

Effectiveness of the social communication emotional regulation and transactional support (SCERTS) model based intervention in language development and fostering social communication in children with autism spectrum disorder

Hafsa Fiaz^{1,2}, Atia-ur-Rehman³

¹Speech-Language Pathologist, Council of Allied Health Sciences, Pakistan, ²Council of Allied Health Practitioners Qatar, ³Assistant Professor, Department of Health Professionals Technologist, Faculty of Allied Health Sciences, University of Lahore, Pakistan

Correspondence to: Hafsa Fiaz, Email: hafsa.fiaz25@gmail.com

ABSTRACT

Background: Social Communication Emotional Regulation Transactional Support (SCERTS) model is based on studies and has manuals for assessing children and designing individual treatment plans. However, limited research has been done to evaluate the efficacy of this model. This study attempts to evaluate the impact of SCERTS model-based intervention on children with Autism Spectrum Disorder (ASD) in Lahore with the objective to determine the usefulness of SCERTS in promoting language development and improvement in social skills in children with ASD.

Patients and methods: This quasi experimental study was conducted at Roots and Wings autism center, located in Bahria Town Lahore, for the duration of nine months. Children with formal diagnosis of Autism Spectrum Disorder, with age range of 3 years to 6 years old. Prior to intervention and subsequently after that, the children were evaluated with the portage checklist in the domain of language and socialization skills.

Results: Participating children demonstrated improvement in their language and social skills after the intervention, as assessed by portage.

Conclusion: SCERTS based intervention can facilitate children with autism spectrum disorder to improve their language and social communication skills.

Keywords:

Quasi Experiment, Social communication, Language development, Autism Spectrum disorder, SCERTS model

INTRODUCTION

Autism spectrum disorder (ASD) has been defined as a complex developmental condition that involves restricted or repetitive behaviors with consistent challenges in communication and social interaction.¹ According to the Centers for Disease Control and Prevention (2018), one in fifty-nine children, aged 8 years, is now classified as having ASD.² One previous study determined the prevalence of autism as 6.31% in special education schools of Lahore.³ Poor social relationship was reported to be the most prominent feature among all associated features of the disorder.³ From the age two to six years, language develop from simple telegraphic speech to fully grammatical forms of utterances of a typical child.⁴ In individuals with ASD, in contrast to other challenges, spontaneous reciprocal communication appears to be a definite problem. According to APA children with ASD

exhibit considerable problems in their communication and socialization. (American Psychiatric Association).⁵ Communication and language problems typically are what define autism. Thus, language development is a common focus in the treatment programs for ASD children. It is a wide-ranging approach to improve the communication and socio-emotional skills of autistic children and helping them to become a better social communicator.⁶ SCERTS Model's SC component directly deal with the key issues in social communication exhibited by children with autism spectrum disorder. Specific objectives are targeted for enhancing symbolic and social communicative capacities in different settings. So that, children who show a better ability to follow the additional attention can be facilitated to begin communication interaction.^{6,7} ASD children commonly show impairments in both the receptive and expressive language. However, studies showed noticeable comprehension problem as compare to expressive language, in at least one-third of young children with ASD. It emphasizes on setting realistic suitable goals for communication intervention.⁸ Presently it is estimated that about thirty percent of ASD children remain minimally verbal, despite

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receiving a range of educational opportunities and years of interventions.⁹ Because of the major problem of communicative deficits in ASD individuals, the management of communication challenges is the main area of treatment. It is essential to support especially the communicative development in order to enable these children to integrate themselves into society and be able to participate in daily life in the best possible way. This study intends to evaluate improvement in language in the form of responses during the spontaneous speech opportunities and social communication of young ASD children using the SCERTS model.

PATIENTS AND METHODS

This was a quasi-experimental study conducted at Roots and Wings Autism Center Lahore for a period of nine months. Children were selected on the basis of their age from 3 to 6 years and diagnosis of ASD. Intervention was made after receiving informed consent from their parents or primary caregivers. Children who had ASD with any co-morbid disease, similarly children with ASD but was taking psychiatric drugs or receiving any medical treatment or whose age was below 3 or above 6 years were excluded. Purposive sampling (non-probability) technique was utilized and sample size was calculated by using the WHO software and to rectify dropouts and for better statistical analysis sample size of 30 participants was calculated.³ Participating children attended SCERTS model-based intervention with 45 minutes of individual therapy session five days a week and one weekly group therapy session (5 children in each group). Therapy sessions were carried out in speech therapy booth (2.1 m by 2.1 m) of Roots and Wings Autism Center. The cubical contained a one-way observation mirror, a table and two chairs positioned facing each other. The group training sessions was conducted in the classrooms immediately adjacent to speech booth, at the center. This additional location is incorporated to promote use of language in social context. Portage assessment tool was utilized to rate the child participants, before and after the intervention. It assesses children in major developmental areas that includes motor skills, language, socialization, cognition and self-help skills. Portage checklists have been used as an evaluation instrument to monitor children's developmental level in different domains. For the present study, two subscales relevant to intervention areas were used to rate individual child's developmental progress, which includes the Language Scale and Socialization Scale. Portage was administered individually to each of the

