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THE EFFICACY OF MUSIC-BASED INTERVENTIONS FOR ENHANCING SOCIAL SKILLS IN AUTISM SPECTRUM DISORDER

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Abstract

Autism is a disorder that includes differences and/or challenges in social communication skills, fine and gross motor skills, speech, and intellectual ability. Autism is characterized by persistent deficits in social communication and social interaction across multiple contexts, including deficits in social reciprocity, nonverbal communicative behaviors used for social interaction, and skills in developing, maintaining, and understanding relationships. This paper aims to study the effectiveness of Music Therapy in enhancing the Social Skills on Children with Autism. The sample consisted of six children, each having mild level of Autism and the Age ranging from 8 to 12 years were selected for improving social skills. The sample was taken from Child Guidance Clinic (CGC), Department of Pediatrics, SVRR Government General Hospital, Tirupati. Both therapist and parent undergone forty 45-minutes sessions of Social Skills training through Musical Activities for three months. Before and after intervention, Autism Social Skills Profile (ASSP) scale was administered to both of parents towards children with Autism which included two components of Social/Emotional Reciprocity (SER) and Social Participation (SP). The findings from Means, SDs and the paired t-test revealed that the effect of intervention in improving Social Skills and in two the Social Skill areas or components were statistically significant. There is a significant improvement in social skills among children with Autism (Music Intervention Package). The findings of the study further support the fact that Music Activity is an effective way of improving Social Skills among children with Autism.

Keywords: Autism, Social Skills, Music Therapy

Introduction

Disability is a comprehensive term encompassing body impairments, activity limitations, and restrictions in participation. Disability encompasses three areas: impairment, which is a structural or functional deficit; activity limitation, representing difficulty performing tasks; and participation restriction, which indicates challenges in engaging with life roles. Thus, disability is a complex phenomenon, reflecting an interaction between features of person's body and features of the society in which he or she lives. Disability may be present from birth, or occur during a person's life time. Disability affects the child, not only the child's life but also the life of the family member. Other family members of the family, such as relatives, friends and even neighbors of a child with disability may experience stress to a varying extent.

Social skills are behaviors that promote positive interaction with others and the environment. Some of these skills include showing empathy, participation in group activities, generosity and helpfulness, communicating with others, negotiating, and problem solving. Teaching social skills can incorporate a number of techniques, including direct instruction, learning from peers, prevention of problem behaviors, and children's books. Many social behaviors are better learned among peers (Ladd, 2005), so teachers of young children are in a unique position to promote social learning in their classrooms.

Some authorities contend that for teen years (8 to 12 years) children with disabilities, social skills development should be the central goal of early childhood programs. In addition to children with identified developmental problems, there are often other children in classrooms who lack social skills or demonstrate problem behavior, although they do not have an identified disability.

Music forms part of our lives, and provides pleasure and satisfaction. At the same time, this research suggests that learning music may also carry side benefits. One of these is the potential for improved interpersonal communication, through the key factor shared by both activities: Listening, Music offers boundless opportunity for developing listening skills, but applying this learning outside of music does not occur automatically. The improvement of interpersonal communication through music is dependent upon making conscious connections between the listening skills developed in a musical context, and the application of these skills in other contexts. Musical skills developed in a rich musical environment, placing emphasis on the use of voice in singing and speech, and providing a broad range of musical activities have shown an improvement in the interpersonal communication of preschool children from a deprived neighborhood. (EVA BRAND AND ORA BAR-GIL)

Autism

The term "autism" originates from the Greek words *autos* (self) and *ismos* (state of being), literally translating to a state of being self-absorbed. It was first coined in 1911 by Swiss psychiatrist **Eugen Bleuler** to describe specific symptoms in patients with schizophrenia.
While autism began to be recognized as a distinct disorder in the 1930s, our clinical understanding has evolved significantly since then. In 1943, **Leo Kanner** identified a group of children with shared characteristics, including a preference for sameness, social isolation, and language challenges such as echolalia.

