RESEARCH PAPER

Effectiveness of Play Therapy to Improve Motor & Postural Control in Children Having Autism Spectral Disorders

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ABSTRACT

Introduction - Play therapy for ASD involves structured and unstructured play activities that are tailored to the individual needs and abilities of each child. It provides a safe and supportive environment where children can explore their emotions, practice social skills, and engage in imaginative and creative play. Play therapy for ASD involves structured and unstructured play activities that are tailored to the individual needs and abilities of each child. It provides a safe and supportive environment where children can explore their emotions, practice social skills, and engage in imaginative and creative play.

Material and methods – The experimental study was conducted with 15 individuals aged between 5-10 years. Play therapy protocol was given for 10 weeks and data was collected pre-test, at the end of 4th week, at the end of 8th week and at the end of 10th week using Test of Gross Motor Development (TGMD-2) and Developmental Coordination Disorders Questionnaire (DCDQ).

Result – The results show that TGMD score between the pre and post-ten-week mean values were 76.46667 and 80.333336 respectively and for DCDQ pre and post ten week value were 36.733334 and 41.866665 respectively.

Conclusions – This study concludes that play therapy has significant effect in improving motor & postural control in children having autism spectral disorders.

Keywords: Autism spectral disorders, motor control, postural control, play therapy.

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Introduction

Autism Spectrum Disorder (ASD) is a neurological developmental disorder characterized by repetitive or limited behavioural tendencies and anomalies in social interactions. Autism is a developmental disease that affects a person's capacity for social interaction, communication, and interpersonal relationships[1]. As a result, children with autism struggle to develop and grow socially and emotionally in a pattern similar to their typically developing peers. They frequently have difficulties initiating and joining in play, understanding turn taking, building friendships, and in general enjoying reciprocal social interactions[2].

The World Health Organization (WHO) estimates the international prevalence of ASD at 0.76%; however, this only accounts for approximately 16% of the global child population [3]. The Centres for Disease Control and Prevention (CDC) estimates about 1.68% of United States (US) children aged 8 years (or 1 in 59 children) are diagnosed with ASD. The prevalence of

ASD in the US more than doubled between 2000–2002 and 2010–2012 according to Autism and Developmental Disabilities Monitoring Network (ADDM) estimates According to the Centers for Disease Control and Prevention (CDC), as of 2020, approximately 1 in 54 children in the United States have been diagnosed with ASD. This represents a significant increase from previous prevalence estimates and highlights the growing public health impact of the disorder.[4]

Play is an occupation of childhood. Through play children improve performance skills (sensory, perceptual, motor and praxis, emotional regulation, cognitive, communication and social skills). Play therapy is the administration of these concepts of Neuro-dramatic play which can proceed in terms of sensitizing the child to play epoch which is age appropriate. [5] Play therapy for ASD involves structured and unstructured play activities that are tailored to the individual needs and abilities of each child. It provides as a supportive environment where children can explore their emotions, practice social skills, and engage in imaginative and creative play. Through play, children with ASD can learn to navigate social interactions, develop communication skills, and regulate their emotions, all of which are core areas of difficulty for individuals with ASD.[6]

Several studies have demonstrated the effectiveness of play therapy in improving the social, emotional, and behavioural functioning of children with ASD. For example, a study by Jones et al. (2017) found that children who participated in a 12-week play therapy intervention showed significant improvements in their social communication and play skills compared to a control group. Similarly, a meta-analysis by Yung-Wei Lin (2015) reported moderate to large effect sizes for the use of play therapy in reducing anxiety and improving social skills in children with ASD. [7,8]

Only few studies have been done to find out the efficacy of play therapy in improving motor and postural control in children having autism spectral disorders. Therefore, the purpose of this study is to check the effectiveness of play therapy on motor and postural control in autistic children.

Materials and Methods

Participants: This study included 15 individuals aged between 5-10 years and had received diagnosis of ASD from Physician or consultant from related super-speciality department. Children with focal neurological findings like problem with nerve, spinal cord or brain function. Significant past medical history of neonatal hypoglycaemia, head injury or epilepsy and presence of any physical disability that could impact motor development are excluded from the study.

Written informed consent forms were obtained from the parents of all the individuals participating in the study. The study was approved by the Ethics Committee of Mahatma Gandhi University of Medical Sciences and Technology, Jaipur, Rajasthan, India.