selected children before and after intervention. Evaluation was done to compare before and after intervention and the scores was compared in order to monitor progress. The Language Scale measured the comprehension and expression of language and Socialization Scale measured positive social functioning. Statistical analysis was carried out using SPSS version 25. Qualitative variables were described as frequency and percentages while quantitative variables are measured in the form of mean \pm S.D (Standard deviations). After checking normality assumptions paired sample t-test was used to monitor intervention results as assessed by portage checklist. A p-value ≤ 0.05 was considered as significant.

RESULTS

Post intervention assessment showed improved scores in target domains of their development, as measured by Portage. These findings support SCERTS model incorporation into autism management services. Table 1 shows the frequency distribution of age, 30 children were included in the study following the inclusive criteria, with the mean age 4.7 ± 0.8 years, minimum 3.1 years and maximum 6.0 years of the age. Out of 30 children, 76% were male 23% were females. Children were assessed before and after the intervention on the Portage subscales. Comparison of the before and after intervention scores was done in each target domain which resulted in considerable improvement in language development and social communication after intervention. Pearson coefficient of Correlation was computed to measure the effectiveness of SCERTS model based intervention. The results are presented in Table 1.

The coefficient of correlation between pre-intervention and post-intervention Portage language test scores was 0.895 and for Portage socialization test scores was 0.768. And the paired sample t test administration showed $t = -9.893, p < 0.0005$ for language skills and $t = -8.930, p < 0.0005$ for *Social* skills. Based on the means of the independent variables and the direction of the *t*-value, a statistically significant improvement was observed in participants following the

Table 1 Frequency distribution of language and socialization scores before and after SCERTS intervention

Variable	Mean \pm S.D	Correlation	p-value
Language score			
Pre-intervention	11.47 \pm 3.711	0.895	.000
Post-intervention	14.47 \pm 3.471		
Socialization score			
Pre-intervention	6.31 \pm 1.907	0.768	.000
Post-intervention	8.33 \pm 2.040		

SCERTS intervention from 11.47 ± 3.711 to 14.47 ± 3.471 in language skills and 6.31 ± 1.907 to 8.33 ± 2.040 socialization skills.

DISCUSSION

Present study showed that children received the intervention demonstrated considerable betterment in areas that are related to the core deficit in ASD. SCERTS model-based intervention study done in Hong Kong with different durations (five-month vs. ten-month) on 122 children with autism with mean age of 53.43 ± 9.05 months. These children were assessed with the Chinese Psychoeducational Profile-Third Edition and the Developmental Assessment Chart, before and after the intervention. Results showed that children improved significantly in their social communication and emotional behavior after the intervention. Moreover, educators and parents had positive views toward the intervention. It suggested that a SCERTS model-based intervention can improve social communication, emotional regulation, and other skills in children with ASD.¹⁰ There were some limitations related to present study. Despite applying a quasi-experimental design and recording assessment results before and after the intervention, there was no control group that limited the interpretation of the findings. There was no norm referred developmental assessment tool available, so it was compared with the traditionally used developmental checklist. Children were selected based upon their previous clinical diagnosis of Autism and the severity level was not considered. Lastly, this study was done in only one special needs centre in Lahore. Regardless of these limitations, the present study provides primary practical support to the SCERTS model-based intervention for ASD in Pakistani context. Discussion also highlighted further the positive outcomes, such as children was demonstrating the increased number of opportunities in beginning interaction for communication which directly influence on their behavior as there was less behavior problems noted after SCERTS implementation. Focus on encouraging the **children's social communication** facilitated their learning. On the whole, significant improvement was observed in the participating children in multiple areas after SCERTS model intervention.

CONCLUSION

Children scored better on assessment after the intervention which proves SCERTS as a better treatment approach than conventional treatments.

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