Parent apportions in pivotal response training on augmenting Joint attention and social-communication skills for children with autism

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Abstract:

The clinical and research evidence supports the use of parents as co-therapists approach, both in training parents in structured teaching strategies and behavioural techniques that are used frequently while working with parents of children with autism. When parents are apportioning in the programme for pivotal response training (PRT) as full partners, their own special needs are also recognized and they are provided with suitable support and guidance. The pivotal responses targeted are motivation and responsiveness to multiple cuesto teach social interaction skills, play, increased generalization, and expressive language, in a more natural and contextually appropriate way. The present study aims to evaluate the Parent apportions in pivotal response training on augmenting Joint attention and social-communication skills for children with autism. Sixty children from 3 to 9 years and diagnosed with autism were taken from Brain-Gym Autism Research Foundation, Puducherry. The experimental group received the total procedure of the PRT under the guidance with supervision of a clinical psychologist; the control group also had a total procedure of the PRT under the guidance without supervision of a clinical psychologist. The social and Communication Development Questionnaire was used in this study. The statistical data were analyzed using descriptive statistics, students paired "t" test and independent sample "t" test for multiple comparisons. The experimental group had shown significantly better improvement in social-communication skills, joint attention, and reduced severity than the control group.

Keywords: **parent as a co-therapist, PRT, Social-Communication, Severity of aut**
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Introduction:

Leo Kanner first introduced autism to medical literature in 1943. According to Coleman (1989), Kanner chose the word "autistic" because the children had in common an "extreme aloneness from the beginning of life and an inability to relate to others, with anxious and obsessive desire for the preservation of sameness and insistence upon repetitive activities and poor language development." Autism is now understood as a neuro-developmental behavioural syndrome. Autistic symptoms are recognized as the final pathway with which the brain expresses a great variety of lesions and malfunctions of the infant's central nervous system (Coleman, 1989).

APPLIED BEHAVIOUR ANALYSIS

Applied behaviour analysis (ABA) refers to the basic theories of behaviour developed by Watson (1913), Thorndike (1921), Skinner (1938), and other methods of

instruction for individuals with autism (Baer, Wolf, & Risley, 1968). Teaching methods based on ABA, include the research-based instructional strategies used with (1) Discrete Trial Training (DTT), (2) Pivotal Response Training (PRT), and (3) Teaching Functional Routines, (Arick & Falco, 1989; Krantz et al., 1993). The ABA instructional strategies provide a powerful tool for enabling children with autism to meet important educational goals and special education Sambandam, E., & Rangaswami, K. (2018).

PivotalResponse Training (PRT): Pivotal Response Training is a behavioural-based method used in the STAR programme and addresses the need for the child to learn to respond in a more natural child-centered way. Pivotal Response Training is used to teach social interaction skills, play, increased generalization, and expressive language, in a more natural and contextually appropriate way (Sambandam, E et al, 2020; Koegel et al., 1989).

PARENT**APPORTIONS IN PIVOTAL RESPONSE TRAINING:**

Throughout the life of children with autism, parents remain vital to the children's welfare and development, and also having a child with autism places a particular burden on parents (Sambandam & Rangaswami, (2018). When parents are apportioned in the programme for pivotal response training as full partners, their own special needs are also recognized and they are provided with suitable support and guidance. A well-functioning strategy for intervention represents a collaboration between parents and professionals and reflects the values, style, and goals of the family has achieved international acceptance (Sambandam & Rangaswami, (2011), Schopler & Mesibov, (2000), Brunner/Mazel et al (1989), Volkmar et al (2005) and Brereton et al (2005)). To be successful for the children as well as for the parents, parents must feel ownership in the intervention programme, through collaborating to develop its goals, structure, methods, and materials.

The need for parent-professional collaboration in autism intervention is paramount. The societal movement toward the empowerment of parents and families has been supported by research and clinical evidence (Sambandam & Rangaswami, (2011), Koegel et al, (1996)). Parents were viewed as the cause of their child's problems. Now they have been recognized to play a key role in the effective intervention of their children (Howlin, 1989; Kozloff, 1984; Lovaas, 1987; Marcus & Schopler, 1989; Schopler et al, 1984; Schreibman et al, 1984; Volkmar et al, 1999).

