

EFFECTIVENESS OF SPEECH AND LANGUAGE THERAPY FOR AUTISM SPECTRUM DISORDER

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ABSTRACT:

OBJECTIVE

The present study was conducted to evaluate the effectiveness of Speech and Language therapy for children with Autism Spectrum Disorder.

DESIGN

ABA and pre and post research design.

PLACE AND DURATION OF STUDY

The study was conducted in Center of Mentally & Physically Affected Special Students, (COMPASS) in six and half months.

SUBJECTS AND METHODS

2 students were taken, assessed by, psychologist and speech and language therapist. Childhood Autism Rating Scale, (CARS) was used for the assessment of the severity of symptoms, before and after the implementation of the therapy. Records were kept through reports by therapists, observations and reflective journals. Children were reassessed again to measure the effectiveness of therapeutic interventions by CARS. Wilcoxon test and bar graph were used for statistical analysis of the data.

RESULTS

Results showed significant differences in children's rating on CARS. Scores of the children improved after the therapy. The severity of symptoms decreased from severe to moderate category. Pretest and posttest results had mean differences; child 1 scored 2.67/.816 (M/SD) in pre test and 2.23/.651 (M/SD) in post test, child 2 scored 2.50/.462 (M/SD) in pre test and 2.03/.399 (M/SD) in post test.

CONCLUSION

Speech and language therapy helps enhancing speech, vocabulary, verbal and non verbal communication as well as sentence building in children with Autism Spectrum Disorder.

KEY WORDS:

Autism, interventions, Childhood autism rating scale, Speech and Language therapy.

INTRODUCTION

Autism is defined as a lifetime persistent developmental disability, which has an onset earlier to 36 months and is characterized by conditional impairments in social interaction and communication, restricted interests, and repetitive behaviors¹. The latest estimate of prevalence indicated that¹ in 100 children have a diagnosis of an autism spectrum disorder². In an indigenous study, it was indicated that the prevalence ratio of autism has been increased to 6.31 %³.

Children with autism typically show deficiencies across different linguistic domains, and, thus, selection of interventions main target is establishing priorities. The target behaviors are, ranging from single words or a phrase in isolated contexts to a conversational interaction in variety of contexts. Other interventions, are sign language, discrete-trial training, and milieu teaching, procedures are proven successful for increasing communication of children with autism. Other important developments were due to interventions planned to replace challenging behaviors (functional communication training) and also to promote social interactions⁴.

Roberts and Prior indicated that, visual support involves, using the symbols that supports, receptive and expressive communication skills, along with learning and information processing skills of individuals with autism⁵. In a systematic review, FCT (functional communication training) has shown potential results in maintaining significant reduction in an instant challenging behavior of an individual with autism⁶. Currently, it is considered to be the best practice, while addressing a challenging behavior. Further research indicated that the role of speech pathologists is very important in the selection of symbols, teaching schedules and any other kind of support needed for the family and teachers and also in analyzing the results of such interventions⁷.

Research work done on autism in Pakistan is limited, while the prevalence of autism is increasing day by day. This study is designed to see the effectiveness of speech and language therapy in autism spectrum disorder.

SUBJECTS AND METHOD

Participants

Two children diagnosed as having Autism spectrum disorder were selected through purposive sampling technique from Center of Mentally & Physically Affected Special Students, (COMPASS) with the help of teachers and speech therapist of the institution.

Instruments

Diagnostic criterion of DSM 5⁸ for Autism Spectrum Disorders was implied to diagnose the children with Autism Spectrum Disorder. Childhood autism rating scale (CARS)⁹ was applied to assess the child's improvement in the severity of symptoms. It is a 15 item behavioral rating scale developed for identifying the

child with autism. These items were rated on the scale ranging from normal to severely abnormal. Following scores are given to the responses, 1 = normal for child's age, 2 = mildly abnormal, 3 = moderately abnormal, 4 = severely abnormal. Midpoint scores include: 1.5, 2.5, and 3.5.

Procedure

Two children of Autism Spectrum Disorder with Asperger like features were taken from a special school after the permission from the head of the institute. Informed consent was taken from the parents. Childhood autism rating scale (CARS) was applied and the intervention of speech and language therapy was provided for a period of approximately 6 months. A speech therapist report was taken before and after the intervention was applied. Reflective journals were written, using fictitious names for the children. Researcher observed the session of speech and language therapy of the child with help of speech therapist. At the end of intervention Childhood autism rating scale (CARS) was administered again. Data were entered to SPSS and Wilcoxon test was computed.

