

# Efficacy of Emotional Enhancement Intervention Along with Cognitive Behaviour Techniques for Children with Autism Spectrum Disorder

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## Abstract

**Background :** Autism Spectrum Disorder (ASD) is a neurodevelopmental condition characterized by the prolonged deficits in social emotional reciprocity, repetitive pattern of behaviour, difficulties in communication. Cognitive behaviour interventions (CBI) are found to be effective in restructuring the thought process, providing affective education and teaching cognitive, behavioral skills especially in children diagnosed with ASD. Children with ASD have major difficulties in recognizing and responding to emotional states of others which emphasizes the need and importance of developing a standardized emotional based intervention module.

**Methods :** Case control experimental method was used in this study. We have categorized 6 children into two group namely control group ( 3 children ) and experimental group (3 children).

To develop the standardized emotional enhancement intervention for individuals with ASD this pilot study module was carried out along with CBI. The study outcome was measured in Pre and Posttest by using Indian assessment scale for autism. Paired sample t test was performed by using SPSS.

**Results :** The results indicate that the focused intervention enhance the behavioral, cognitive and emotional functioning of children with ASD.

**Conclusion :** From this study we found that focused intervention can produce significant improvement in the emotional reciprocity of Children with ASD.

**Keywords:** Autism, Behaviour, Cognitive, Emotional, Intervention, Module

## Introduction

Autism is a neuro developmental condition which predominantly affects ones adaptive behaviour, social-emotional and language communication. In the DSM 5 guidelines by American Psychiatric Association (2013),

<sup>1</sup> Autistic disorder, Asperger's disorder, Pervasive developmental disorder have been consolidated into one broader category of autism spectrum disorder to classify more focused treatment methods for the specific impairments identified. Cognitive behaviour therapy is found to be effective in individual with anxiety disorders, <sup>2-3</sup> depression and dysthymia, <sup>4</sup> bipolar disorder, <sup>5</sup> personality disorders, <sup>6</sup> substance use disorders <sup>7</sup> and also found to be effective for treating maladaptive behaviour and psychological distress. <sup>8</sup>

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The focused CBI compresses of variety of cognitive, behavioral, and emotion focused techniques and found to be effective in improving adaptive functioning level of individual with autism spectrum disorder.<sup>9-12</sup> Emotions are predominantly divided into six 'basic' emotions (happy sad, angry, afraid, disgusted and surprised) and numerous 'complex' emotions. Complex emotions involve attribution of the cognitive state where as the basic emotions are universally recognized.<sup>13</sup> In spite of having difficulties in emotional recognition, the individuals with ASD emotional state can be enhanced by systemization.<sup>14-15</sup> To develop the standardized intervention module that could enhance the basic emotional state of individual with ASD this pilot study was carried out.

## Method

### Aim :

To find the efficacy of focused cognitive, behavioral and emotional enhancement intervention for children with autism spectrum disorder.

### Hypothesis for the study:

H<sub>a</sub> There will be a significant improvement in the emotional functioning of children with autism spectrum disorder after the focused intervention.

**Study Design :** Case control experimental research design was opted for this study

**Study Place :** National Institute for Empowerment of Persons with Multiple Disabilities (Divyangjan) (NIEPMD), Chennai, India.

**Study Duration :** 6 sessions over the period of 3 weeks

### Inclusion criteria:

§ Age – 4 to 6 years

§ Intelligent quotient – 70 and above

§ The child with minimum level of verbal communication ( 1 word or 2 words sentence )

§ Child with mild level of Autism spectrum disorder

§ Children with parent / guardian are included

### Exclusion criteria:

§ Children in the category of moderate and severe level of autism

§ Children with any co-morbid condition such as Intellectual Disability, ADHD, childhood psychosis, CP etc.

**Sampling Technique :** Purposive sampling technique.

### Sampling Method :

Clients who were coming up for the follow up session in group therapy at NIEPMD were taken in for the study. A group of 6 mothers having children with ASD between the age of 4 to 6 were selected. In the group therapy 3 children (2 male, 1 female) randomly selected for the experimental group and the other 3 children ( 2 male, 1 female) were considered for the control group. The group therapy involves play activity, singing and dancing that enables the social communication aspect and each children were trained by the mother of another child to develop the social bonding towards others. Out of the 6 children the experimental group (3 children) were selected for the focused intervention in cognitive, behavioral and emotional aspect.

**Tool used :** Indian Scale for Assessment of Autism (ISAA). Developed by National Institute for Mentally Handicapped (NIMH) (2009) – 40 items. It is rated on a 5-point scale ranging from 1 (never) to 5 (always) and divided under six domains such as (i) Social relationship and reciprocity. (ii) Emotional responsiveness, (iii) speech – Language and Communication, (iv) Behaviour patterns, (v) Sensory aspects, (vi) Cognitive component. The scoring lesser than 70 indicates normal, 70-106 indicates mild autism, 107-153 indicates moderates autism, more than 153 indicates severe autism. The maximum possible score that can be obtain is 200.

### Procedure:

The consent for the study was obtained from the mothers of experimental group children. Introductory comment by the researcher about voluntary participation and the right to withdraw from the study were informed. Anonymity and confidentiality were assured. The complete intervention and assessment was carried out

with the support of trained clinical psychology scholar under the supervision of the certified clinical psychology lecturer. The Pre-test was administrated on both control and experimental group of the selected children and the interventions was carried out for the period of 6 sessions ( 2 sessions in a week ) followed by the post test.

