

## Original Research Article

# Global functional performance and caregiver assistance in children with pervasive development disorders

Shreya V. Patel\*, Shraddha Diwan, Nehal Shah

Department of Physiotherapy, SBB College of physiotherapy, VS General Hospital, Ahmedabad, Gujarat, India

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**\*Correspondence:**

Dr. Shreya V. Patel,

E-mail: [shreyapatel.1994@yahoo.in](mailto:shreyapatel.1994@yahoo.in)

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### ABSTRACT

**Background:** Pervasive developmental disorder (PDD) affects motor, social and communication function of a child which may lead to affection of global function. Pediatric Evaluation of Disability Inventory (PEDI) is used to assess performances, degree of functional limitations as well as the extent of caregiver assistance. Hence, the need of the study was to quantify the functionality and dependence level in children with PDD. The aim of the study was to quantify the overall functional performance and need for caregiver assistance in PDD.

**Methods:** An observational study was carried out on 12 children (age 6 months - 7.5 years) diagnosed as PDD, taking rehabilitation at pediatric rehab department of SBB college of physiotherapy. After taking consent of primary caregiver PEDI questionnaire was administered by interview method. Demographic details were noted by physiotherapist.

**Results:** The score of functional skills in three domains were self-care (mean  $8.58 \pm 5.265$ ), mobility (mean  $15.58 \pm 15.300$ ) and social function (mean  $5.42 \pm 4.641$ ). The score of caregiver assistance in three domains were self-care (mean  $2.75 \pm 3.441$ ), mobility (mean  $8.83 \pm 11.907$ ) and social function (mean  $1.50 \pm 2.316$ ). Among six domains 12 children had the lowest score in terms of social function for both caregiver assistance and functional skills.

**Conclusions:** Present study concludes that social function is majorly affected in terms of caregiver assistance in children with PDD.

**Keywords:** Caregiver assistance, Functional skills, PDD, PEDI

### INTRODUCTION

Pervasive Developmental Disorders (PDD) refers to a group of conditions that involves delay in the development of many basic skills most notable among them are the inability to socialize with others, to communicate, and to use imagination. Because these conditions typically are identified in children around age-3 which is critical period in child's development, they are called developmental disorders. It includes five disorders such as: Autism, Asperger's syndrome, childhood disintegrative disorder, Rett syndrome and pervasive development disorder, not otherwise specified (PDD-NOS).<sup>1</sup> Among this, childhood autism and Asperger

syndrome are complex developmental disorders, defined primarily as behavioral disturbances.<sup>2</sup> However, summing up the main symptoms, recent studies show that there are other deficits, beyond the behavior sphere, which directly influence the severity and functional prognosis in these individuals.<sup>3-7</sup>

In autism motor planning and anticipatory adjustments are difficult which result in slow and inefficient motor execution.<sup>3</sup> Deficits in motor coordination is also seen along with gross and fine motor function affection.<sup>4-6</sup>

Although many research has been conducted in recent years addressing motor function in these patients while

very less focuses on the functional levels in these patients. Functional performance and caregivers' assistance was tested using PEDI on children with autism and Asperger syndrome<sup>8</sup> and Down's syndrome.<sup>9</sup>

PEDI includes 3 domains self-care, mobility and social function domain by which it quantifies functional skills and caregiver assistance.<sup>10</sup>

So the need to perform this study was to quantify the dependence level for self-care as well as need of caregiver assistance for global functional performance in the children with PDD.

**METHODS**

A cross-sectional study was carried out in corporation affiliated general hospitals and other private OPDs in the Ahmedabad, Gujarat.

Children with diagnosed cases of PDD ageing 6 months-7.5 years were examined. Children with severe visual or hearing impairment and those having history of seizures in last 6months were excluded.

After explaining nature and purpose of study, written informed consent of primary caregiver in vernacular language was taken from the primary caregiver.

Demographic details about patients and personal information about primary caregiver has been documented which includes maternal age, education, total number of siblings, number of sibling below the age of 5 years, monthly income of family, address and contact number.

PEDI score form version 1.0 was administered by interview method.

Statistical analysis was done using SPSS 16.0 version keeping level of significance 5%. In that Mean and standard deviation of each domain of PEDI scores were calculated with respect to functional skills as well as requirement of caregiver's assistance for activities of each domain. Then the domain wise comparison was done between the scores of functional skill and caregiver's assistance.

**RESULTS**

The score of functional skills in three domains were self-care (mean 8.58±5.265), mobility (mean 15.58±15.300) and social function (mean 5.42±4.641). The score of caregiver assistance in three domains were self-care (mean 2.75±3.441), mobility (mean 8.83±11.907) and social function (mean 1.50±2.316).

While comparing the percentage scores of functional skills and caregiver assistance self-care domain scores were 11.75% in functional skills while 6.88% for

caregiver's assistance. In mobility domain percentage score was 26.40% while 25.22% in caregiver's assistance. Social function domain score was 8.32% for functional skills and 6% for caregiver's assistance.

