the pre-test scores whereas in the post-test, the calculated unpaired t value =7.06 revealed that there was a highly statistically significant difference at  $p < 0.001$  level. This indicated that the caregiver mediated psychosocial intervention was highly effective in enhancing the knowledge regarding ADHD among caregivers in the experimental group.

**Comparison of coping**

In Comparison of mean pretest and post-test coping score among caregivers between experimental and control group it was revealed that in experimental group, the overall mean coping score of caregivers in pre-test was 60.33 coping and it was 82.20 in post-test with the mean difference of 21.87 and whereas in control group this score was 61.20 in pre-test and 62.27 in post-test, with the mean difference of 1.07.

The distribution showed no statistically significant difference between the experimental and control group in the pre-test scores whereas in the post-test, the calculated t value=14.97 which revealed that there was a high statistical significance observed in the experimental group at  $p \leq 0.001$ , whereas there was no statistical significance observed in control group. This indicated that the caregiver mediated psychosocial intervention was effective in enhancing the coping of the caregivers in the experimental group.

**Correlation between the mean differed level of knowledge and level of coping**

The correlation between the mean differed level of knowledge and level of coping among women in the experimental group was assessed by using Karl Pearson Correlation Coefficient. The calculated r-value was 0.45 which revealed that there was a moderate positive correlation between these two variables and there was statistical significance difference at  $p < 0.001$ .

**Association between selected background variables of the caregivers and the knowledge gain score and level of coping gain score**

There was no statistically significant association found for background variable of caregivers with the knowledge gain score of caregivers in experimental and control group. However, in nuclear type of family the level coping gain score among caregivers in the experimental group was found to behaving a high statistically significant association. Caregivers' individual experiences of coping can vary from person to person. Some caregivers may experience very few symptoms, while others may experience symptoms so severe that it impacts their quality of life.

**Nursing Implications**

Nurses should exhibit professional responsibility by educating caregivers regarding knowledge of ADHD and coping strategies through teaching, counselling and clinical roles. They should provide holistic care in the Mental Health OPD unit, considering the physical and mental changes expected to occur in caregivers during the development of child with ADHD. The nurse must select and organise the learning experience for students and novice nurses wherein the knowledge will be enhanced about ADHD and arrange demonstration of coping strategies by Mental Health nurses for caregivers in the Mental health OPD unit using caregiver mediated psychosocial intervention for the promotion of health and 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 knowledge and level of coping among the caregivers.

**Conclusion:-**

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

**Source of support:**

None.

**Conflict Of Interest:**

None declared

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