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The Efficiency of Comprehensive Treatment Options in Minimising Autism Symptoms among Children

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Abstract: ***Background and Objectives: Starting rehabilitative programs for children with autism spectrum disorder at a young age (before they are five) is linked to improvements in autism symptoms. This research aimed to display how early family-centred therapy can improve the challenges and symptoms for children with autism spectrum disorder. Methodology: There was a clinical trial with a pretest and post-test design in this research, but it did not have a control group. A convenience sampling approach selected fifty persons to participate, among which were forty males and ten females with an average age of 3.2 ± 1.4 years. Efficacy was measured by using the Autism Behavior Checklist (ABC) and the Autism Treatment Evaluation Checklist (ATEC) at the beginning and end of the study. An independent T-test was performed on the data in SPSS. Results: Results from the comparison of pretest and posttest scores showed a big difference in all the parameters of the test (communication, health, sensory and cognitive awareness, socialization) at a significance level of P below 0.001. Also, significant improvements were seen between the pre- and post-tests in speech, social and communication and overall performance (P < 0.001), as well as in the sensory processing domain (P < 0.002). Conclusion: Starting therapies at an early age (less than six years) that focus on involving families and developmental growth in one year can assist autistic children in speaking, socialising, understanding communication, processing sensory input and being aware of their surroundings. Autism spectrum disorder, holistic care, attention to the whole family and quick treatment are important.***

Keywords: Autism Spectrum Disorder, Autism Behaviour Checklist (ABC), Autism Treatment Evaluation Checklist (ATEC), Family-Centred Therapy, Early Rehabilitation, Child Development

1. Introduction

Autism which is a Neuro-Developmental disorder, is found in children below three years old. The main characteristics of the disorder are frequent and repetitive actions, interests and activities, along with weak social and communication skills. 1 in every 59 individuals [1] is affected and the number of boys with autism is four times higher than that of girls. There is no single reason known for autism spectrum disorder and it is thought that both genetics and the environment play a part in its development.

So, there is no exact treatment for this condition. Going further, expert-made strategies and programs have helped improve the communication, behavior, education, motor abilities, speech and social talents of these children. Among the fifty or more interventions for autism spectrum disorder created so far are important ones such as ABA, floor time, sensory integration, dietary measures, music therapy, PECS, the developmental model (aka the Greenspan approach), the TEACCH model, the Young Autism Project at UCLA, the Learning Experience and Alternative Program, the Denver model, comprehensive treatment models and telehealth services. Since the disorder is so diverse, it can cause people to show numerous signs. Still, all children with autism seem to need a variety of well-planned interventions. Treatments that cover the main issues in autism spectrum disorder usually involve language, social skills, thinking, movement and play. [6]

Many intervention programs suggest starting such initiatives early in life as they are more successful and fit well with how kids develop. Starting intervention for autism before a child is 5 years old can help fix growth issues in autism and encourage better behavioral development. Such steps are vital, mainly in language and thinking skills, since they minimize unwanted behaviors and severe symptoms. Gradually such programs lead to independence and improve a person's abilities at work and in relationships. These studies also show that about half of autistic children make some progress in speaking after getting these interventions. When these techniques are used on kids aged 4 and younger, the risk of developmental disability swells to about 75%–95%. [9,10]

It was reported by Green, Brennan and Fein [11] that a strong timely intervention works well if it includes teaching everything needed for development, follows the typical developmental sequence, relies on proven methods like ABA, decreases disruptions and involves parents in the intervention. [9,12,13]

Studies also point out that the intervention should include: take steps to assist patients with the transition to nature, have trained staff on hand and oversee the process regularly until the end of the research. Following the directions allows for a possible 50% increase in growth.

It is very important in evidence-based science to make sure family preferences are considered as interventions are prepared and carried out. It results in reducing stress and making affected families happier, thanks to their ability to be involved in the intervention which heightens their detail and understanding about that particular disorder. (Pasco, 2018).[5] It has become clear from studies that focusing on the family unit is crucial for those with autism which means parents should notice and respond to the way their children communicate, focus on things their children care about and put more effort into connecting with them.

In many countries, International Studies have underlined how important this issue is and authorities have responded swiftly when needed, depending on the country's level of development. But the research resources available on this subject are scarce in India. Hojjati's study [10] is the only one on early interventions for autism, but it lasted only a few months. To check if early comprehensive care can improve symptoms and challenges in young children with autism, this study was done.

