

**Original Article****Joint Attention Routines in Intervention for Children with  
Autism Spectrum Disorders**

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**Abstract**

Two children (six and seven years of age) diagnosed with Autism Spectrum disorder and enrolled in a centre for autism, were exposed to joint attention routines. The Pre and post intervention videos were rated by six raters. Significant changes were observed in their eye-contact, interaction ability, participation in social interactions and also in their verbal behaviour. More reports of similar experiences would help to create manuals for such interventions for wider use in the country.

**Key Words:** autism; joint attention; intervention

**Introduction**

Joint-attention (JA) has emerged as a potential underlying link between socio-communication deficits and primary cognitive substrates of autism[1]. It is defined as an early social-communicative behavior in which two people share attentional

focus on an object or event, for the sole purpose of sharing that interesting object with each other[2]. Research has established inadequate JA ability as a fundamental social-communication impairment in autism, present by 12 months of age. The deficit appears to be specific to autism [3]. Studies have documented evidence on the outcome of interventions that target JA. Intervention models, such as the Early Start Denver Model, in which JA figures as one of the key components of the curriculum have reported good outcomes[4]. Indian literature on JA is limited. Karanth & Archana have documented the use of JA skills as an essential prerequisite to learning[5]. Uses of Drama Therapy in Autism presented by Dr. Ramamurthy at the Global Autism Convention [6] have components of JA intervention though not explicitly described. This report highlights the impact of social-engagement games on the JA skills in two children diagnosed with autism.

### **Methodology**

Observations of two children (six and seven years old) diagnosed with autism spectrum disorders by practising psychiatrists as per ICD 10 and enrolled at an intervention centre were documented during participation in JA routines. Informed consent was obtained from the parents regarding the data maintained and analysed. The children were attending the centre for over six-months before starting the systematic JA routines. As part of JA based intervention, the two children participated in small group activities (including other children, not referred to here) as also one-on-one activities with the therapist. These sessions consisted of social engagement games and took place for an average of 15-20 minutes every

day as a part of the daily school routine, five days a week. The data from other children in the group has not been used for the study as parents did not consent to video recording. Parents were also trained in the JA intervention methods but no record of parent session was maintained.

Video recording of these children's behaviours were made at the beginning of this JA based activity. A similar video recording was made at the end of six months after receiving JA training. These videos were rated by six volunteers including a professional (special educator), two students of psychology, two unrelated parents of children on the spectrum attending the center and a layperson. They were given a six-point scale with zero being absent ability and five the best behaviour for each target-item: eye contact, interaction, gaze alternation and collateral effects of imitation and verbal behaviour. The raters were blind to the pre and post-status of the videos.

**Social Engagement Games:** Social engagement games are routines and activities that encourage JA in the form of better eye contact, interaction and gaze alternation. They met the following criteria:

- 1) They had to be fun for the child; hence "tailored" to his interests.
- 2) The parent/teacher attempting to engage the child needs to be in control of the activity/routine at all times. The idea is for the child to have fun with the adult.
- 3) The routine needs to be short in order to accommodate to the short attention spans of these children.

- 4) Repetition of the routine/activity will be needed to ensure that the child understands what is expected of him.
- 5) With improvement in the child's JA, changes are needed in the routines / activities to match the increasing levels of social participation and level-of-interest in the child.

