The Significance Of Early Intervention In Toddlers With Autism: An Examination Of The Parent-Centred Approach.

Mr. Senthil Thirusangu[1*] , Dr. Kuldeep Singh Gujar[2]

[1]Phd Scholar, Mangalayatan University, Uttar Pradesh India
[2]Phd Guide, Mangalayatan University, Uttar Pradesh India.

***Correspondent Author:** Mr.Senthil Thirusangu
*Email id: senthilamma.t@gmail.com

Abstract-
In India, the primary approach to managing Autism Spectrum Disorders (ASD) is psychosocial treatments, but children typically undergo diagnostic testing only after reaching age 4. This delay in providing timely management interventions can have significant consequences for the well-being and development of these children. This study aimed to conduct a comprehensive intervention on children, focusing on various aspects of their development, targeting parents as the primary mode of communication. The intervention consisted of supplementing current care with active involvement of parents and children in all sessions, lasting 4 hours per day, spanning 6 days. The study found that all participants met the full criteria outlined in the Modified Checklist for Autism in Toddlers, Revised with Follow-Up (M-CHAT-R™) for being at risk for ASD. The active treatment group exhibited notable enhancements in the final assessment measure, known as the Assessment, Evaluation and Programming System for Infants and Children (AEPS®-3). The findings suggest that implementing a randomised two-group pre-post comparative design for intervening with children at risk for ASD is feasible and well-received by parents.

INTRODUCTION

Welcome to the world of autism, a complex and intriguing subject that has captivated researchers for the past 60 years. Since its initial discovery, autism has evolved to encompass a range of related developmental disorders, including Autistic disorder, Asperger's syndrome, Pervasive developmental disorder not otherwise specified (PDD-NOS), childhood disintegrative disorder, and Rett's disorder[1]. These disorders have collectively given rise to what is now known as Autism Spectrum Disorder (ASD). ASD is a comprehensive framework that explains the various impairments in social, behavioural, communicative, and imaginative development, as well as the presence of repetitive and stereotyped patterns of behaviour and interests. In the realm of early childhood, the term 'developmental' pertains to the emergence of symptoms within the initial two years of a child's life[2]. In terms of the prevalence of children with autism, India currently ranks 21st with a rate of 88.50 per 10,000 children. This places India behind countries like Qatar, which has the highest prevalence at 151.20 per 10,000 children, and the United Arab Emirates, which has the second highest prevalence at 112.40 per 10,000 children. In a recent meta-analysis study conducted in 2018, compelling evidence has emerged regarding the prevalence of autism among children under 10 years of age in India. The study reveals that approximately 1 in 100 children in this age group are affected by autism [3].

In this discussion, we will explore the concept of early intervention and its various methods, both comprehensive and non-comprehensive. These methods aim to help children develop the necessary skills to navigate society successfully in their later years. In various studies, it has been observed that interventions tend to prioritise specific developmental areas within a specific timeframe. However, this approach can lead to a lack of balanced development across other areas, resulting in an imbalance in overall child development [4].

In this introduction, we will explore the importance of a comprehensive treatment programme for children at risk for Autism Spectrum Disorder (ASD). Many studies have shown that these children often struggle in various multidisciplinary areas, highlighting the need for a more holistic approach to their care. The purpose of this study is to focus on the comprehensive assessment and evaluation of a child's development. All areas of development will be examined simultaneously in order to analyse and understand the influence that one area has on another [5].

METHODOLOGY AND MATERIALS

A quasi-experimental study was conducted at a government-run autism training centre located in Trivandrum city, Kerala, India. The study utilised a quantitative research approach. The study population consisted of all the children in Trivandrum District, aged 2 to 3 years, who were diagnosed with a risk for ASD. The study sample consisted of 70 children, including both males and females. The children were selected from nuclear families and represented a range of ages and different religions.

The data collection process involved interviewing parents who visited different child developmental delay identification centres. The parents were randomly selected and asked about the health of their children. Specifically, parents whose at

least one child showed deviation from normal behaviour were chosen. Only those parents who voluntarily participated in the study completed a demographic form. This form included information such as the child's name, age, gender, religion, type of family, awareness of Autism Spectrum Disorder (ASD), and awareness of early intervention for ASD risk. Additionally, the parents completed a standard diagnostic tool to assess the risk for ASD among their children. A pilot study was conducted over a period of twenty days to assess feasibility. The study utilised a reliable and valid standardised tool. The findings from the pilot study provided valuable insights and allowed for the progression of the main study.
A total of 70 subjects were randomly assigned to either the study group or the control group. The study group received a research intervention using the standardised tool, Assessment, Evaluation and Programming System for Infants and Children (AEPS®-3), in addition to routine care. This intervention was administered for 4 hours every day for 6 consecutive days, with one day off. On the other hand, the control group only received routine treatment from the training centre. The outcome was measured at regular intervals of every second month, starting from the same dates after the intervention began. The intervention lasted for a total of eight months.

