



**A STUDY TO ASSESS THE EFFECTIVENESS OF HOME BASED INTERVENTIONS ON BEHAVIOURAL CHANGES, SOCIAL INTERACTION SKILLS, ACTIVITIES OF DAILY LIVING AND ACADEMIC PERFORMANCE OF CHILDREN WITH AUTISM SPECTRUM DISORDERS AMONG PRIMARY CARE GIVERS IN SELECTED SETTINGS.-A PILOT STUDY**

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**ABSTRACT** **Background:** Autism is defined as a lifelong neurodevelopment disorder characterized by two key Symptoms persistent deficits in social communication /interaction and restricted, repetitive patterns of behaviour and abnormal sensory responses. **Materials & Methods:** Sample of 20(10 each in experimental and control group) were included in the study. **Results:** Effectiveness of Home Based Interventions on behavioural changes, social interaction skills, activities of daily living and academic performance between experimental and control group . In pretest and post test 1 there was no significant difference between experimental and control group. Where as in post test-2 and post test 3 there was a significant difference between experimental and control group. This show the home based interventions was effective in reduction of behavioural problems, improved social interaction skills, activities of daily living and academic performance among children with ASD between experimental and control group. Statistical significant difference between experimental and control group was assessed using student independent t-test. **Conclusion:** The primary care givers interaction of 2 hours/day with their children with ASD also statistically proved that there was a significant reduction in the behavioural problems and also improved in the child's social interaction skills, ADL and academic performance.

**KEYWORDS :** ASD, ADL, PCG

**INTRODUCTION**

- Autism is defined as a lifelong neurodevelopment disorder characterized by two key Symptoms persistent deficits in social communication/interaction and restricted, repetitive patterns of behaviour and abnormal sensory responses. The age of diagnosis of ASD in India is 3–6 years and a time delay of 2 years from symptom recognition to treatment initiation is observed across different health care settings. Children with ASD present with comorbidity conditions like attention deficit hyperactivity disorder (ADHD), intellectual disability, epilepsy, depression and anxiety. There is no known cure for autism, however home based interventions for primary caregivers, can improve social skills, ADL and academic performance with a positive impact on the child's well-being and enhances the quality of life.
- According to 2018 data, in 2021 the CDC reported that approximately 1 in 44 children in the U.S. is diagnosed with an autism spectrum disorder Present study aimed to enhance the home based interventions be appropriate in the behavioural Changes, social interaction skills, activities of daily living and academic Performance of children with ASD. To educate/support primary care givers and family members to care for children with ASD

**MATERIALS & METHODS:**

**Objectives of the study:**

- To identify the degree of Autism among children with ASD
- To assess and compare the pre and post intervention status of knowledge on skill on ASD among primary care givers in experimental and control group
- To assess and compare the pre and post intervention status of level of Behavioural Changes, Social Interaction Skills ,Activities of Daily Living and Academic Performance among Children with ASD in Experimental Group and Control Group
- To assess the effectiveness of home based interventions on level of knowledge on skill regarding ASD among primary care givers between Experimental and control Group
- To assess the effectiveness of home based interventions on Behavioral Changes, Social Interaction Skills, Activities of Daily Living and Academic Performance among Children with ASD between Experimental and control Group
- To correlate the mean differed score of Behavioral Changes, Social Interaction Skills, Activities of Daily Living and Academic

Performance among Children with ASD in Experimental and Control Group

7. To associate the selected background variables with mean differed score of Behavioral Changes, Social Interaction Skills, Activities of Daily Living and Academic Performance among Children with ASD in Experimental and Control Group.

**Design:** The study employed a Quasi experimental - Non Equivalent pretest-post test control group design was conducted between April 2022 to June 2022 Sample of 20(10 each in experimental and control group) were included in the study.

**Method of data collection:** After obtaining the formal administrative approval from the Head of the institution, and the Principal of the selected special schools, the pilot study was executed.

**Phase 1:** Screening of children with ASD was done through by using ISAA by the investigator. Sample selection- 10 samples each in the experimental and control group by Non probability convenient sampling technique respectively from the selected special schools.

**Phase 2:** Pre- test conducted by self -administered structured knowledge on skill on ASD questionnaire which consisted of 25 multiple choice questions among primary care givers on day 1. Modified Behavioural Assessment scale for Behavioural changes, social interaction skills, ADL and Academic performance among children with ASD was assessed in experimental and control group by the investigator. After pretest, training and empowering the primary care givers related to Home Based Interventions .