Parent training and other family interventions vary in general approaches. Eight general approaches are most relevant to working with families of children with autism. They are training the parents as co-therapists, behavioural approach, relationship enhancement, cognitive approach, emotional support, instrumental support, and advocacy training. To train parents of children with autism, a programme has been evolved to empower parents to enhance the effectiveness of training children with autism (Sambandam & Rangaswami, 2011).

Structured Behavioural Interventions curriculum content: parent apportion in Pivotal Response Training (PRT) was designed based on the treatment components of a variety of skills, such as clear and appropriate prompts, turn-taking, maintenance tasks, reinforcing attempts, responding to multiple cues and direct response-reinforce relationship. Parents who have been trained to implement these techniques exhibit more positive effects while teaching their children (Schreibman et al., 1991).

Play Skills: Children with autism demonstrate impairments in relationships with peers and the use of symbolic (Stahmer, 1995), and socio-dramatic play(Thorpe, Stahmer, & Schreibman, 1995). Peer interactions are characterized by low rates of initiation and response (Corona et al., 1998). Children with autism appear to pay less attention to other people's emotional displays than do comparison groups and demonstrate less imitation of other people's actions, movements, and vocalizations (DeMyer et al., 1972; Stone et al., 1997). Charman (1997) reported that the production of symbolic play acts was markedly deficient. Studies have

found more repetitive and immature play in children with autism (Libby et al., 1998). Several investigators have found that interventions for stimulating symbolic play development in preschoolers with autism have been successful (Goldstein & Strain, 1988; Stahmer, 1995; Thorp et al., 1995).

Social Interaction Skills: Difficulties with social interactions have been one of the consistent hallmarks of autism. The behavioural approach to treating social interaction difficulties of autism has been in use since the 1960s. Odom and Strain (1986) found that direct teaching children with autism to interact with peers has been successful, teaching typical peers to interact with children who have autism has also been successful and a combination of these approaches has been most effective. Normally developing children have successfully learned to use incidental teaching (McGee et al 1991) and Pivotal Response Training (Pierce & Schreibman, 1995) has been used to increase reciprocal interaction with their peers who have autism. Programme plans are written to promote general growth for these children.

Managing Joint Attention Deficit: A learning deficit is exhibited by children with autism that specifically impedes language development because of joint attention deficit (Mundy, Sigman, & Kasari, 1990; Wetherby, Prizant, & Hutchinson, 1998). Joint attention is the ability to coordinate attention between people and objects and involves advanced gesturing such as showing, waving, and pointing (Whalen & Schreibman, 2003). Autistic children with deficits in joint attention have difficulty coordinating attention between people and objects, orienting and attending, and following the gaze and pointing of another person (Mundy et al, 1990).

Social Stories: A social story is an approach that provides visual structure and sequencing to teach social skills and reduce problem behaviour. In recent years research has provided some objective support for its use with higher-functioning children, which emphasizes the use of reinforcing consequences in the stories and has been applied to lower-functioning children. Both approaches present students with brief, individualized stories illustrated by line drawings. Hagiwara and Myles (1999) presented the sequence of pictures using a computer. The stories guide the student through a social event that has previously led to problem behaviour. Social stories are made up of four types of sentences (Gray, 1996, 1998). Descriptive sentences define the social setting and the behaviour typical of that setting. Directive sentences instruct the children about appropriate responses. Social stories offer an appealingly nonintrusive way to teach social skills and reduce behaviour problems.

Play and Leisure Activities: The absence of age-appropriate play skills is a characteristic of autism. Most comprehensive management for young children includes goals related to appropriate play and the use of unstructured time (e.g., Handleman & Harris, 2001; Holmes, 1998; Leaf & McEachin, 1999). The aim is to improve play competence in areas such as object play and symbolic play or to enhance children's "level of engagement in play and playfulness" (Baranek, Reinhartsen, & Wannamaker, 2001). Play is also the primary vehicle for teaching social skills and for many therapies. Activities carried out in play are often intended to improve motor, language, and cognitive skills.

Pre-academic Skills: A child with strong visual-spatial skills may learn to read words to cue social behaviour, and a child with good auditory memory may develop a repertoire of socially appropriate phrases for specific situations (National Research Council, 2001). It is possible to use the strengths of individual children to assist them to learn a language and the world around them. The instruction of academic skills can teach the child how to perform academic skills and provide a bridge to learning language and social skills.