Meaning of Autism

Autism is a disorder that includes differences and/or challenges in social communication skills, fine and gross motor skills, speech, and intellectual ability. People with autism also have atypical responses to sensory input, like unusual sensitivity to light, sound, smell, taste, and/or sensory cravings. Other common symptoms include "stims" (hand flapping, toe walking, rocking), a need for sameness and repetition, anxiety, and in some cases amazing "savant" abilities in certain areas (often music and math). Since autism is a spectrum disorder, it is possible to be mildly, moderately, or severely autistic.

Autism spectrum disorder is characterized by persistent deficits in social communication and social interaction across multiple contexts, including deficits in social reciprocity, nonverbal communicative behaviors used for social interaction, and skills in developing, maintaining, and understanding relationships.

METHODOLOGY

Methodology is a way of systematically solving the research problem. It includes sample selection, sample size, development of tool, treatment condition, settings and techniques used for statistical analysis of the data.

Sample Size

The total sample size is 6

- 6 males
- Age: 8-12 years

Sample Characteristics:

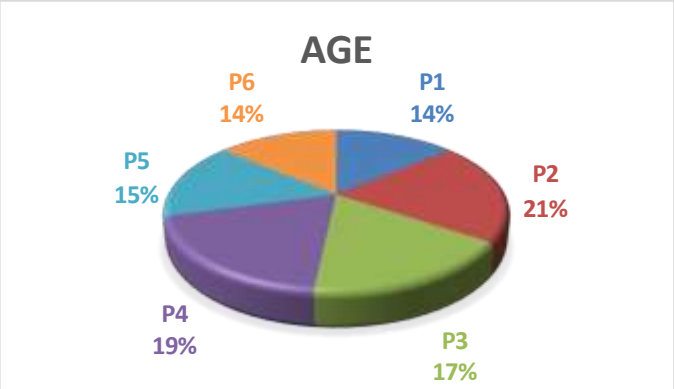
Sample characteristics of the total sample of six, the details of level of mild Autism and total sample size are given in table:1

Table 1 : Showing sample size, details of level of Children with Autism.

SI. NO	PARTICIPANTS	GENDER	AGE	LEVEL OF AUTISM
1	P1	MALE	8	MILD
2	P2	MALE	12	MILD
3	P3	MALE	10	MILD
4	P4	MALE	11	MILD
5	P5	MALE	9	MILD
6	P6	MALE	8	MILD

Table -1 it is observed that the number of subjects with mild Autism is 6. The age range of the subjects 8 to 12 years.

Figure 1: Indicates the Participants and ages



Sampling Technique

The technique of purposive sampling, characterized by used of judgement and a deliberate effort to obtain representative samples.

SELECTION OF THE SAMPLE

The participants of this study were 6 Children with mild Autism from Child Guidance Clinic (CGC), Department of Pediatrics, SVRR Government General Hospital, Tirupati.

Criteria For Selection of The Study

Inclusion Criteria

- Age Range between 8-12 years Children with mild Autism
- Children who are follow to Child Guidance Clinic (CGC), Department of Pediatrics, SVRR Government General Hospital, Tirupati.

Exclusion Criteria

- Children with Autism other associated conditions.
- Persons with who have severe behavioral issues.
- Individuals with intellectual disability having visual and Hearing impairment.

TOOLS USED IN THE STUDY

Present study deals with assessment of two aspects of psychology i.e., Autism and Social Skills.

- Indian Scale for Assessment of Autism (ISAA)
- Autism Social Skills Profile (ASSP)

The Aim of the study the efficacy of Music based intervention in enhancing Social Skills of Children with Autism.

OBJECTIVES OF THE STUDY

- To find out the effect of Music Therapy on Social/Emotional Reciprocity in Children with mild Autism.
- To find out the effect of Music Therapy on improving Social Participation in Children with mild Autism.

HYPOTHESES

- There will be a significant difference in the subject scores on Social/Emotional Reciprocity in Children with mild Autism post intervention.
- There will be a significant difference in the subject scores on Social Participation in Children with mild Autism post intervention.

