

# Effect of Transdisciplinary Early Intervention on a Child with Autism Spectrum Disorder - A Single Subject Case Report

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**Abstract:** A 4 years 8 months kempt and tidy boy child with Sensory Integration issues from the year 2018 came to National Institute For Locomotor Disabilities with the chief complain of difficulty in socializing with peer groups and handwriting problems. The Occupational Therapist administered Child sensory profile<sup>2</sup>, Hand writing assessment and WEEFIM. The Speech evaluation consisted of Speech Intelligence, Prelinguistic skills, Cognitive pre - requisites, reading and writing skills, Reels, Social skill milestones and Gestural scale. Psychological assessment included Vineland Social Maturity Scale, Developmental Screening Test, BASIC MR, Indian scale for assessment of Autism. Pre Evaluation and Follow up after 6months was done which showed significant overall improvement.

**Keywords:** transdisciplinary, earlyintervention, autism, case report

## 1. Introduction

Autism Spectrum Disorder represent an expansive class of conditions that manifest in a range of deficits. (1) Autism Spectrum Disorder is developmental disorder characterized by: A. deficits in social communication and interactions with others and B. repetitive or restricted behaviors and interests. (2) Children with evidence of sensory processing dysfunction, such as those with ASD, often have difficulty regulating responses to sensations and specific stimuli and may use self - stimulation to compensate for limited sensory input or to avoid overstimulation (Roberts, King - Thomas, & Boccia, 2007; Schaaf & Nightlinger, 2007; Smith, Press, Koenig, & Kinnealey, 2005). These atypical sensory reactions suggest poor sensory integration in the central nervous system and could explain impairments in attention and arousal (Baranek, 2002; Tomchek& Dunn, 2007) (1)

Sensory integration is an innate neurobiological process and refers to the integration of sensory stimulation from the environment by the brain. Sensory integration focus primarily on three basic senses - tactile, vestibular and proprioceptive.

In contrast sensory integration dysfunction is a disorder in which sensory input is not integrated or organized appropriately in the brain and may produce varying degrees of problems in development, information processing and behavior. Dysfunction in sensory integration is the ability to modulate, discriminate, coordinate or organize sensation adaptively (Lane et al, 2000, 0.2). (3)

Transdisciplinary service is defined as the sharing of roles across disciplinary boundaries so that communication, interaction and cooperation are maximized among team members. Transdisciplinary models of practice aim to provide more family - centered, coordinated, and integrated services to meet the complex needs of children with disabilities and their families. The transdisciplinary approach (TA) has been recognized as a best practice for early intervention, and many early intervention programs adopt some form of TA. In contrast to other service delivery approaches, TA is considered to reduce fragmentation in

services, reduce the likelihood of conflicting and confusing reports and communications with families, and enhance service coordination. (4)

The case report focuses on whether transdisciplinary early intervention is effective on a child with autism.

## 2. Case Presentation

A 4years 8months boy maintains appropriate eye - contact with the therapist but it was not consistent. Many a times he used to look by cornering his eyes. He was following the basic instructions provided by the therapist and his parents. He was maintaining minimal attention and was getting distracted very easily. His response to name call was inconsistent. He showed a lot of tantrums and was cranky most of times if he didnot get his preferable games. His concept of functional play, object use, choice making skills has emerged appropriately. His parents reported that he didnot mingle or socializes with his peer group or with others. He expressed his emotions and also can relate to familiar people sometimes. It was also observed that he has hyperextension of knees and also he has flat foot. He was also not able to hold a pencil with a proper functional tripod grasp.

### Formal OT Assessments

1) Child Sensory Profile 2 – We conducted an assessment through for sensory processing patterns by asking her parents the questions and rate it according to the mentioned scores. This assessment is a questionnaire for children in the age range of 3.0 yrs. To 14.11 years in which the caregiver marks how frequently the child engages in the behaviors listed on the form. We compare these reports to a national standardized sample of reports from other rates to determine how the concerned child responds to sensory situations when compared to other children of same age.

### Interpretation

Child Sensory Profile - 2 - According to the responses on the Child Sensory Profile - 2, Vihansh responds to most of the sensory experiences just like majority of typically

developing children. His sensory profile concludes her in the profile of Avoider (More Than Others) in the Quadrant Score summary which indicates that he moves away from sensory input at a higher rate than others. The scores in the Sensory Section reveal that his sensory processing abilities are in an optimum level just like the majority of typically developing children. The scores in the Behavioural section offers an additional insight showing a higher score in Conduct, Social Emotional and Attentional (More Than Others) when compared to peers of his age.