Modeling: Typically developing children learn most social skills by watching children and adults and imitating the social skills of others. The use of models has been a successful strategy for teaching social skills to many children. It offers the promise of

teaching spontaneous social interaction in natural settings; the children's ability is to learn by watching and imitating the behaviour of others. Unfortunately, the benefits of just modeling or proximity to typical peers have been very limited for children with autism (Taylor, 2001). Jahr, Eldevik, and Eikeseth (2000) attempted to teach children with autism to engage in cooperative play using models. When the researchers also required the children with autism to give an oral description of the modeled activity, all six children learned to initiate and sustain episodes of cooperative play, vary their play, and transfer their skills to new play partners. Technology in the form of videotapes and computer-based presentations has also been successful in structuring the modeling strategy to teach social and cognitive skills. Video modeling has been used to teach complex play sequences to a preschooler (D'Ateno, Mangiapanello, Taylor, 2003, Charlop-Christy & Daneshvar, 2003).

Koegel, Koegel, and Brookman (2003) provide comprehensive management in key areas to promote independence, promoting generalization, and self-education. Koegel et al, (2003) emphasized that motivation and child initiations are particularly important for the first step for children with autism. They noted that motivation is increased when a child is provided with choices, task variation, interpersonal maintenance tasks, reinforcement of response attempts, and when natural and direct reinforcement is used. Self-initiations are the second overarching goal of their programme. Koegel et al. (2003) defined self-initiation as beginning a new verbal or nonverbal social interaction. Social interactions occur less often in children with autism. These were greater problems in the areas of social-communication skills and these deficits are problematic and behaviourally-based methods have been developed (Matson et al, 1993; Taras, Matson, & Leary, 1988).

(Sambandam et al. 2014, Koegel et al. 2003, Matson et al., 1999, 2005) emphasized that improvement in self-initiations of communication and social behaviour can result in concomitant changes in academic, social, and communication domains, while decreasing aggression, self-stimulation, self-injury, and tantrums. Further, they emphasized parent Psycho-education and "empowerment". Parents worked with their children as co-therapists and were provided psycho-education with specific information on training procedures such as the possibility of blending training into daily routines and using training methods and targets that match the family's values used (Sambandam & Rangaswami, 2011, Sambandam & Rangaswami, 2012)and supported by(Koegel, Bimbala, & Schreibman, 1996; Moes, 1995). Koegel et al. (1996) suggested that parent training had effects outside of the gains made by the child with autism in specific skill areas.

Outline of the sessions: This programme takes 2.5 months and involves parents in weekly sessions for 10 weeks, in small group sessions. Session one deals with the outline and goals of the programme: there is an initial discussion about the content and process of the programme and then to explain the goals in detail and the importance of the involvement of the parents to achieve the goals are discussed. Further discussion about the nature of autism, its incidence, prevalence, course, and outcome is carried out. Session two deals with parents' problems and ways of coping with them. Reactions to diagnosis are to be handled appropriately. Concerning stress and coping effective ways of coping are discussed. Session three deals with managing the difficult behaviour of children. Discussion about behaviour management with examples and the process of starting that is how, to begin with, their children. Session four is aimed at developing appropriate behaviour by manipulating consequences. Reinforcing behaviour: To teach appropriate methods of reinforcement, the method of extinction is explained by quoting case examples. Further, it explains punishment and when to use "Punishment". Session five teaches new behaviours to discuss prompting with examples and the process of shaping is explained with examples, in addition to the above method of chaining has to be explained. Sessions six and seven deal with communication problems in

non-verbal and verbal children. Parents need an explanation about how language problems affect the behaviour of non-verbal children and improve non-verbal communication using alternative and augmentative communication. Further, it explains how language problems affect the behaviour of verbal children and how to manage it. Session eight deals with the social problem of children with autism and methods for enhancing social skills by providing examples are discussed. Session nine is deals with the use of play therapy in the management of the problem. Parents are to be explained the importance of play in socialization. The methods used are enhancing child's attention through eye contact, attending, and staying on a task so that they can engage with others. Final session ten is to review the programme: This session aims to clarification of doubts about the programme and to discuss resources available for the children and family for management and the need for follow-up.

METHODOLOGY:

The present study aims to evaluate the Parent apportions in pivotal response training on augmenting Joint attention and social-communication skills for children with autism.