DATA ANALYSIS

Descriptive and inferential statistics were calculated in accordance with the research objectives and hypothesis to analyse the empirical data and investigate any observed differences. The categorical variables were summarised using frequency and percentage measures. The quantitative variables in the dataset were summarised using the mean and standard deviation (SD) for data that followed a normal distribution. For variables that did not follow a normal distribution, the median and interquartile range (IQR) were used for summarization. A chi-square test was conducted to evaluate the presence of a significant difference in the baseline frequency distribution of demographic variables between the experimental and control groups. This analysis was performed to ascertain the comparability of the two groups.
A two-way repeated measures mixed ANOVA was conducted to evaluate the impact of an intervention on different skill domains and overall skill level. The Bonferroni correction method was utilised in order to account for the issue of TypeI error inflation that can occur when conducting multiple comparisons. Whitney U test or Kruskal-Wallis test was conducted to examine the presence of a significant relationship between the overall development score and different domains of the development scores with selected demographic variables, in cases where the data did not meet the assumption of normality. The Whitney U and Kruskal-Wallis tests were conducted to analyse the data. In this study, a significance level of $p<0.05$ was used to determine statistical significance. The data analysis was conducted using SPSS and EZR software.

DISCUSSION OF RESULTS

The American Academy of Paediatrics has made recommendations for universal screening of autism in children at 18 months of age. This highlights the need for the development of interventions that are suitable for toddlers who are at risk of developing Autism Spectrum Disorder (ASD).
The current study focused on the importance of early detection and intervention for a developmental disorder that typically emerges in children as young as 1.5 years old. It is concerning that this disorder often goes unnoticed until the child reaches the age of four, which significantly delays the opportunity for appropriate diagnosis and intervention. Early diagnosis and intervention have been shown to have a positive impact on the treatment outcomes, highlighting the need for improved development in various areas for these children. The study focused on a sample of 35 very young children, aged between 2 and 3 years. The majority of the children were from nuclear families, with a higher percentage of males. Additionally, most of the children came from Hindu families, and a significant portion of their parents had little knowledge about Autism Spectrum Disorder (ASD) and were not aware of early intervention strategies.

Table I: Frequency and percentage of demographic variables for both experimental and control group

Variables		**Experimental Group (n=35)**		**Control Group (n=35)**		**Chi square test statistic (P value)**
		Frequency (f)	**Percentage (%)**	**Frequency (f)**	**Percentage (%)**	
Age (in months)	24-30	11	31.4	10	28.6	0.068 (0.794)
	31-36	24	68.6	25	71.4	
Family type	Nuclear	35	100	35	100	-
	Joint	0	0	0	0	
Religion	Christian	6	17.1	4	11.4	1.24
	Hindu	25	71.4	24	68.6	(0.538)
	Muslim	4	11.4	7	20.0	
Gender	Female	8	22.9	4	11.4	1.609 (0.205)
	Male	27	77.1	31	88.6	
Awareness on ASD	No	25	71.4	28	80.0	0.699 (0.403)
	Yes	10	28.6	7	20.0	
Awareness on AEPS®-3	No	35	100	35	100	-
	Yes	0	0	0	0	

The research findings indicate that the implementation of early age diagnosis and intervention has demonstrated significant effectiveness in promoting developmental progress across various domains. Specifically, there was a notable increase in fine motor skills by 64% (Figure 1), gross motor skills by 65% (Figure 2), adaptive behaviour by 77% (Figure 3), cognitive behaviour by 52% (Figure 4), and social communication by 68%. These results suggest that early identification and targeted interventions can have a positive impact on overall development in these areas. According to the research findings, Figure 5 illustrates that social behaviour accounts for approximately 78% of the observed behaviours. In Figure 6, it is observed that the group of children under study demonstrated a significantly higher overall growth rate of 66% compared to the other group, which exhibited only 51% growth in terms of overall development.