**Phase 3:** Post test to primary care givers on day 7

**Phase 4:** Primary care givers are empowered to practice the 8weeks of Home based interventions package on their children in their home setting regarding behavioural changes, social interactions skills, ADL and Academic performance of children with ASD, This was practiced 2 hours/day using pictorial booklet provided by the investigator for the study group and routine activities was followed for the control group without any interventions.

**Phase 5:** Post test to children with ASD on 1<sup>st</sup>,3<sup>rd</sup>,6<sup>th</sup> week.

**Results:**

**Section I:** Comparison of degree of Autism score between experiment and control group With regard to the degree of autism score 74% and 72% of the experimental and control group children had moderate level of autism and 26% and 28% of the experimental group and

control group children had mild autism respectively. Statistically the chi square association revealed that there was no significant difference between the samples in both groups, thereby proving the homogeneity between groups.

**Section II: Effectiveness of Home Based Interventions on level of knowledge on skill regarding ASD between Experimental and control Group** the pretest mean score of knowledge on skill on ASD in experimental group was 13.40 with S.D 2.41 and where as in control group mean score was 13.00 with S.D 2.67 and the post test mean score of experimental group was 19.70 with S.D 2.75 where as in control group mean score was 14.40 with S.D 2.12. The calculated value of  $t = 4.83$  was found to be statistically significant at  $p < 0.001$  level. This clearly indicates that home based interventions on level of knowledge on skill on ASD was found to be effective in increasing the knowledge among primary care givers.

**Section III: Effectiveness of Home Based Interventions on behavioural changes, social interaction skills, activities of daily living and academic performance between experimental and control group**

**Table 1: Effectiveness of Home Based Interventions on behavioural problems Reduction scores between experimental and control group n=20**

	Group				Mean difference	Student independent t-test
	Experimental		Control			
	Mean	SD	Mean	SD		
Pretest	14.20	2.35	13.70	2.11	0.20	$t=0.50$ $p=0.62(NS)$
Posttest-1	13.50	2.32	13.60	2.07	1.80	$t=0.10$ $p=0.92(NS)$
Posttest-2	12.00	1.25	13.60	1.96	2.40	$t=2.18$ $p=0.05*(S)$
Posttest-3	11.50	1.18	13.40	2.12	3.90	$t=2.48$ $p=0.02*(S)$

Table1: shows that, Effectiveness of Home Based Interventions on behavioural problems Reduction score between experimental and control group.

During the pre test there was no significant difference was observed between experimental and control group. In pre test behavioral changes independent student t test score was  $t=0.50$   $p=0.62(NS)$ , with post intervention 1 score of  $t=0.10$   $p=0.92(NS)$ , with post test 2 score of  $t=2.18$   $p=0.05*(S)$  and post test 3 score of  $t=2.43$   $p=0.02*(S)$  difference was observed. This shows the home based interventions was effective in reduction of behavioural problems among children with ASD between experimental and control group,

**Table 2: Effectiveness Of Home Based Interventions On Social Interaction Skills Improved Score Between Experimental And Control Group n= 20**

	Group				Mean difference	Student independent t-test
	Experimental		Control			
	Mean	SD	Mean	SD		
Pretest	10.30	3.40	10.10	1.52	0.20	$t=0.17$ $p=0.87(NS)$
Posttest-1	11.90	3.03	10.10	1.85	1.80	$t=1.60$ $p=0.13(NS)$
Posttest-2	12.60	2.99	10.20	1.87	2.40	$t=2.15$ $p=0.05*(S)$
Posttest-3	14.30	2.11	10.40	2.07	3.90	$t=4.18$ $p=0.001****(S)$

Table 2: Shows that, Effectiveness of Home Based Interventions on Social interaction skills improved score between experimental and control group During the pre test there was no significant difference was observed between experimental and control group.

In pre intervention social interaction skills independent student t test score was  $t=0.17$   $p=0.87(NS)$ , with post test 1 score of  $t=1.60$   $p=0.13(NS)$ , with post test2 score of  $t=2.15$   $p=0.05*(S)$  and post test 3 score of  $t=4.18$   $p=0.001****(S)$  difference was observed. This shows the home based interventions was effective in improved social interaction skill among children with ASD between experimental and control group.