Hypothesis: There would be a significant improvement in the Social skills of childrenwith autism consequent to parent apportions in pivotal response training under the guidance with support of a clinical psychologist. Joint attention would improve significantly after the parent apportions in pivotal response training on the children with autism under the guidance with support of a clinical psychologist. There would be a significant improvement in social-communication skills after the parent apportions in pivotal response training on the children with autism under the guidance with support of a clinical psychologist.

Sample size: To study the problem in detail and to test the above-stated hypothesis, 60 children with the age range of 3 to 9 years and diagnosed with autism were taken from Brain-Gym Autism Research Foundation, Puducherry, who met the inclusion and exclusion criteria. They were assigned randomly to either the experimentalgroup (N 30) or the control group (N 30). While the experimental group underwent the total procedure of the PRT under the guidance with supervision of a clinical psychologist, the control group had a similar PRT under guidance without supervision of a clinical psychologist.

Inclusion Criteria considered were DSM – VTR criteria for 2.99.00 of current Autism, present for at least 6 months. Children with autism in the age range of 3 years to 9 years. Parents of children with autism who were within the age range of 25 to 45 and having educational qualification 10th std and above.

Exclusion Criteria considered were DSM – VTR criteria of other behavioural problems, Intellectual disability, any other disabilities and Seizure Disorder for the child, and those severe forms of autism that needed medication to control them. Presence of a family history of any significant psychiatric problem in the parents of children with autism and the Presence of any serious physical or advanced neurological, cardiovascular, renal, hepatic, disease, unstable diabetes, or lever function abnormality in the parents of children with autism.

Psychological Assessment tools used for thestudy:

The social and Communication Development Questionnaire (Skuse et al, 1997) was originally named the Autism Screening Questionnaire (ASQ; Berument, Rutter, Lord, Pickles, & Bailey, 1999), is a 40-item parent questionnaire designed for use with individuals aged 4 and older. Items were derived from the Autism Diagnostic Interview—Revised (ADI-R; Lord, Rutter, & LeCouteur, 1994). Preliminary data from 2- to 4-year-olds indicate more modest estimates of sensitivity and specificity than in the original test sample of older individuals.

METHOD OF IMPLEMENTINGPARENT APPORTIONS IN PIVOTAL RESPONSE TRAINING PROGRAMME: Weekly six days from Monday to Saturday, each child with autism in the Parent apportions in the pivotal response training programme had five

hours in the institution. The pivotal response training programme was carried out covering the following areas,Symbolic Play Skills, Social Interaction Skills, Joint Attention, Social Stories, Play and Leisure Activities, Pre-academic Skills, Modelling, and expressive language. The duration of training for each area is for forty-five minutes followed by fifteen minutes break. Children had a pivotal response training programme of three hours and forty-five minutes per day at the institution from 10 A.M to 1 P.M.

Stage – I: All the children and their parents who were willing to participate in the study were initially administered the Socio-demographic data sheet. Thereafter Social and Communication Development Questionnaire (Skuse et al, 1997) was administered to measure joint attention and social communication skills.

Stage – II: 30 children with autism (the experimental group) participated inparent apportions in pivotal response training under the guidance with supervision of a clinical psychologist. As stated above the control group had parent apportions in pivotal response training under guidance without supervision of a clinical psychologist. All the children were not on any medication.

POST – INTERVENTION

Stage – III: After the completion of the Parent apportions in the pivotal response training programme both groups were assessed with the same questionnaires which were administered initially.

STATISTICS USED

The data collected during the pre and post-intervention for the experimental and control group were analyzed using descriptive statistics, students paired "t" test and independent sample "t" test for multiple comparisons.

RESULTS AND DISCUSSION:

Table 1: Shows Mean, SD, and t-values of intervention and control groupfor the Social and Communication Developmental Questionnaire.

Social & Communication Scale	Intervention Group			Control Group		
	Pre-Test Mean (SD)	Post-Test Mean (SD)	t Value	Pre-Test Mean (SD)	Post-Test Mean (SD)	t Value
	20.70 (3.019)	13.93 (4.307)	10.709***	22.40 (4.031)	20.43 (3.830)	3.994***

***** - Significant at 0.001 Level.**

Pre and post-intervention scores measured by the Social and CommunicationDevelopment Questionnaire (SCQ) were explained in this table. For the interventiongroup, the social and communication skills statistically had shown significant**ly** betterimprovement than the control group. Hence indicates that the parent apportions in PRT under the guidance with supervision of a clinical psychologist. The control group also had shown marginalimprovement in social and communication skills. Because the parent apportions in PRT were under only guidance without supervision of a clinical psychologist.