**Statistical analysis :** Descriptive statistics and t test was performed by using the SPSS v25.

**Intervention :**

The intervention was consist of three major area thus, (i) **Behaviour :** The children sitting tolerance and eye contact was focused. a) **Sitting tolerance :** The children were trained for sitting in one place for longer duration by

the clinical psychologist. b) **Eye contact :** Ball catching method was used by the therapist to improve the focused eye contact of the children. (ii) **Cognitive :** Peg grading board activity was given consistently to improve their cognitive ability functioning (iii) **Emotion :** As emotion has to many complex dimension we had only taken up the core basic emotions such as happy and cry (sad). After the above activity the children were shown with pictures that made up of color in the A4 size showing the images of smiling children (Picture 1) followed by the images of crying children. Then While showing the crying portrait they were trained to understand when significant others, such as a mother or fathter is crying the child should wipe their face.. In this method their hand gesture, vocal communication towards expressing emotions were enhanced.



**Picture 1 : Showing the happy and crying images of children which was used for the study.**

Then, 3 minutes video of a baby smiling and crying was shown to them by using the laptop computer to stimulate the imitation behaviour in the emotional aspect. After 4 sessions of training, they were made to sit in front of the mirror to express their learned emotion. When prompting in regard to happy or crying the experimental

group children were able to project the same in front of a mirror. Their blend emotions towards these basic emotional aspects were enhanced. Each activity was carried out for 5 to 10 minutes with the assistance of the mother and the therapist. After the completion of 6 sessions the emotional activity was conducted with the

overall group children ( Total 6 : Male 4, Female 2) and we found that the experimental group had performed the activity better than the control group because of the focused intervention.

### Results

**Table 1 : Shows the Pre and Post - test score of ISAA in the control and experimental group children**

S.No	Subjects Initial	Control Group		Subjects Initial	Experimental Group	
		Pre Test	Post Test		Pre Test	Post Test
1	RN (Male)	1.97	1.95	AN (Male)	1.87	1.82
2	SK (Male)	2.0	1.97	SA (Female)	1.90	1.85
3	TS (Female)	1.95	1.95	SN (Male)	1.90	1.80

The control group children ( 2 Male, 1 Female) have undergone the focused cognitive and behaviour based interventions for the period of 3 weeks about 45 minutes in each sessions. The Experimental group children ( 2 Male, 1 Female) was trained with CBI and emotional enhancement intervention techniques as mentioned in this study.

**Table 2 : t test value of control and experimental group children**

Paired Sample Test						
		Mean	SD	t	df	P
Control Group						
1	Pre Test	1.97	0.2517	1.04	2	0.17 NS
2	Post Test	1.95	0.1210			
Experimental Group						
1	Pre Test	1.89	0.1732	3.95	2	0.01*
2	Post Test	1.82	0.2517			

**NS – Non significant \*0.05 significance level**

The control group t value was found to be  $t=1.04$  which was non-significant whereas experimental group t value was  $t=3.95$  and found to be significantly different. Hence hypothesis stating there will be a significant improvement in the emotional functioning of children with autism spectrum disorder after the focused intervention is accepted. Our study findings also confirming the results of Samson, A.C e al 2013, and Lee G T et al 2018. <sup>16-17</sup>

To study the emotional aspect specifically in the children with ASD the following developed questions were also administered in Pre and Post Test. The respective mothers of children with ASD were the participant of the following questionnaire.

**Emotional enhancement checklist :**

- The child is comprehending the happy and sad

emotion Yes / Moderately / No

· The child is expressing the happy and sad emotion Yes / Moderately / No

· The child can manage/control the exaggerated

emotion Yes / Moderately / No

The scoring was formulated by 3 point rating scale namely (i) Yes indicates - 3, (ii) Moderately indicates - 2 and (iii) No indicates - 1. Maximum possible score is 9.

**Table 3 : Shows the Pre and Post - test raw score of Emotional enhancement check list ( Short version)**

S.No	Subject's Initial	Pre-Test	Post Test
1	AN (Male)	4	7
2	SA (Female)	3	5
3	SN (Male)	4	8

**Table 4 : Shows the Mean , SD and t value of the experimental group ( N - 3) in Emotional enhancement check list :**

		Mean	SD	t	df	P
1	Pre Test	3.66	0.577	3.95	2	0.01*
2	Post Test	6.66	0.14			

**P<0.05** \* t value is significant at 0.05 level

From the table 4 we could empirically inferred that the focused emotional intervention will enhance the emotional regulation of children with ASD. It also confirmed by the study of Vahabzadeh, A et 2018. <sup>18</sup>

**Discussion**

CBI programs use a combination of approaches to increase a learner’s awareness of self and others. This can sometimes be coupled with the teaching of social skills to assist the learner with interpersonal skills and may incorporate other evidence-based practices. In other words, these specific types of intervention programs provide psychoeducation and assist a learner in restructuring the thought process, providing affective education, and teaching cognitive and behavioral skills to assist in basic decision-making, problem solving and coping. <sup>19</sup> The attempt we tried to represent

in this study was that the blend emotion can be enhanced by the focused emotional enhancement intervention technique also we emphasize the need and importance of developing a standardized intervention module for treating emotional regulation in individual with ASD.

**Conclusion**

The intensive focused intervention can produce significant improvement in the behavioral, cognitive and emotional functioning of individual with ASD. The pilot study module of emotional enhancement intervention produce a significant improvement in the emotional state of children with ASD.

**Limitations and Future Directions :**

The childhood period is very crucial for one’s development hence the module and the method we

implemented is most suitable for the age group for 4 to 8. Children below the age of 4 and above the age of 8 may need modified intervention technique. Early diagnosis and intervention methods are much effective in children with ASD.

#### Implications :

The instruments and techniques we used is easily accessible by the lower family economic background people who have children with ASD. After obtaining the proper technique from the therapist the child's parents can implement the same in the home environmental set up for the effective and comprehensive care.

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#### Declarations :

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**Conflict of Interest :** None declared

**Ethical approval :** The study was approved by the Institutional Ethics Committee

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