PROCEDURE

Phase 1: Pre Intervention Assessment
Phase 2: Intervention
Phase 3: Post Intervention Assessment

Phase 1: Pre Intervention Assessment:

Firstly, for collection of data from Child Guidance Clinic (CGC), Department of Pediatrics, SVRR Government General Hospital, Tirupati and obtained more information of the children's behaviors from Parents.

According to inclusive criteria subjects were chronological age ranging from 8 to 12 years were selected for improving social skills. That is poor in these social skill areas Social/Emotional Reciprocity and Social Participation and in these areas were already diagnosed with as Mild Autism.

Pre intervention assessment was completed in one day. A checklist (ASSP) developed by Scott Bellini and lack of social skill areas for autism was administered on each subject. The check list complete by the parent of the participants and pre intervention scores obtained.

Phase 2: Intervention:

For giving intervention to the children with Autism the researcher has developed a package of Musical Activities to improving Social Skill areas. Through Musical activities it will enhance Social Skills such as Social/Emotional Reciprocity, and Social Participation and directly facilitate global development of the child including class room activities.

In this program, Musical Activities were given in forty 45-minute sessions for individual or group. For giving intervention to the Children with Autism the researcher has developed Social Skills through the Musical Activities though musical intervention package.

MUSIC ACTIVITY PACKAGE

In the Music Activity Program (MAP), Musical Activities will be given intervention to the Children with Autism the researcher has developed Social Skills through the Musical Activities of

- Play with Spinning Drum
- Mouth Organ.
- Video Modelling and
- Clapping methods

Before giving the intervention, the Musical Activities package was validated from experts who are working in the field of Mild Autism.

1. **Play with Spinning Drum:** Pinning Drum is a Musical Instrument. It consisting of a skin stretched tightly over a round frame. Play a drum by beating it with sticks or with your hands. A Drum is a hollow cylindrical structure.
    - ❖ Purpose of the Activity: Upper-Lower body coordination and Eye contact.
    - ❖ Materials Required : Spinning Drum
    - ❖ Procedure: Subjects sit in front of the researcher and to march and beat the drum simultaneously, sustain rhythm well. That means when the subject will beat the drum at the same time, he takes a step in sync with the drum beat for few minutes and give responds to the researcher.
    - ❖ Difficulty level: Some subjects may get irritation to that Drum sound.
    - ❖ Apply: Group/Individual

Functional instrument of Spinning Drum

1. **Mouth Organ:** One of the best instruments for active music therapy is the Harmonica. Harmonica is also known as Mouth Organ. Mouth organ is a generic term for free **reed aerophone** with one or more air chambers fitted with a free reed. It is played universally the same way by the musician placing their lips over a chamber or holes in the instrument, and blowing or sucking air to create a sound. Many of the chambers can be played together or each individually. Playing the Harmonica demands deep breathing.
    - ❖ Purpose of the activity: Rhythmic internalization for organized physical control of movement, Paying attention and Eye contact.
    - ❖ Materials Required: The Device Mouth Organ or Harmonica.

2. **Video Modelling:** Video Modelling is a Visual teaching method that occurs by watching a video of someone modelling a targeted skill and then imitating the skill watched. Video Modelling is a simple and effective teaching tool that motivates children to learn through a fun and enticing visual medium. Video Modelling is used to

model multiple social skills at once, as they are in real life.

Example: A game of building blocks teaches:

- Turn Taking
- Eye-contact
- Play skills
- Fun
- Balancing skills

Example: A coloring scene

- Children are coloring
- Asking for Crayons
- Interacting and Talking

- ❖ Purpose of the activity: Making Eye-contact, listening, paying attention, reacting appropriately to situations, communicating verbally and non-verbally, interpreting social cues, reacting to social cues and understanding the thoughts of others.
- ❖ Materials Required: Using computer system, Headset, Speakers and Some other musical instruments.
- ❖ Procedure: Subjects sit in front of the researcher and Play the Videos through Musical instruments for few minutes and repeats the same things 3 to 5 times according to their interest and subjects also repeats and imitates of the model.
- ❖ Difficulty level: Some subjects may addict to those videos and arranging the musical setup to the Autistic children.
- ❖ Apply: Group/Individual

Phase 3: Post Intervention Assessment:

After completion of forty 45 minutes sessions of Musical Activities intervention, one day gap was given for the post intervention assessment. Post intervention assessment of each session was done in the similar way as done in the pre intervention assessment by administering the checklist ASSP to find out the effectiveness of Music Therapy activities to improve Social Skill areas among children with Autism. The checklist was completed by the parents of the participants and thus, post intervention scored was obtained.

