Starting Early: The Benefits of a Parent-Centered Approach Intervention to Autism

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Abstract-

The provision of psychological and social care is regarded as the cornerstone of autism therapy in India. Due to the fact that children are often not diagnosed with autism until they reach the age of four, there is currently no method for the early detection of children who may be at risk for the condition. As a direct consequence of this, children may go without appropriate medical care, which might result in a retardation of their overall development. Due to the developmental variety of the illness, there is a dearth of systematic research that is evidence-based on the efficacy of various therapies. My plan was to address these problems by implementing a holistic intervention on children that would assess their entire development in a variety of domains, including their fine motor skills, their gross motor abilities, their adaptive skills, their cognitive development, the development of their social communication skills, and their social development. It is proposed that this intervention be carried out using a randomised design in comparison to standard care alone, with parents acting as the major means of communication for their own children. We think that by doing this, we will improve the results for children in India who have Autism by providing early detection, prompt care, and improved outcomes.

Methods: The method consisted of enhancing current care with parent engagement in the form of daily sessions lasting four hours each for a period of six days, with the seventh day reserved for activities at home. The goal was to inform and instruct parents on the holistic development of their children, taking into account the particular capacities of each individual kid. Seventy children who were considered to be at risk for autism spectrum disorder were randomly split into two groups; one group received the standard therapy, while the other group received the experimental treatment. Both age and baseline data were used to inform the stratification process. After the intervention had been carried out for a period of two months, the result was evaluated using standardised instruments four times at two-month intervals.

According to the criteria established by the M-CHAT-RTM, all of the individuals who were investigated were deemed to be at full risk for autism. These results are shown below. Once the intervention had been initiated, there were no dropouts from the study and identical routine care was provided to both the treatment and control groups for the whole of the research project. In comparison to the control group, the active treatment group showed statistically significant improvement in all domains assessed by the total score of the Assessment, Evaluation, and Programming System for Infants and Children (AEPS®-3), including fine and gross motor skills, adaptive skills, cognitive development, social communication, and social development skills. This was the case regardless of whether or not the group received any form of treatment.

In a nutshell, a Pre-Post Comparative Design that made use of randomization and was carried out with children who were at a high risk for autism spectrum disorder was found to be viable and was well appreciated by the children's parents. According to the findings of the research, there are considerable extra benefits to the therapy for a certain set of children under the age of 2 when compared to the conventional care. The findings of this study suggest that more research should be conducted using bigger samples

and over longer time periods in order to acquire more reliable conclusions. In addition, it inspires other randomised controlled trial design research in the same area.

Assessment, Evaluation, and Programming System for Infants and Children (AEPS®-3), Autism Spectrum Disorder (ASD), and The Modified Checklist for Autism in Toddlers Revised, With Follow-Up (M-CHAT-R/F)TM are some of the terms that are included in the index.

INTRODUCTION

Since its discovery more than half a century ago, autism has been an intriguing topic for inquiry and academic investigation. Autistic disorder, Asperger's syndrome [I], Pervasive developmental disorder not otherwise defined (PDD-NOS), childhood disintegrative disorder, and Rett's disorder [2] were related developmental illnesses that were found throughout time and ultimately gave birth to Autism Spectrum Disorder. This condition is characterised by significant deficits in social, behavioural, linguistic, and creative development, as well as repetitive and stereotyped patterns of conduct and interests [3]. Additionally, individuals with this disease tend to have a narrow range of interests and behaviours [4]. When referring to a child's condition as "developmental," one should keep in mind that the onset of symptoms is often during the first two years of the child's life. With 88.50 incidences of autism per 10,000 children, India is ranked 21st in the world when it comes to the prevalence of autism in children. The United Arab Emirates has the second-highest prevalence, with 112.40 cases per 10,000 children, following closely behind Qatar with 151.20 cases per 10,000 children [4]. Qatar has the greatest prevalence. According to the findings of a recent meta-analysis research that was carried out in 2018, roughly one in one hundred children in India under the age of ten have autism [5].