RESULTS

General observation of participant 1

Participant 1 was a young boy of 10 years old. His command following was very good. He tried to understand the instructions given by teacher and the speech therapist. Sometimes he showed irritation and aggression even during the session. He was given time to calm down by telling him to relax. He worked very well with the reinforcement. He was very well aware of what he liked. He had a concept of reinforcement was yet to develop. The therapist worked on enhancing his vocabulary by showing him picture of daily use things, demonstrated him blowing exercises and demanded imitation. She encouraged him to produce different sounds such as mama, baba. He tried to produce those sound, and asked for his reinforcers when he does. Overall it was observed that he was very well observation of participant 1

Pretest report of Participant 1

He needs improvement in his pre-verbal skills, such as, eye- contact, sitting behavior, attention span and simple one step command following skills. In receptive and expressive language participant 1 needs improvement in his understanding of receptive language through play and group therapy. Participant does well with reinforcers. Work is needed to be done on his imitations of sounds, a, o, and imitations of words such as mama, ama, baba, sometimes papa, Allah on imitation of speech therapist.

Post test report of participant 1

He has shown progress in his pre-verbal skills, such as, eye- contact, sitting behavior, attention span and simple one step command following skills. He enjoys blowing different blowing instruments and lightening musical toys. In receptive and expressive language he has shown improvement in his understanding (receptive language) through play and group therapy. Participant 1 does well with reinforcers. He imitates sounds, a, o, and sometimes e. he imitates words such as mama, ama, baba, sometimes papa, Allah on imitation of speech therapist. He tries to imitate other easy vegetative sounds

or words with the use of different reinforcers and play therapy.

The Wilcoxon test showed significant difference between scores of participant 1 on pre test (M/SD) 2.67/.816 and post test (M/SD) 2.23/.651, $P = <0.029$ (see table 1). This shows that the child has shown improvement after the implication of the intervention speech and language therapy. Bar graph shows the rating of childhood autism scale on its 15 dimensions. It tells us that the child has shown improvement on the dimension of imitation, emotional response, adaptation to change, visual response, taste smell and touch response and use, fear and nervousness, verbal communication, activity level, and general impression. It tells us that the mean difference of pre test score lie between 0-4 and post test lie between 0-3.5. (see figure1). Overall scores of CARS showed that he made progress from severe to mildly moderate category of autism.

General observation of participant 2

Participant 2 was a young boy of 12 years. His command following was good. He was well aware of his surroundings, and his likes and dislikes. He was aware of the speech therapy room and liked to reach there before the therapist. He was very much interested in a red wiggling toy and knew the place where it was hidden. The therapist had to take his attention and tell him that he will get it after he finishes works. He had the concept of reinforcement. He was aware of the basic actions such as eating, smelling, riding, drinking, etc work was needed on his sentence building of 2 to 3 words. Therapist also worked on his concept building through story telling. He was encouraged to recall the story on his own.

Pretest report of Participant 2

Participant 2 needs improvement on his work related behavior such as attention span, turn – taking and command following skills. In receptive and expressive language, work is needed to be done on his receptive and expressive language. He needs improvement on his vocabulary of words and concept formation. Works is needed on sentence formation.

Post test report of Participant 2

Participant 2 has shown progress in his work related behavior such as attention span, turn – taking and command following skills. He enjoys doing work for speech session in a group (Group therapy). In receptive and expressive language, he has shown progress in his receptive and expressive language. He has good vocabulary of words and concept formation. He does well in a group and participate well in different group activities. He describes action picture cards in 4-5 sentences.

The Wilcoxon test showed significant difference between, the pre test (M/SD= 2.50/.462) and post test (M/SD= 2.03/.399) on significance level of $P = <0.05$. This shows that the child has shown improvement after the implication of the intervention speech and language therapy. The bar graph shows the rating of childhood autism scale on its 15 dimensions. It tells us that the child has shown improvement on the dimensions, such as: relating to people, imitation, body use, object use, visual response, taste smell and touch response and use, fear and nervousness, activity level, level of consistency and intellectual response and general impression. It tells us that the mean difference of pre test score lie between 0-3.5 and

post test lie between 0-2.5. His overall scores of CARS also indicated significant improvement.