ANALYSIS OF DATA

After conducting the intervention, again assessment was done on the basis of Autism Social Skills Profile (ASSP), to see the change in the person and also to see the effect of Music Therapy on Social Skills of Children with Mild Autism. The data scores were tabulated and

analyzed by using 20th version of Statistical Package for Social Sciences (SPSS). The statistical technique used to analyze the data was paired ***t***-test to analyze Mean, Standard Deviation (SD) to find out the effect of music Activity on Social Skills.

RESULT AND DISCUSSION

- The purpose of the study was to find the effect of Music Therapy on Children with Autism. Children with mild Autism age ranging from 8-12 years were selected for the study. Total 6 children participated in the study. All participants were from Child Guidance Clinic (CGC), Department of Pediatrics, SVRR Government General Hospital, Tirupati.

Hypotheses 1:

- There will be a significant difference in Social/Emotional Reciprocity among children with autism post intervention (Music Therapy intervention package)

TABLE -1 shows Mean, Standard Deviation, and t-value of Social/Emotional Reciprocity (SER) domain on pre and post test

Subject	N	Pre score	Post Score	GAIN
A	6	44 (44.0%)	48 (48.0%)	4 (04.0%)
B	6	38 (38.0%)	54 (54.0%)	16 (16.0%)
C	6	43 (43.0%)	47 (47.0%)	4 (04.0%)
D	6	40 (40.0%)	59 (59.0%)	19 (19.0%)
E	6	39 (39.0%)	49 (49.0%)	10 (10.0%)
F	6	38 (38.0%)	55 (55.0%)	17 (17.0%)
Mean		40.33	52.00	11.67
SD		2.582	4.733	
t-value	t=4.295 df=5, (p<0.01), Highly Significant			

The above table shows the pre and post intervention mean scores, SD and t-value for comparing the pre and post intervention mean scores on the Social/Emotional Reciprocity domain. The pre intervention means 40.33 and SD is 2.5821 and the post mean is 52.00 and Standard Deviation is 4.733. it is evident that there is highly significant improvement from pre-test to post test on the Domain of Social/Emotional Reciprocity. Thus, the hypothesis is accepted.

FIGURE 2: Mean scores of pre-test and post-test on Social Participation Domain

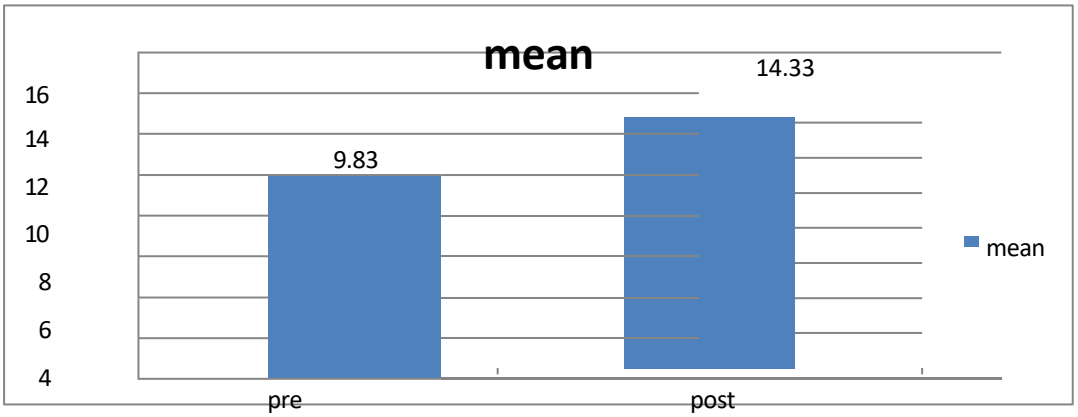


Figure -2 Sh o w the mean of pre-test and post-test on Social Participation domain. The score in pre-test is 9.83 and 14.33 in post-test on Social Participation domain. It indicates the effectiveness of music therapy in increasing Social Participation among children with Autism. It is evident that the children with autism had benefited from the intervention.