**Table 3: Effectiveness of Home Based Interventions on ADL skills**

**improved score between Experimental and Control group n=20**

	Group				Mean difference	Student independent t-test
	Experimental		Control			
	Mean	SD	Mean	SD		
Pretest	26.80	7.98	25.40	6.77	1.40	$t=0.42$ $p=0.67(NS)$
Posttest-1	30.70	7.17	25.60	6.69	5.10	$t=1.64$ $p=0.11(NS)$
Posttest-2	33.70	8.07	25.70	6.82	8.00	$t=2.40$ $p=0.03*(S)$
Posttest-3	35.30	7.20	26.00	6.73	9.30	$t=2.98$ $p=0.01***(S)$

Table 3: Shows that, Effectiveness of Home Based Interventions on ADL skills improved score between Experimental and Control group

During the pre test there was no significant difference was observed between experimental and control group. In pre test ADL skills independent student t test score was  $t=0.42$   $p=0.67(NS)$ , with post test 1 score of  $t=1.64$   $p=0.11(NS)$ , with post test 2 score of  $t=2.40$   $p=0.03*(S)$  and post test 3 score of  $t=2.98$   $p=0.01***(S)$  difference was observed. This shows the home based interventions was effective in improved ADL skills among children with ASD between experimental and control group.

**Table 4: Effectiveness of Home Based Interventions on Academic performance skills improved score between Experimental and Control group n=20**

	Group				Mean difference	Student independent t-test
	Experimental		Control			
	Mean	SD	Mean	SD		
Pretest	25.60	4.74	26.00	3.09	-0.40	$t=0.22$ $p=0.82(NS)$
Posttest-1	26.90	4.70	26.20	2.78	0.70	$t=0.41$ $p=0.69(NS)$
Posttest-2	31.40	4.25	26.40	3.34	5.00	$t=2.92$ $p=0.01***(S)$
Posttest-3	34.00	5.42	26.50	3.50	7.50	$t=3.67$ $p=0.01***(S)$

Table 4: Illustrates that, Effectiveness of Home Based Interventions on Academic performance skills improved score between Experimental and Control group

In pretest and post test 1 there was no significant difference between experimental and control group. In posttest-2 and post test 3 there was a significant difference between experimental and control group. Statistical significant difference between experimental and control group was assessed using student independent t-test.

**Section IV:** The correlation between the Behavioral problem reduction score with improved ADL score and academic performance score was significant, moderate, positive correlation

Improved social interaction skills with improved academic performance score was significant, moderate, positive correlation and behavioral problem reduction score with improved social interaction skills score was significant, fair, positive correlation and improved social interaction skills with improved ADL score was significant fair positive correlation in experimental group.

No significant correlation was seen in the control group.

**DISCUSSION:**

The findings of the study was supported by the study conducted by Hemamali Perera, Kamal Chandima Jeewandara, Sudarshi Seneviratne, and Chandima Guruge (2016) assessed the effectiveness of Outcome of Home-Based Early Intervention for Autism in Sri Lanka, the outcome of a home-based autism intervention program (HBAIP) in 18- to 40-month-old children newly diagnosed and treatment naïve. Intervention was exclusively implemented at home. Outcome was measured at 3 months and 6 months after intervention and compared with a group of newly diagnosed children with autism who were >40 months at intake but had not received any autism specific clinical management. Five selected parameters of behavior representing social interaction and Social communication was used to assess outcome. Results showed a statistically significant improvement between pre intervention and post intervention in all the

measured parameters. The effect size was large when compared to pre intervention and gains were indicated by changes in mean scores and values within a narrow confidence interval. Highest gains were in first 3 months of post intervention which continued up to 6 months. Although the comparison group was more advanced in the measured skills at intake, they were significantly below the level reached by experimental group at 3 months and 6 months after intervention.

#### LIMITATIONS

- It was difficult for the nurse researcher to obtain setting permission from the special school authorities.
- Arranging the Primary care givers at the same time was difficult.
- Initially primary care givers are not sharing the child information ,However given Confidentiality to primary care givers

#### CONCLUSIONS

1. The conclusions drawn from this study is that Home based interventions was very effective and significantly enhanced the knowledge on skill of the primary care givers.

2. The primary care givers interaction of 2 hours/day with their children with ASD also statistically proved that there was a significant reduction in the behavioural problems and also improved in the child's social interaction skills, ADL and academic performance.

3. The study also showed significant correlation between the variables in experimental group there by defining the relationship between reduction in behavioural problems leading to improvement in the child's social interaction skills, ADL and academic performance. There by home based intervention education to the primary care givers is highly recommended as an intervention programme which can be done at the special schools or community based entity.

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