The concept of early intervention provides a variety of strategies, some of which are comprehensive while others are not, to assist children in preparing for their roles as adults in the society in which they will live. However, studies have shown that these treatments tend to concentrate on just a few components of a child's development within a certain time period. As a result, they ignore the link between other parts of development and impede the child's overall growth. Due to the fact that children at risk for ASD often suffer in a variety of transdisciplinary domains, it is essential that they get a comprehensive treatment strategy. Sadly, a large number of research have neglected to consider this holistic approach. As a means of providing an answer, the purpose of this research was to do an all-encompassing evaluation and assessment of the kid's development across all domains at the same time. This was done with the intention of gaining a deeper comprehension of the interrelationships among the many aspects of child growth.

METHODOLOGY AND MATERIALS

At a government autism training centre in Trivandrum city, Kerala, India, a quasi-experimental study was carried out using a quantitative research technique. The study was about autism. The research was conducted with the intention of including all children in the Trivandrum District who were between the ages of 2 and 3 and were at risk of developing ASD. The sample included seventy youngsters, both male and female, from from nuclear households of a variety of faiths across the world.

From among the several child developmental delay detection centres, the parents of children who exhibited abnormal behaviour were chosen at random. The parents who volunteered to take part in the research filled out a demographic questionnaire that asked about their child's name, age, gender, religion, level of knowledge about autism spectrum disorder (ASD), and participation in early intervention for ASD. The youngsters were evaluated using a standardised diagnostic instrument in order to determine their likelihood of having ASD. After a period of twenty days, a pilot study was carried out, the results of which verified the practicability of the standardised instrument's reliability and validity.

The 70 participants were evenly split between two groups using a random number generator: the study group and the control group. The research intervention, which comprised the standardised instrument (AEPS®-3), as well as regular care, was provided to the group that participated in the study for a total of six days, with one day off in the middle. In contrast, members of the group that served as the control merely got the standard therapy from the training centre. After the first eight months of treatment, the result of the study was evaluated every other month on the same dates.

DATA ANALYSIS

On the basis of the aims and the hypothesis, descriptive and inferential statistics were used so that the empirical evidence could be evaluated and the differences could be explored. In order to summarise categorical variables, we used frequency and percentage. For quantitative variables, we used mean and standard deviation (SD) for data that was normally distributed, and median and interquartile range (IQR) for other situations. A Chi-square test was carried out to determine whether or not there were any significant variations in the baseline frequency distribution of demographic characteristics between the experimental and control groups. This was done to make sure that the groups were similar.

A two-way repeated measures mixed ANOVA was used in order to evaluate the efficacy of the intervention with regard to a variety of skill domains as well as general skill levels. The Type-I error was adjusted using the Bonferroni correction so that it would take into account the many comparisons that were done. In addition, independent sample t-tests and analysis of variance (ANOVA)

were carried out to investigate the significant connection between the overall development score and the scores for the various areas of development with the demographic factors of interest, provided that the data were normally distributed. The Mann Whitney U test and the Kruskal Wallis test were used on the data since they were not regularly distributed. The complete study was carried out with the help of the SPSS and EZR software packages, and a statistically significant result was determined to be achieved when the p-value was lower than 0.05.

DISCUSSION OF RESULTS

Screening all children for autism at the age of 18 months is a recommendation made by the American Academy of Paediatrics. This recommendation highlights the need for effective therapies for toddlers who are at risk of developing ASD [6]. This research is very important due to the fact that symptoms of autism spectrum disorder begin as early as the age of 1.5 years but are often not identified until the kid is four years old. Because a delayed diagnosis and intervention may have a detrimental influence on treatment results, it is essential to perform early identification and intervention in order to maximise the growth and development of children in all domains.

The research included an experimental group of 35 children who were extremely young. Of them, 31.4% were in the age range of 2-2.6 years, and 68.4% were in the range of 2.7-3 years. Each participant was raised in a nuclear family, 77.1% of them were male, and the majority (71%) adhered to Hinduism as their religious tradition. The majority of parents (28.6%) had a limited understanding of autism spectrum disorder, and not one of them had heard of early intervention (I).