Table 3 showing the actual scores, gain scores and percentages (%) of the participants on all Domains.

Subject	N	Pre score	Post Score	GAIN
A	6	54 (27.5%)	68 (34.6%)	14 (7.1%)
B	6	46 (23.4%)	69 (35.2%)	23 (11.7%)
C	6	51 (26.0%)	64 (32.6%)	13 (6.6%)
D	6	50 (25.5%)	74 (37.7%)	24 (12.2%)
E	6	49 (25.0%)	57 (29.0%)	8 (4.0%)
F	6	51 (26.0%)	65 (33.1%)	14 (7.1%)
Mean		50.17	66.17	16
SD		2.64	5.07	
t-value	t=-6.29 df=5 (p<0.01)			

**-highly significant at 0.01 level

Table 3 shows the pre and post intervention scores and its percentage for each participant. Participant 1 Scored 54 on all domains with 27.5%, post intervention test scores found to be 68 with 34.6% and the improvement scores is 14 with 7.1%. Participant 2 scored 46 on all domains with 23.4%, post intervention test scores found to be 69 with 35.2% and the improvement scores is 23 with 11.7%. Participant 3 scored 51 on all domains with 26.0%, post intervention test scores found to be 64 with 32.6% and the improvement scores is 13 with 6.6%. Participant 4 scored 50 on all domains with 25.5%, post intervention test scores found to be 74 with 37.7% and improvement scores is 24 with 12.2%. Participant 5 scored 49 on all domains with 25.0%, post intervention test scores found to be 57 with 29.0% and improvement scores is 8 with 4.0%. Participant 6 scored 51 on all domains with 26.0%, post intervention test scores found to be 65 with 33.1% and improvement scores is 14 with 7.1%. It is evident that all the participants has benefited from the intervention.

Figure 3: Mean scores of pre-test Score total and post test Scores total on all Social Skill domains

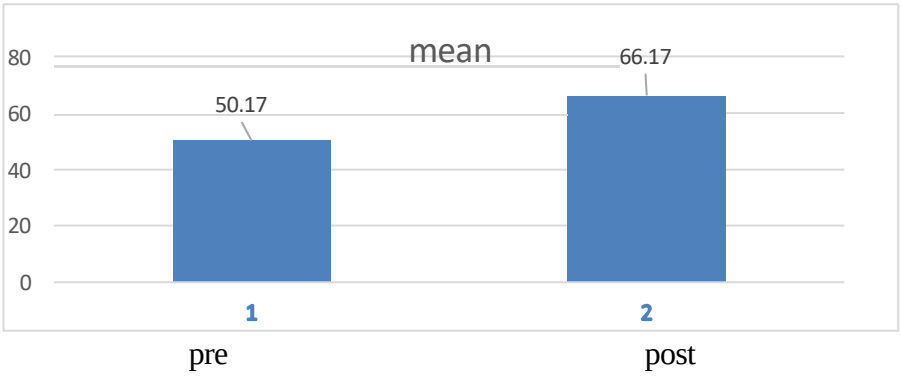


Figure -3 Show the all-social skill area (all domains) means of pre-test and post-test. The scores in overall domain pre-test is 5017 and overall domain post-test 66.17. It indicates the effectiveness of music therapy in increasing all participants' improvement among children with Autism. It is evident that the children with autism had benefited from the intervention.