The results corroborate the findings by Sambandam, Shankar Shesherao Warle, and Rangaswami (2020) conducted the long-term effects of ABA-based intervention to improve social communication and social maturity for children with autism. The results of the experimental group showed significant improvement concerning symptom reduction, improvement in social–communication skills, and social maturity compared to the control group.

Another supportive study was concluded by Sambandam and Rangaswami (2018) conducted the clinical aspects and comprehensive management of autism. The

part of the study was to determine in social-communication between both groups. The experimental groups showed significantly better improvement in joint attention and social communication than the control group.

Another study by Sambandam and Rangaswami (2012) conducted home-based ABA and TEACCH intervention for a child with autistic disorder. The goal of thestudy was to implement ABA and TEACCH-based training for mothers of a childwith autism and later to be implemented on the child by the mother and to evaluate thebenefits of the training programme for the child. The format of the home-basedbehavioural training for mothers consisted of 20 bi-weekly sessions for two and halfmonths. The mother was explained about autism, behavioural problems, communicationproblems, and difficulty in socialization. ABA and TEACCH-based parental trainingwas implemented, which included managing problem behaviours by explainingreinforcement, extinction, time out, and developing new behaviours throughprompting and shaping. Further, the mother was trained in communication skills throughverbal and non-verbal modes. In addition, socialization techniques were alsotaught. The mother of the child carried out the home-based training for 9 months. Thehome-based management is carried out by the mother. The following findings arebrought out as measured by REELS. At initial assessment, the child's CombinedLanguage Age (CLA) was 6 months, and both Receptive Language Age (RLA) andExpressive Language Age (ELA) were 6 to 7 months. Receptive Quotient (RQ) andExpressive Quotient (EQ) 17 each as assessed by Language Quotient (LQ) was 17.The child recognized the names of his family members, responded to simple gestures,repeated combinations of 2 syllables, and responded when called by his name byturning his head. After the intervention, the child's RLA was 10 to 11 months, ELA was 8 to 9 months and CLA was 9 months. The RQ was 21, EQ was 17 and LQ was 18. He used gesture language such as shaking his head and mimicking sounds. He had minimal improvement in language usage. The gain was 3 months. Based on the above findings were communication and socialization showed marginal improvement to a considerable extent.

A similar study by Lal (2010) studied the effect of alternative and augmentative communicationon the language and social behavior of children with autism. The objective of the studywas to determine the effect of AAC training on developing social behavior in childrenwith autism. Children with autism (N = 8) between the ages of 9 and 12 years wereselected from special schools in Mumbai for this experimental research. The studyaimed to determine the effectiveness of Makaton Vocabulary Language Program, asystem of Alternative and Augmentative Communication (AAC), on the development oflanguage and social behavior of children with autism. The subjects received 12sessions of language intervention using AAC. Language Assessment Tool for AutisticChildren (LATCA) and Social Behavior Rating Scale (SBRS) were used asinstruments for measurement. The experimenter and class teachers observed thechildren on SBRS within and outside the classroom for assessment of social behavior. Allchildren improved their scores from pre-test scores of 176 to post-test scores of 224. Dataobtained through author observation was correlated positively to that of the classteachers (r = 0.78). Analysis of data showed the difference between pre and post-testscores was found to be statistically significant. The study indicated the value of AACtraining in enhancing social-communicative behavior.

The results corroborate the findings of Mawhood and Howlin (2000).They studied autism and developmental receptive language disorder. Their findingsindicated that verbal IQ and receptive language scores improved significantly for thecontrol group. The experimental group was less severely impaired in their social useof language; many showed several abnormal features in this domain. There wereno differences between the groups on tests of reading or spelling. Discriminatefunction analysis, which had clearly distinguished between the groups of

children,now showed much greater overlap between them. Regression analysis indicated thatearly language ability appeared to be related to outcome in the control group, inthe experimental group there was little association between measures of childhoodfunctioning and later progress. The implications of these findings understand thenature of the underlying deficit in autism and the relationship between the two groups.