2) Wee FIM – This is a 7 - level ordinal scale instrument that measures a child's consistent performance in essential daily functional skills.

### Interpretation

The scores of Wee FIM are as follows – a) Self - care subtotal – 34/56 b) Mobility subtotal – 25/35 c) Cognition sub total –13/35 Total score – 70/126 The scores gives us a brief information regarding Vihansh's performance in his daily functional skills. Vihansh is still dependent in some of his self - care skills like grooming, bathing, dressing of both his upper body and lower body like in buttoning and unbuttoning skills. His cognitive skills in relation to expression, social interaction and problem solving skills needs to be addressed too.3) Handwriting assessment - This assessment is used to look in - depth at the components of handwriting that is required is within FUNCTIONAL performance or NONFUNCTIONAL performance. After the test performance, the results interprets that Vihansh's components of handwriting was within NON - FUNCTIONAL performance i. e his performance was nonfunctional which indicates it is below his developmental age, physical limitations, or cognitive ability.

### 3. Test Findings

On VSMS: The child's social age was found to be 2 years 8 months which was below his stated chronological age of 4years 8months with the corresponding Social Quotient (SQ) of 44 indicating Moderate Level of Intellectual Functioning. The status of his social maturity was assessed on the social domains which are as follows:

#### Domain Level of Functioning

- 1) Self Help General Upto 2 years 8months
- 2) Self Help Eating Upto 2 years 4months
- 3) Self Help Dressing 4 years 4 Months
- 4) Self Direction Not yet developed
- 5) Occupation Upto 3 years 8 months
- 6) Communication Upto 3 years 4 months
- 7) Locomotion Upto 3years 4 months
- 8) Socialization Upto 3 years 8 months

The child's level of social maturity suggested the following: His speech was underdeveloped, and had difficulties in imitating the sound. He is not being able to chew the food. He only liked soft food, and he liked to eat only crispy item. Had difficulties in holding the button. He was unable to remove the socks and unable to open the laces. His personal and social skills was also underdeveloped. He was unable to communicate through words but used gestures to indicate.

He didn't want to interact with the peer group and want to stay alone. His writing skills is also underdeveloped.

On DST: The developmental age of child is 2 years 7 months which was below his stated chronological age of 4 years 8 months. The developmental quotient (DQ) is found to be 56 which indicated that the child presently belongs to the category of 'moderate intellectual functioning'. The developmental screening test revealed that the child's gross motor skills was underdeveloped. His fine motor skills were also developing. His speech developmental milestone was delayed and could say "mama or baba". He was unable to say sentences of two or three words.

Basic MR Significant behavioral problems were found in the area of cannot concentrate. Restless Attention and concentration problem was evident. Repetitive behavior was preoccupied with self. Indian scale for assessment of autism (ISAA), the score obtained in ISAA was 100 which indicated that the child presently belong to the category of 'Mild level Autism'. The test reveals deficit in social reciprocity. His eye contact was poor, he also made social smiles but had lack of resilience. He had tantrum of biting, hitting, pushing others. Child speech is also underdeveloped. He engaged in solitary play showing repetitive behaviour.

### 4. Case Findings and Impression

Case History, Mental Status Examination & Test findings was indicative of significant of inattention and behavioral problem. His social age was found to be 2 years 8months which is below his stated chronological age of 4years 8months with the corresponding Social Quotient (SQ) of 44 indicating Moderate Level of Intellectual Functioning. The score obtained in ISAA was 100 which indicates that the child presently belongs to the category of "mild autism".

Speech Therapy Test Administered: Reels – RLA - 4 to 5 years. ELA - 4 to 5 years. Social skills mile stones: 3 to 4 there is a less waiting time. Gestural scale: 4 to 4.5 years

#### Follow up after 3 months:

After 3 months it was found that the WEEFIM score has improved with selfcare subtotal: 42/56, mobility subtotal: 30/35, cognition subtotal: 15/35, Total score: 87/126. Vihansh is independent in some of his self - care skills, un dressing of both his upper body and lower body. Buttoning and unbuttoning skill is not yet fully developed. His cognitive skills in relation to expression, social interaction and problem solving skills has also improved.

She was able to hold the pencil in tripod grasp but not perform functionally.

Child Sensory profile remained unchanged.

DST score remained unchanged.

REELS remained unchanged.

Basic MR shows reduction in restlessness attention and concentration. No other significant differences was found.

### 5. Conclusion

After Transdisciplinary Early Intervention significant improvement was seen in the child in various aspects of

developmental milestones. A further research study (Pilot study & RCT) can be done to know its effectiveness in specific population.

## **References**

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