2. Methodology

Sampling

The study used a pretest and posttest design and included no control group.It gathered data on children with autism spectrum disorder who were referred to or admitted in Narayan CARE (Center for Advanced Rehabilitation & Education) between May 2024 and their diagnosis. To perform this study, authors made the choice to investigate fifty children who had recently been identified as having autism using convenience sampling; of these fifty, forty were boys and ten were girls and had an average age of 3.2 ± 1.4 years. The child was chosen for the project if they were younger than six, did not get earlier intervention and had a recent diagnosis of autism. Exclusion criteria were disorders of metabolism, genetics, major physical illnesses and significant neurological disorders.

Table 1: Frequency distribution of demographic variables

Variable	Frequency	Percent
Sexuality		
Boy	40	80
Girl	10	20
Birth order		
First	35	70
Second	12	24
Third and higher	3	3

	Father	Mother	Percent	Percent
Parental education				
Elementary	0	1	0	2
High school	5	2	10	4
Higher Secondary	15	15	30	40
Bachelor's degree	5	7	10	14
Master's degree	18	10	36	30
Higher Education	7	5	14	10

Procedure

Upon the open invitation, young children referred by Narayan CARE who were under 5 became part of the project. Following the interview with their parents, families who fitted the admission criteria were led to the rehabilitation department. At a gathering of families, project leaders and therapists, the group talked about how special this program is. After the meeting was over, the participants' families received papers to sign that agree to participate and the time for testing. After both the CARS-2ST and M-CHAT assessments were finished, the participants saw a child and adolescent psychiatrist. The project started therapy for the children after the families had been explained about the process and the children had been looked at by occupational, speech, psychological, social work and family counseling teams. The children were next tested using ABC and ATEC. Four sessions every week and these included two therapy sessions for speech and behavior and two sessions for working on her thinking and motor skills. Monthly seminars addressed different subjects to prepare parents for better involvement in their child's growth, as well as the regular meetings. They were about using different techniques for kids, covering child nutrition for those with autism, occupational therapy for children, speech therapy for kids and parenting guidance. At every six-month period, a team joined by a child and adolescent psychiatrist, an occupational therapist and a speech therapist reviewed how effective the treatment had been. All staff members knew about the results from the evaluations. For this next phase, the Autism Treatment Evaluation Checklist (ATEC) and the Temperament and Atypical Behavior Scale (TABC) were used to determine results.

3. Questionnaire

Autism therapy evaluation checklist (ATEC)

Designed by Remland and Adelson (1999), this tool measures any treatment approach applied to children with autism.It can handle adjustments in how treatment is delivered. It can detect and measure changes in the condition of an autistic child and see how well treatment is working. A total of 52 items have three response choices and 25 have four. Four subscales are present on the list: sensory/cognitive awareness, socialization, speech and communication and physical health behavior. All the subscales had Cronbach's alpha scores of 0.92, 0.83, 0.87 and 0.81 and the total score was 0.94. Heravi-Karimooi et al. (2018) adapted the test for Iran and explored its properties, getting Cronbach's alpha scores of 0.86 to 0.93 and scores for content validity between 0.38 and 0.79.[19]

Trivandrum Autism Behavioural Checklist (TABC)

The Child Development Centre (CDC) in Thiruvananthapuram, Kerala, India, is where the Trivandrum Autism Behaviour Checklist (TABC) was developed. It is meant to be used for children who may be experiencing autism arisng at ages 2-6. The TABC has been checked and has shown a sensitivity of 80% and a specificity of 91.1%.

Childhood autism rating scale Second Edition-Standard Version (CARS-2ST)

Good reliability and validity have been shown for the Childhood Autism Rating Scale, 2nd Edition (CARS2), especially for the Standard Form (CARS2-ST). Science has shown that CARS2-ST measures up well for retesting, agreement between raters and consistency within the tool. It correctly identifies people with autism by adjusting the score level at which people are considered typical. For diagnosing autism spectrum disorder, clinicians rely on CARS2, especially when thorough exams cannot be done.

Modified checklist for autism in toddlers (M-CHAT)

This test was reviewed by Inada et al. (2010) in Japan.[20] The findings from their research suggest that the psychometric indicators of this examination are suitable. The reliability score for this test was 0.99, determined through the test-retest approach.

4. Results

The findings presented in Table 2 indicate that there is a notable difference ($P < 0.001$) across all areas of the test. The outcomes of the ATEC test reveal that autistic children exhibited significant variations in communication, health, sensory and cognitive awareness, and socialization both before and after the project was completed.