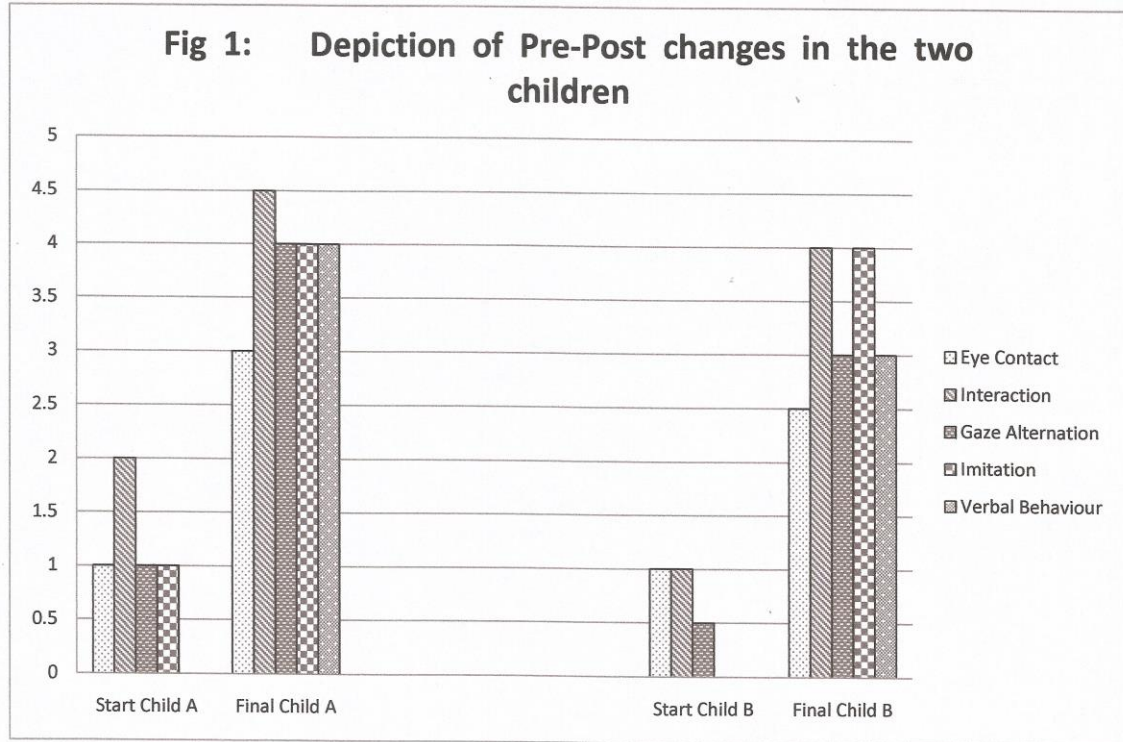
These criteria were developed through extensive interaction with the children at the centre.

The targets of the social engagement games were:

- To initiate and maintain eye-contact.
- Watch and engage with imitative adult during parallel toy-play activities.
- To have a repertoire of five-ten sensory social games. Ex. "Peek-a-Boo", rhymes/songs, games, bubbles, balloons, airplane, tops, and other similar toys.
- Define response: e.g; "look" at the offered object for some time with gaze-shift and body-turn.
- Giving or taking object from other person is coordinated with eye contact.

In addition to the JA routines, the children received all other school-based interventions like sensory-integration therapy and language intervention. These interventions were started six months prior to starting the joint attention routines and were continued alongside the JA routines.

The mean of six ratings on each item are shown in Fig 1.



Child A improved in all areas. The improvements in verbal behaviour and imitation actually exceeded that on eye-contact ability. Child B had very low ratings before the program. Though his eye-contact improved and received a mean rating of 2.5 at the end of the six months, he showed more improvement on imitation and interaction skills. Wilcoxon Signed Rank Test showed that the changes were significant at  $p < 0.02$  for all areas in both children except eye-contact (Child B only) where the p-value was 0.03(1-tailed).

## **Discussion**

Consistent with previous research[7], we observed marked improvement in both children in the areas of eye contact, interaction and gaze alternation. They also showed improvement in collateral skills of verbal behaviour and imitation. These changes were appreciated by both professional and lay raters. Benefits from interventions in the area of JA over a six-month period are apparent.

Despite the children having been at the centre for more than six-months before the initial video-recordings, the blind ratings of the initial videos indicate that the children had inadequate JA skills at the start of the intervention. The changes in the area of imitation and verbal behaviour noted in the children could also be also due to the cumulative effect of other interventions. The additive / interactive effect of JA routines cannot be determined in the absence of video recordings at initial entry into the intervention centre. However, studies do support the need for JA interventions[4].

We need to systematically explore such methods of intervention in large samples across centres in children with varied levels of functioning. Systematic documentation of children's progress along with details of games that interests them, will lead to development of manuals with culturally relevant activities for use across India.

## **References**

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