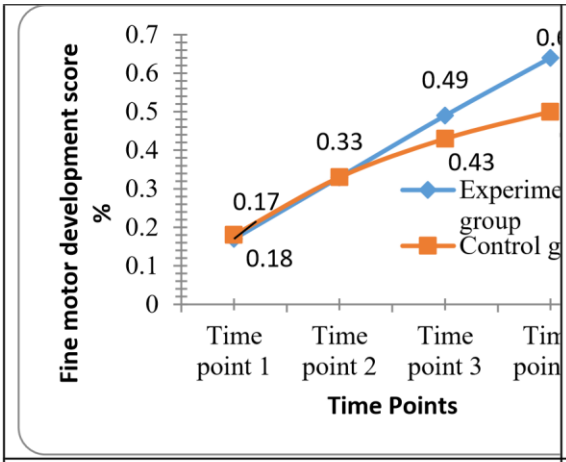

Figure 1: Profile plot showing change in Fine motor development score across time between groups

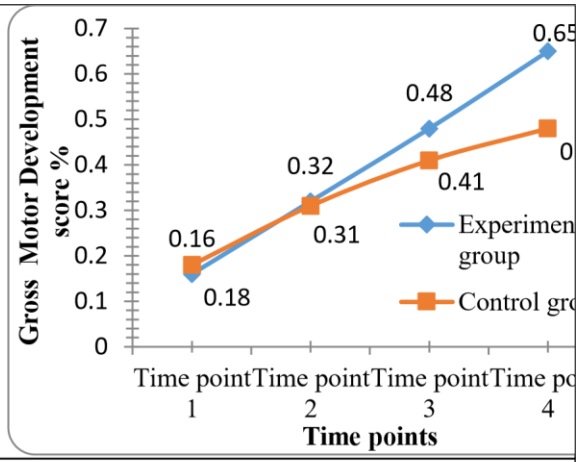

Figure 2: Profile plot showing change in Gross motor development score across time between groups

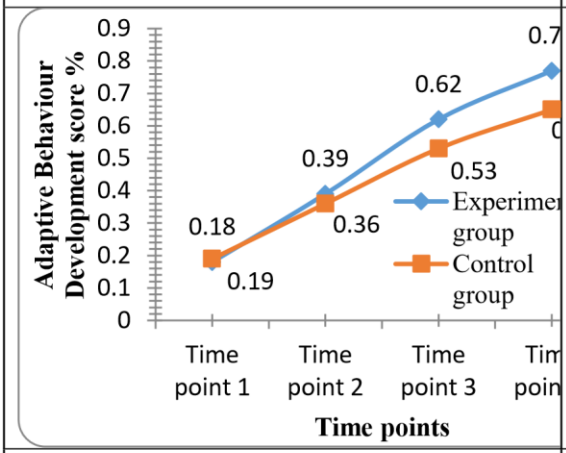

Figure 3: Profile plot showing change in Adaptive Behaviour Development score across time between groups

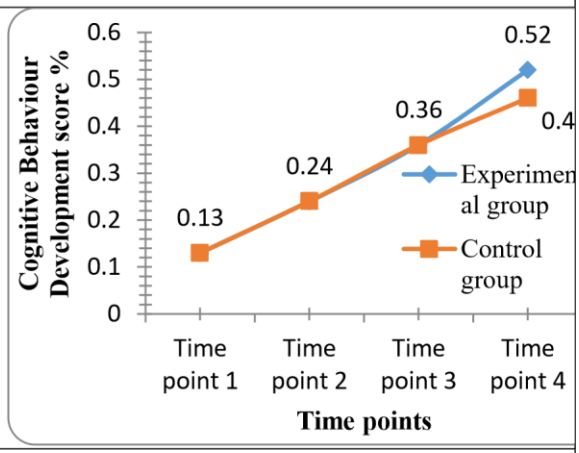

Figure 4: Profile plot showing change in Cognitive Behaviour Development score across time between groups

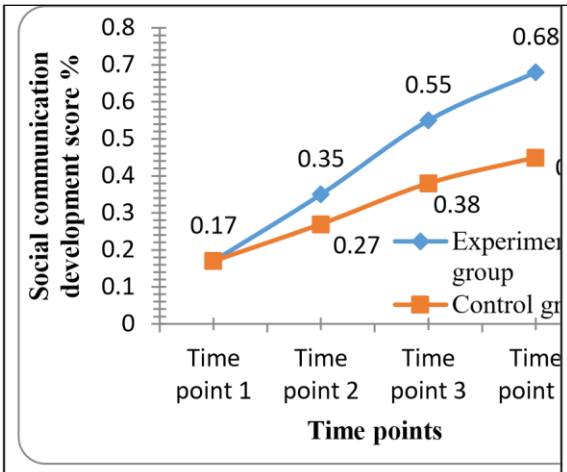

Figure 5: Profile plot showing change in Social communication development score across time between groups