Similar findings were reported by Sallows and Graupner (2005). They studied24 children with autism and were randomly assigned either to clinic directed group, replicating the parameters of the early intensive behavioural treatment developed atUCLA, or to a parent-directed group that received intensive hours but less supervision by equally well-trained supervisors. Outcome after 1 year of treatment, they concluded that by combining children in both groups they found the pre-test to post-tes tgains were significant for receptive language as assessed by Reynell Developmental Language Scales.

The study aimed to determine the effectiveness of Makaton Vocabulary Language Program, a system of Alternative and Augmentative Communication (AAC), on the development of language and social behavior of children with autism. The subjects received 12 sessions of language intervention using AAC. Language Assessment Tool for Autistic Children (LATCA) and Social Behavior Rating Scale (SBRS) were used as instruments for measurement. The comparison of their pre and post-test mean scores showed a significant change in language and social behavior. The use of AAC had a positive effect on the development of receptive and expressive language. AAC usage was also found effective in enhancing the social behavior of children with autism.

In another study by Lal and Bali (2007), in their study 30 children with autism from special education schools participated aimed to document the effect of visual strategy training on the development of communication skills and compare its effectiveness with existing classroom instructions. Objects, pictures, symbols**,** manual signs, and the Scale for Communication Skills (SCOMS) were used as tools. The treatment group received 14 one-by-one sessions. Each session focused onthe development of comprehension, labeling, description, joint attention, and active interaction through visual supports. They found significant improvement in receptive language and expressive language in communication skills for the treatment group t**o** the control group.

Table 2: Shows comparison of pre and post-intervention scores for the intervention group concerning the Social and Communication Developmental Questionnaire (SCQ) for high and low possible autistic children.

SCQ Sub-Scales	Pre-Intervention Mean(Standard Deviation)	Post-Intervention Mean(Standard Deviation)		df	t value
	No of High for Possible Autism (30)	No. of High for Possible Autism (14)	No. of Low for Possible Autism (16)		
	20.80 (2.797)	21.71 (2.867)	20.00 (2.556)	28	1.732 NS

NS- Not significant.

The pattern of social communication level was assessed using the Social and Communication development Questionnaire (SCQ). The changes in the maturity level concerning severity were explained. At pre-intervention 30 (100%) children with autism were at high possible autism. After the post-intervention, there was a significant change in severity. 14 (46%) children were at high for possible autism and the remaining 16 (54%) children were at low for possible autism due to parent

apportions in pivotal response training under the guidance with supervision of a clinical psychologist, however, statistically, it did not show significant changes in severity.

Table 3: Shows comparison of pre and post-intervention scores for the control group concerning the Social and Communication Developmental Questionnaire (SCQ) for high and low possible autistic children.

SCQ Sub-Scales	Pre-Intervention Mean(Standard Deviation)	Post-Intervention Mean(Standard Deviation)		df	t value
	No. of High for Possible Autism (30)	No. of High for Possible Autism (26)	No. of Low for Possible Autism(4)		
	22.40 (4.031)	23.33 (3.637)	17.00 (1.414)	28	3.346***

***** - Significant at 0.001 Level**

The above table shows scores for the Social and Communication Developmental Questionnaire (SCQ). In the control group, all the children were at high possible autism as assessed at pre-intervention. After management, it significantly changed to a marginal level, wherein 26 (87%) children were at high possible autism and the remaining 4 (13%) children were at low possible autism due to parent apportions in pivotal response training under only guidance without supervision of a clinical psychologist.

CONCLUSION:

This study was developed with the intent to determine the teaching of parents to effectively use Pivotal Response Treatment (PRT) to train their children with autism to augment Joint attention and social-communication skills. The pre-post-experimental design was used in the present study. A purposive sampling procedure was adopted along with certain measures. Both intervention and control groups consisted of 60 children who were with mild or moderate autistic disorders with an age range of 3 to 9 years. The tool used for the study was Social Communication Questionnaire (SCQ). Overall, the results of this research indicated that Pivotal Responses Training(PRT) delivered by the parent under the guidance with supervision of a clinical psychologisthad a positive impact onthe joint attention, social communication, and severity level of autism of children with autism than the control group. The control group showed marginal changes in joint attention and social communication responses.

Based on the results of this research work, the efficacious Parent apportions in pivotal response training under the guidance with supervision of a clinical psychologist on augmenting Joint attention and social-communication skills have brought out positive effects on children with mild and moderate autism.

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