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 (0.538)
	Hindu	25	71.4	24	68.6	
	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	

According to the findings of the research, early diagnosis and treatment had a substantial and beneficial influence on children's growth and development in a variety of domains. The experimental group demonstrated significant growth in terms of their overall development (66%), as well as their fine motor skills (64%), gross motor abilities (65%), adaptive behaviour (77%), cognitive behaviour (52%), social communication (68%), social behaviour (78%), and overall development (Fig. 1-3). In comparison, the development of the control group only increased by 51% during the course of the study. These findings provide convincing evidence that early diagnosis and intervention are among the most successful strategies for boosting children's development across a variety of categories.

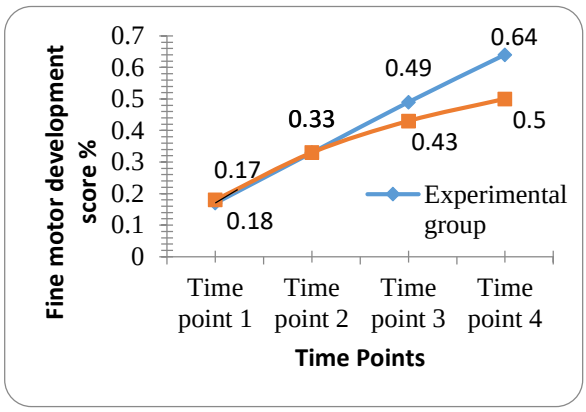

Figure 1: Profile plot showing change in Fine motor development score across time between groups

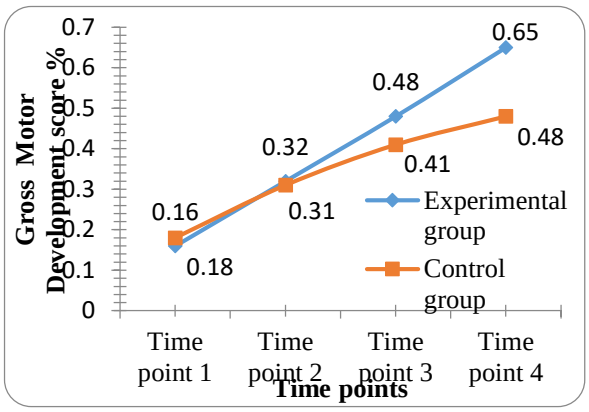

Figure 2: Profile plot showing change in Gross motor development score across time between groups

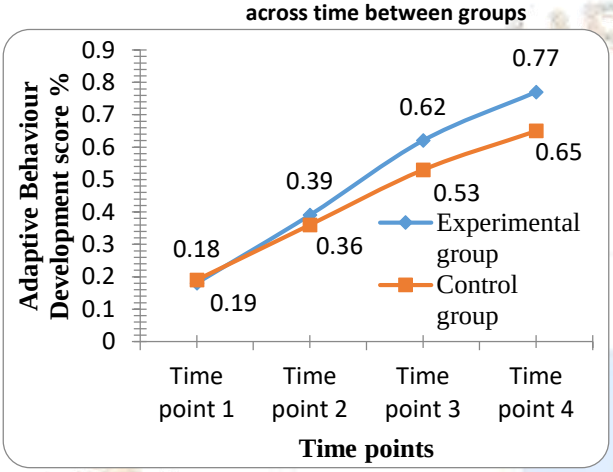

Figure 3: Profile plot showing change in Adaptive Behaviour Development score across time between groups

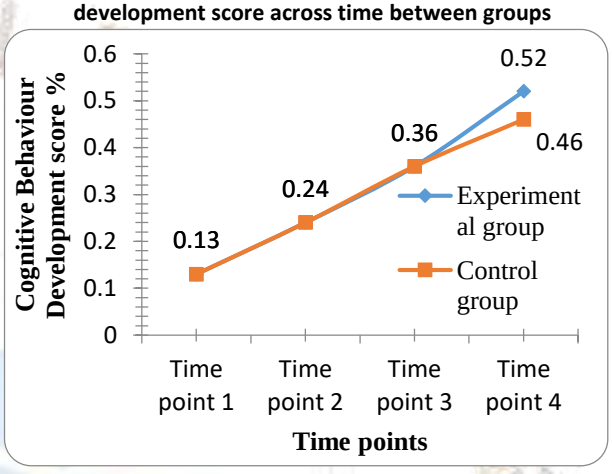

Figure 4: Profile plot showing change in Cognitive Behaviour Development score across time between groups