Outcome Measures –The child's age and gender were recorded on the demographic information form. The motor control of the children was evaluated by TGMD-2 and postural control was evaluated by DCDQ Questionnaire.

Test of Gross Motor Development second edition (TGDM-2) is one of the most widely used assessment tools to assess gross motor skill development of children, TGDM-2 is a standardized norm and criterion referenced test that measures gross motor abilities in children from 3-10 years of age. The test is used to identify children who are significantly behind their peers in gross motor skill development, to assess individual progress in gross motor skill development, to assess individual progress and to evaluate the success of the gross motor program. [9]

The Developmental Coordination Disorders Questionnaire (DCDQ) is a parent report measure developed to assist in the identification of Developmental Coordination Disorder in children. Parents are asked to compare their child's motor performance to that of his/her peers using a 5-point Likert scale. It provides a standard method to measure a child's coordination in everyday, functional activities. The Developmental Coordination Disorders Scale consists of 15 items, which group into three distinct factors and is labelled "Control during movement", "Fine motor and handwriting" and "General Coordination" [10].

Protocol – Under play therapy following exercises were given -

Playroom was equipped with - toys including nurturing, imaginary and creative games like picture books, puppets, play dough, Ball pool and balls of different sizes. Activities like Arranging blocks was done to form different patterns 4-5 times in one session, Throwing and catching balls from different sides at different height was done 10 times in one session and Moving sticks from one position to another was given to the participants. Participants was engaged in 45 minutes play therapy sessions thrice a week for approximately 10 weeks. [11]

Data Collection– Data was collected on day1st (pre test), on the completion of 4th week, on the completion

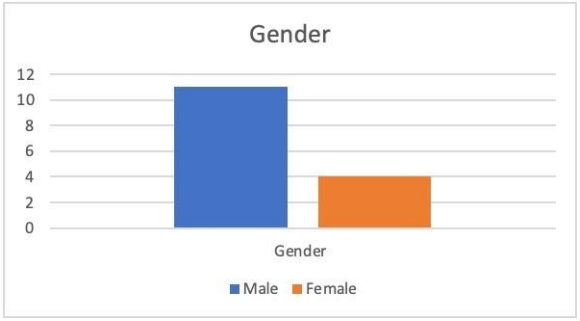
of 8th week & on the completion of 10th week using Test of Gross Motor Development (TGMD-2) and Developmental Coordination Disorders Questionnaire (DCDQ).

Result

The data was coded and entered into Microsoft Excel Spreadsheet. Analysis was done using Microsoft Excel. Descriptive statistics included mean, mean difference and standard deviation. Data collected from each patient within the group were analysed by using repeated measure by "paired t-test". Level of significance was set as $p \leq 0.05$.

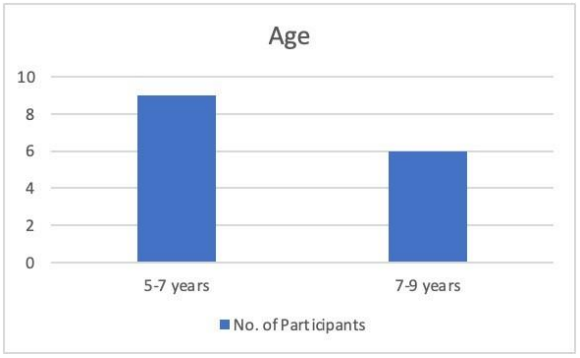
Demographic Data- In this study 15 subjects were randomly selected, out of which 11 were males and 4 were females.

Male	Female
11	4



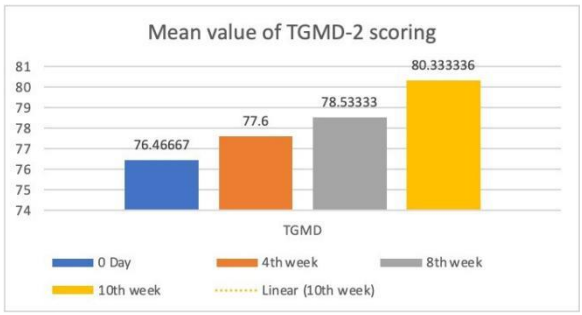
It is identified that 9 participants out of 15 belong to the age group of 5-7 years and 6 respondents belong to the age group of 7-9 years.