**Table 1: Demographic information of patients.**

	Mean	Standard deviation	Min.	Max.
Age	3.95	2.24	0.5	7.5
<b>Gender</b>	<b>Number</b>			
(m=1)	8			
(f=2)	4			
median	1 (m=1)			

**Table 2: Average and percentage score of the functional skills.**

	Average	Percentage	Min.	Max.
Self-care	8.58	11.75%	2	17
Mobility	15.58	26.40%	0	45
Social function	5.41	8.32%	0	13

**Table 3: Mean and percentage score of the caregiver's assistance.**

	Average	Percentage	Min.	Max.
Self-care	2.75	6.88%	0	10
Mobility	8.83	25.22%	0	33
Social function	1.5	6%	0	7

**Table 4: Comparison of percentage scores of functional skills and caregiver's assistance.**

Scores	Functional skills	Caregiver assistance
Self-care	11.75%	6.88%
Mobility	26.40%	25.22%
Social function	8.32%	6%

So as per the above result requirement of the caregiver's assistance is more in all three domains while social function domain is more affected in both the functional skills and in caregiver's assistance

**DISCUSSION**

In present study, scores obtained from PEDI scale shows that in functional skills and caregiver assistance social function domain is most affected while mobility domain is least affected, which explains relatively less motor affection compared to cognition and social affection in children with PDD. This kind of dysfunction is occurring due to specific area of affection in brain. Hallet states that the nature of motor deficit is less consistent with dysfunction of cerebellum than the basal ganglia.<sup>10</sup>

These results are in agreement with the fact that children with autism have greater degree of impairment in cognition. Comparative study on global functional performance and caregiver assistance in Autism (n=26) and Asperger's syndrome (n=26) with their comparison to normative data of Brazilian children concluded that the children with autism and Asperger's syndrome had significantly lower scores than that expected for normality.

Children with Asperger's syndrome were better at social interaction than typical autistic children. They exhibit greater deficits with regard to basic tasks of self-care and mobility requiring greater assistance than children with autism. Low score across all domains in studied participants lead to global functional affection and increased dependence on caregivers.<sup>9</sup>

It is seen because of motor coordination impairment likewise in other developmental disorders in support to present study. Dolva AS et al analyzed functional performance in children with down syndrome using the PEDI scale showed significant lower performance skill in those children.<sup>12</sup>

Presence of motor coordination impairment in other developmental disorders like Down's syndrome also supports present study where significant lower performance skill was noted in children.<sup>12</sup>

Small sample size and variability in motor dysfunctions across studied patients limits the generalization of study finding to the population.

Social interaction problems need more attention than mobility or self-care domains in children with PDD.

## CONCLUSION

Present study concludes that social function is majorly affected in terms of caregiver assistance in children with PDD.

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## REFERENCES

1. Ozand PT, Al-Odaib A, Merza H, Al Harbi S. Autism: a review. J Pediatr Neurol. 2003;1:55-67.
2. Klin A. Autism and asperger syndrome: an overview. Br J Psych. 2006;28:S3-S11.
3. Rinehart NJ, Bellgrove MA, Tonge BJ, Brereton AV, Howells-Rankin D, Bradshaw JL. An examination of movement kinematics in young people with high-functioning autism and asperger's disorder: further evidence for a motor planning deficit. J Autism Developmental Disorders. 2006;36:757-67.
4. Sahlander C, Mattsson M, Bejerot S. Motor Function in adults with Asperger's disorder: a comparative study. Physiotherapy Theory and Practice. 2008;24:73-81.
5. Freitag CM, Kleser C, Schneider M, Von Gontard A. Quantitative assessment of neuromotor function in adolescents with high functioning autism and Asperger syndrome. J Autism Developmental Disorders. 2007;37:948-59.
6. Green D, Baird G, Barnett AI, Henderson L, Huber J, Henderson SE. The severity and nature of motor impairment in Asperger's syndrome: a comparison with specific developmental disorder of motor function. J Child Psychol Psychiatry. 2002;43:655-68.
7. Weimer AK, Schatz AM, Lincoln A, Ballantyne AO, Tauner DA. Motor impairment in asperger syndrome: evidence for a deficit in proprioception. J Developmental Behavioral Pediatr. 2001;22:92-101.
8. Pozzato MGG, Minett TSC, Masruha MR, Vilanova LCP. Global functional performance and caregiver assistance in autism and Asperger syndrome. Neurosci Med. 2014;5:42-8.
9. Dolva AS. Functional performance in children with Down syndrome. Am J Occupational Therapy. November 2004;58(6):621-9.
10. Haley SM, Coster WI, Kao YC. Lessons from the use of the Pediatric evaluation of disability inventory: where do we go from here? Pediatr Phys Ther. 2010;22(1):69-75.

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