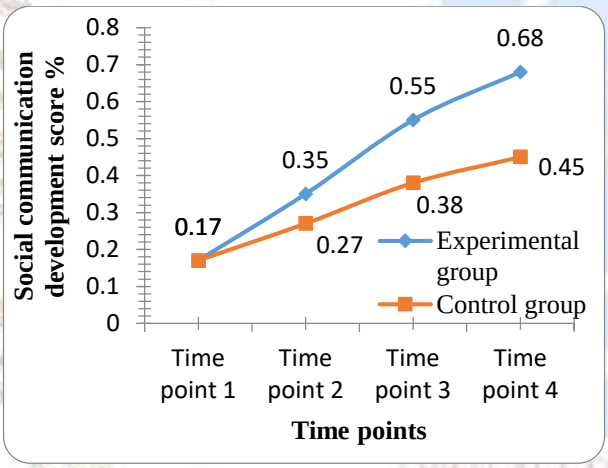

Figure 5: Profile plot showing change in Social communication development score across time between groups

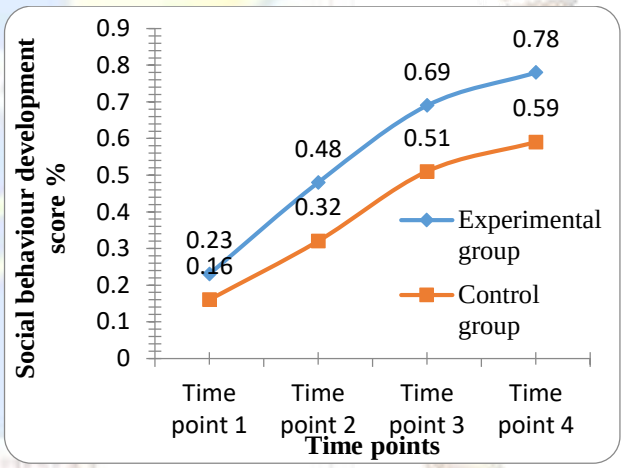

Figure 6: Profile plot showing change in social behaviour development score across time between groups

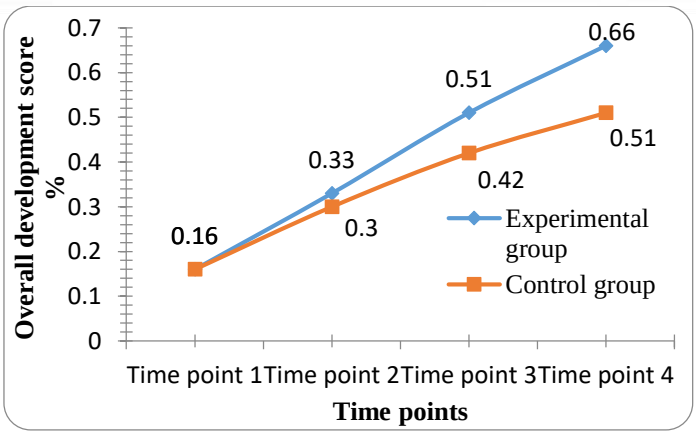

Figure 7: Profile plot showing change in Overall development score across time between groups

CONCLUSION

The results of this research have substantial implications for families and the community as a whole. These findings show the efficacy of early diagnosis and intervention in promoting children's development, which is especially important for those families who have children who are at risk of developing ASD. Better results for children may sometimes be achieved by including components of intervention that are carried out by both clinicians and parents into the treatment plan. However, additional high-quality research is required to understand the impact of prodromal interventions, establish adaptive treatment pathways for low responders, personalise intervention approaches, sustain treatment effects, define active ingredients of intervention approaches, determine the optimal timing for targeting specific skills, and sustain treatment effects. In addition to this, the study highlights the need of expanding one's expertise in this particular field for the sake of nursing practise, teaching, administration, and research.

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