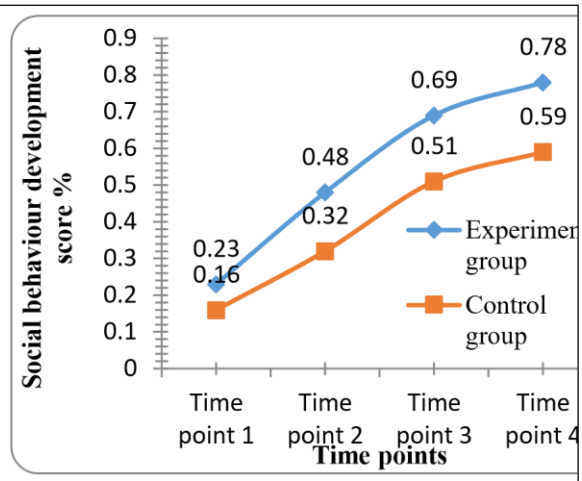

Figure 6: Profile plot showing change in social behaviour development score across time between groups

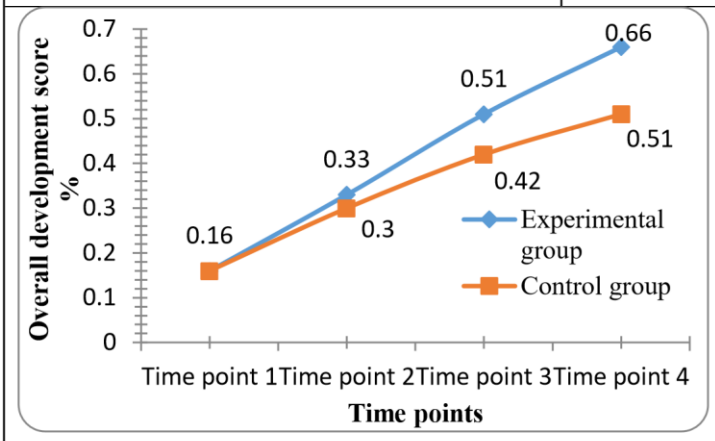

Figure 7: Profile plot showing change in Overall development score across time between groups

The findings of this research study have the potential to significantly benefit the community and families by providing valuable insights into the adoption of effective intervention methods for promoting the development skills of children at risk for developing Autism Spectrum Disorder (ASD).

CONCLUSION

In conclusion, it has been found that incorporating both clinician and parent-implemented intervention components in the management plan leads to improved child outcomes. By involving both professionals and parents in the intervention process, a comprehensive approach is achieved, which has been shown to be more effective in enhancing the well-being and development of children. This research highlights the importance of collaboration between clinicians and parents in designing and implementing intervention strategies for optimal child outcomes. In conclusion, it is evident that further research is required to fully comprehend the effects of prodromal interventions. This research should focus on utilising larger sample sizes and longer time spans to ensure the reliability and validity of the findings. Additionally, there is a need to enhance the personalization of interventions to cater to individual needs. Furthermore, it is crucial to identify the necessary measures to sustain the positive effects of treatment. Determining the active ingredients of intervention approaches is also essential in order to optimise their effectiveness. Moreover, investigating the optimal timing for targeting specific types of skills is necessary for successful intervention outcomes. Lastly, establishing adaptive treatment pathways for individuals who do not respond well to initial interventions is crucial for improving overall treatment efficacy. In conclusion, this study suggests that there is potential for knowledge and growth in the field of nursing practise, education, administration, and research.

REFERENCES

1. Barahona, J.B. and Carlos N, F. (2015) ‘A Concise History of Asperger Syndrome: The Short Reign of a Troublesome Diagnosis’, Front Psychol, 6: pp.2024. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4725185/.

2. Paul, N.B. and Berta, M.B. (2013) 'Childhood disintegrative disorder: distinction from autistic disorder and predictors of outcome', J Child Neurol, Dec 28(12):pp.1587-98. Available at: https://pubmed.ncbi.nlm.nih.gov/23340080/.
3. American Psychiatric Association (2013) Diagnostic and statistical manual of mental disorders. 5th. Ed. Washington, DC: American Psychiatric Publishing.
4. Autism Rates across the Developed World (2021) Available at https://worldpopulation review.com/countryrankings/autism-rates-by-country. (Accessed :20 Feb 2021).
5. Alla, K. (2018). Study quantifies prevalence of autism in India. Available at https://www.spectrumnews.org/news/study-quantifies-prevalence-autism-india/.(Accessed on 01 Jan 2020)
6. Johnson, C.P., Myers S, M. (2007) 'American Academy of Pediatrics, Council on Children With Disabilities. Identification and evaluation of children with autism spectrum disorders'. Pediatrics,120(5): 1183–1215.