Age Range	No. of Participants
5-7	9
7-9	6



Comparison of mean values of TGMD-2 and along with standard deviation

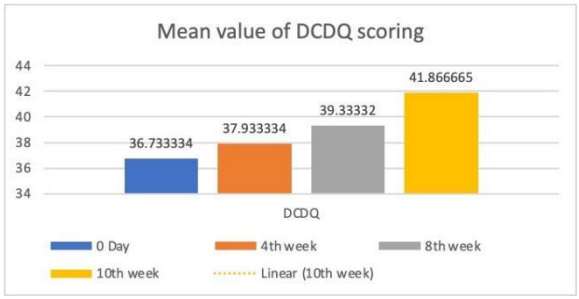
	Mean	SD	N	Variance
0 Day	76.46667	7.5530715	15	57.04889
4th week	77.6	7.5573993	15	53.306667
8th week	78.53333	7.3472595	15	53.982224
10th week	80.333336	6.609757	15	43.68889



The results show that there is a substantial difference between the pre- and post- ten-week mean values, which are 76.46667 and 80.333336 respectively. Likewise, the variance values before and after the four weeks are 57.04889 and 43.68889, respectively. In addition, P(T<=t) two tail, or 0.000237, has a value that is less than the significance level, or 0.05. This suggests that motor control improves in patient by play therapy intervention.

Comparison of mean values of DCDQ and along with standard deviation

	Mean	SD	N	Variance
0 Day	36.733334	3.3159547	15	10.995556
4th week	37.933334	3.473071	15	12.062222 5
8th week	39.333332	3.3199732	15	11.022222 5
10th week	41.866665	3.3836207	15	11.448889



The results show that there is a substantial difference between the pre- and post- ten-week mean values, which are 36.733334 and 41.866665 respectively. Likewise, the variance values before and after the four weeks are 10.995556 and 11.448889, respectively. Inaddition, P(T<=t) two tail, or0.000007, has a value

that is less than the significance level, or 0.05.This suggests that postural control improves in patient by play therapy intervention.

Discussion

Autism Spectral Disorder is the most common neurological disorder in children and almost 1 in every 100 children are affected by ASD globally.

This study was conducted on 15 patients with ASD and was treated with Play Therapy for motor and postural control while Group B was given Goal-oriented Activities for motor and postural control. The outcome measures used were The Developmental Coordination Disorder Questionnaire for postural control and Test for Gross Motor Development for motor control.

This study was a randomized control comparative design of 6 months. The treatment was given for 10 weeks and outcomes were measured on Day 1st, at the end of 4th week, at the end of 8th week and at the end of 10th week.

Our study population consisted of 15 patients out of which 73.33% were males and 26.67% were females showing male dominance which is similar to the study of Tartaglia et al. 2017 which shows that autism is more in males then in females due to sex chromosome aneuploidy. [12]

Halladay et al. (2015) also reported much higher predominance of males in different groups of protocols. According to Carter et. al. (2007) prominent gender differences in the prevalence and phenotype of autism may contribute to females being diagnosed later than males– commonly in adolescence or adulthood; underdiagnosed or not even receiving a diagnosis. [13,14]. In present study of ASD patients were in age of 5-9 years with mean age.

In this study, for DCDQ mean values of DCDQ increases from 36.73 to 41.86 in 10 week protocol. This shows that coordination and postural control improves in patients but still it does not reach the normal value. Hence, long time study should be done to check the effectiveness of play therapy on postural control.

In this study, for gross motor mean values of TGMD scores increases from 76.467 to 80.333 in 10 week protocol. This shows that motor control improves in patients and on average children having poor motor control at the starting of the intervention gradually improved to be low average motor control.

Similar study was conducted by Kerri Salter, Wendi Beamish, and Mike Davies and demonstrated that CCPT is an effective intervention to support the social and emotional growth of young children with autism. Findings demonstrated that participating children were not only able to meet targeted behavioural goals, but also to show general developmental progress. [15]

Conclusion

From the above study we concluded that play therapy improves postural control in children with Autism Spectral Disorders, as well as we also concluded that play therapy has significant effect in improving motor control in children with Autism Spectral Disorder.

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