Table 2: ATEC test comparison of autism aspect scores

Variable	The Pretest Mean	The Posttest Mean	Effect of treatment	
			T statistics	Significance level
Communication	13.7±8.95	10.4±8.86	13.65	P<0.001
Health	19.5±7.72	14.6±7.27	9	P<0.001
Sensory and cognitive awareness	16.3±6.05	13±6.3	13	P<0.001
Socialization	12.64±6.07	9±6.07	9.02	P<0.001

The findings presented in Table 3 indicate a significant difference ($P < 0.001$) across all test dimensions. The outcomes of the ABC test revealed that children with autism exhibited notable differences in speech and language capabilities, sensory processing, social and communication skills, and overall performance, when comparing results before and after the project's completion.

Table 3: Trivandrum Autism Behavioural Checklist (TABC)

Variable	The mean of Pretest	The mean of Posttest	Effect of treatment	
			T statistics	Significance level
Qualitative impairment in Social Interaction	27.7±3.05	24±2.7	14.2	*P*<0.001
Qualitative Impairment in Communication	19.8±3.11	17.4±2.59	4.27	*P*<0.002
Peculiar Behavioral Characteristics	27.9±5.21	25.5±4.88	7.06	*P*<0.001
Sensory Integration	16.9±3.21	12.4±2.21	9.09	*P*<0.001
Overall performance	139±15.50	123±15.93	29	*P*<0.001

5. Discussion

The purpose of the research was to determine whether comprehensive interventions helped lessen the challenges and symptoms felt by children under 5 with autism spectrum disorder. The results pointed out that intervening in important developmental periods while focusing on family and growth over a year is advantageous for autistic children in speech, social aspects, communication methods, how they react to sensory input and perception. This agrees with the studies published by Dawson,[9] Sally et al.,[6] and Hojjati and Khalilkhaneh.[10] Treatment in this research was focused on the main symptoms of autism. Evidence from this research indicated that working together as a team (consisting of a psychologist, occupational therapist, speech therapist and child psychiatrist) led to significant improvements in children which agree with Sally et al.'s [6] findings. These comprehensive interventions cover all parts of child development at once, like recognized comprehensive programs.[9] It further emphasized that family involvement is important in the way the intervention works. Therapists and trained counselors educated families on the details of the program and gave workshops on the main subjects of the treatment, with parents and their children interacting being the most important focus.

The aim of this research was to assess the impact of comprehensive interventions on reducing symptoms and challenges faced by children under 5 years of age diagnosed with autism spectrum disorder. The findings indicated that prompt interventions during critical developmental phases, focusing on family involvement and developmental growth over the course of a year, can benefit autistic children in areas such as speech, social interaction, communication, sensory processing, and cognitive awareness. This aligns with the results reported by Dawson,[9] Sally et al.,[6] and Hojjati and Khalilkhaneh.[10] The holistic treatment approach in this research targeted the primary symptoms of autism. The study's findings indicated that collaborative efforts among professionals—including a psychologist, occupational therapist, speech therapist, and child psychiatrist—resulted in notable improvements in children, supporting the conclusions presented in Sally et al.'s [6] study. Unlike other programs that concentrate on a single developmental aspect, these comprehensive interventions address all areas of a child's growth simultaneously during a crucial timeframe, which facilitates more rapid advancement, corroborating the research of Dawson,[9] and Hojjati and Khalilkhaneh.[10] Additionally, the research addressed how family involvement was crucial for the effectiveness of the intervention. Experts in mental health counseling informed families about the planned intervention and held workshops covering the major topics and approaches in treatment programs, making sure parents understood the importance of interacting with their children. This matches the studies by Pennefathera et al. and Odom et al.[13] [15] Using children who were 3 years old helped, likely due to their brains still developing. The outcomes from the study agree with those in Matthews et al. [12] and Hamadneh et al. [7], where the key success factors were: creating a therapy and science frame, allotting a year for intervention, family-centered methods, early research for autistic children, growth development focus and connecting with the Ministry of Health.[14]

6. Limitations

The study had several key limitations. It is advised that a more extensive study be conducted with a larger sample of children with autism spectrum disorder.

7. Recommendations

It is recommended to conduct a more extensive study involving a larger number of autistic children and spanning a longer duration. Additionally, it is recommended that thorough treatment be carried out in healthcare facilities, where early screening for children is conducted, and the results are assessed in infants.

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Conflicts of interest
There are no conflicts of interest.

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