Discussion:

Music activities have the power not only aid in normal child development but also to help alleviate emotional and behavioral difficulties. In recent years clinicians and researchers have sought to identify the specific elements inherent in music activities that make it for therapeutic agent for change. Among the major therapeutic powers (also termed therapeutic factors) that have been described are its communication power (children naturally express there conscious and unconscious thoughts and feelings better through music activities than by words alone). Its teaching power (clients attended and learned better when music activity is used to instruct) its abreaction power (clients can relieve past stressful event and release the associated negative emotions in the safe environment of the music activity world). And its rapport-building power (clients tend to like therapists who are musical and fun loving). Music activities interventions appear to be affective for children treatment modalities (groups and individuals), age groups (8 to 12 years), and gender referred versus non- referred populations and treatment orientations.

The research findings of the present study in the light of previous studies and discussed below.

The major findings of the present study is that there is significant improvement in the Social skill areas Social/Emotional Reciprocity and Social Participation among children with Autism post music therapy intervention.

This outcome may be due to the following reasons

- Regular and intensive intervention sessions
- It took place in closed room environment in which the participants are familiar and comfortable.
- Choosing appropriate music activities according to age, needs and the levels of autism of the participants.
- It is possible that the time spend in music activities help them to learn ways to engage the activity with their own ways and is benefited.
- Providing reinforcement after completion of each session.

Above mention points may have played as an important factor in keeping the motivation and enthusiasm of the participants.

The results from current study are consistent with previous research with found that intervention conducted in Musical contexts has positive effects on the development of child (Seyyed Nabiollah Ghasemtabar, Saeid Arab, 2015).Some studies (Katagiri J2009) have shown when subjects participate in music activity sessions, they feel much desirable. And these feelings lead to much attention and preciseness about different objects and they can generalize these social skills to another situation. It is believed that there is a link between the improvement of child's socialization and child experiences to a large degree. Hence, by enriching the environment and preparing suitable ground for physical and group activities, probably it makes possible for Autistic children to grow and improve (M. Engwall, G.S. Duppils, 2009). As a result, rhythmically bodily activities can help to enhance the function of this organ and provide more coordination through activating the autistic children movements and finally leads to promote the function of socialization criteria in given person. Study by Shazia Nasreen (2016) revealed that there is improve cognitive abilities, executive functioning, social skill abilities, verbal comprehension, perceptual reasoning, working memory and processing speed. Rao PA , Beidel DC, Murray MJ(2008) suggests that different musical activities increases Social Skills among children. The findings of the present study (Table 3) is consistent with these studies.

One of the major findings of the present study is that there is significant improvement in Social Skill areas among Autistic children post musical activities training. Murray (2008) findings are to empirical support for Social Skill Training programs for children with Autism is minimal at this time. Seyyed Nabeollah (2015) the results of covariance analysis showed a significant increase in social skills' scores of the experiment group through musical activities. LaGasse AB (2014) the results of this study support further research on the use of music therapy group interventions for social skills in children with Autism. Gooding LF (2011) Results indicated that significant improvements in social functioning were found in school participant pre and post self-ratings, researcher pre and post ratings of school participants.

The present study reveals that there is significant difference in the effectiveness of musical activity intervention on improvement of one of the main social skill areas Responds to greetings to others (table1), children with Autism have benefitted more in the social skill areas or domains statistically compared between pre-test and post test scores. Children with Autism have adapted to the activities and showed adequate interest to complete the activities. In the social skill domain of Social Participation (table 2), children with Autism have benefitted more compared to pre test scores to the same group of children with Autism. Children with Autism were more familiarize with the musical activities which helps them to redirect their focus on the activities.

Conclusion:

The highlights the therapeutic change mechanisms within music that can help clients overcome their difficulties. The therapeutic factors within music should not be viewed as mysterious but as capable of being understood, altered, and even fully controlled (Murray MJ, 2008). The use of individualized treatment goals facilitates and guides the therapist in deciding which therapeutic powers to apply. Further research is needed to elucidate the specific therapeutic powers of music that are most effective with specific presenting problems of clients.

This prescriptive matching of change agents with underlying causes will result in most cost effective music interventions.

In conclusion, this research extends the literature on music activity interventions by providing a method and specific strategies that can be used to improve Social Skills of children with Autism. The importance of music is clearly stated in the literature and this study shows the positive effect of music in improving social skills among children with Autism.

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