DISCUSSION

Results of Participant 1 has shown mean difference between pre test and post test scores on CARS. The before and after Reports by the speech therapist of the child also discussed that the child has shown improvement in the area of imitation and verbal communication. The report also tells us that he has shown improvement in receptive language, which means he tries to understand and follow the given commands. His response to the reinforcement and play therapy is very good. In general observations, the child has improved now he also tries to imitate and puts effort in achieving the goal. He was well aware of the concept of reinforcement. In reflective journals we can see that the intervention helped the child enhance his communication skills. During the session it was observed that the therapist used daily use objects and situations that the child has to deal with to enhance the vocabulary. She also used different techniques such as blowing, imitation and tactile so that the child can produce different sounds such as mama or baba. Though the session's main focus of the therapist was to encourage the child to speak and produce sound. Reinforcement was used throughout the sessions as his response was very well towards it. Previous research on autism spectrum disorders confirms the findings that use of speech and language therapy enhances the communication skills of autistic person^{4,10,11,12}.

Results of participant 2, have also shown the mean differences between pre test and post test of CARS. The before and after reports by the speech therapist of the child also discuss that the child has shown improvement in behavior towards work and is good with expressive and receptive language. He has good vocabulary and has concepts of different actions. His activity level is good and enjoys working in group. In general observation, the participant's vocabulary and sentence building has improved. Now he can make a sentence consisting of 2 to 3 words. He is also well aware of the concept of reinforcement and his response towards it is good. In reflective journals, it was observed that the intervention helped the child enhance his communication skills. During the session it was observed that the therapist used daily use objects and situations that the child has to deal with to enhance the vocabulary. The focus was on sentence building. She used different techniques such as imitation and action pictures so that the child can produce sentence or 4 to 5 words. The session's main focus of the therapist was to encourage the child to speak and describe action picture through questions and answers. Reinforcement was used throughout the sessions as his response was very well towards it. He also responded well in group sessions. Previous research on the topic tells that gestures, sign language, and picture communication can enhance the communication skills of such patients^{4,10,11,12,13}.

CONCLUSION

This study has demonstrated that the intervention of speech and language therapy was found to be effective. Speech and language therapy helps enhancing speech, vocabulary, verbal and non verbal communication of the children; it also help in sentence building.

TABLE 1

Wilcoxon test for pre and post scores on CARS

	Pre Test	Post Test	t	P
	M/SD	M/SD		
Participant 1	2.67/.816	2.23/.651	-2.178	.029

Note: t=wilcoxon value, median=3.00

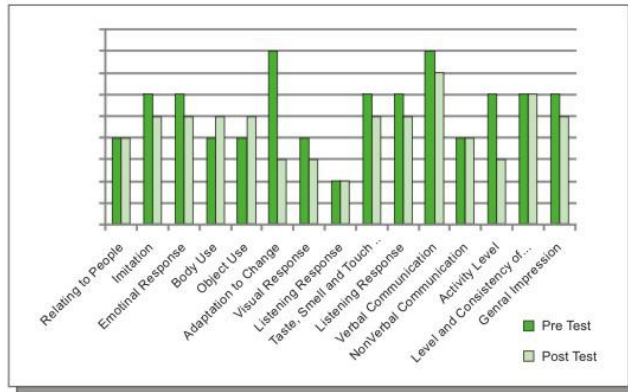


Figure 1: Bar graphs showing the scores of pre and post test mean difference on the dimensions of CARS.

TABLE 2

Wilcoxon test for pre and post scores on CARS

	Pre Test	Post Test	t	P
	M/SD	M/SD		
Participant 2	2.50/.462	2.03/.399	-2.889	.004

Note: t=wilcoxon value, median=2.50

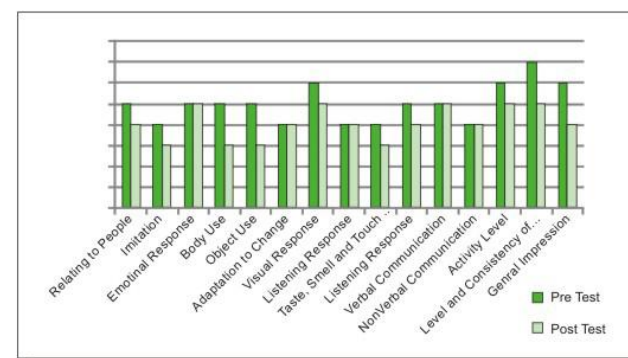


Figure 2: Bar graphs showing the scores of pre and post test mean difference on the dimensions of CARS

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