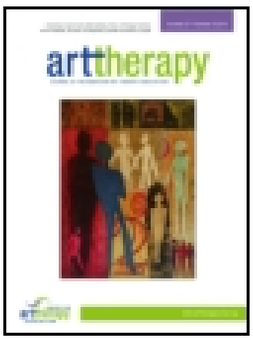

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Art Therapy for Children With Autism Spectrum Disorder in India

Jongsoon Koo and Elizabeth Thomas

Abstract

The purpose of this study was to examine the effects of art therapy for 9 children with autism spectrum disorder in India using a pre–post experimental design with a control group. The Childhood Autism Rating Scale was used to measure symptoms before and after 8 individual art therapy sessions, and changes in the children's art development was also examined. Analysis of covariance results showed that art therapy was effective and content analysis of the drawings indicated progress seen in the developmental art stages, based on Lowenfeld theory. The positive changes were notable in the participants' cognitive, social, and motor skills.

Autism spectrum disorder (ASD) is a neurological disorder characterized by persistent impairment in communication, social interaction, and stereotyped and repetitive behavior (American Psychiatric Association, 2013). Signs and symptoms of ASD are very dissimilar, and every individual with ASD shows different levels of functioning. People with ASD usually have reduced social interaction, lack of interest in the world and others, an atypical emotional response, impairment in verbal and nonverbal communication, odd behavior patterns, and an abnormal reaction to sensory stimuli (Sharma, Gokulchandran, Sane, Biju, & Shetty, 2015).

Approximately 1% of the world's population has been diagnosed with ASD (Centers for Disease Control and Prevention, 2015). In India, the recent estimated prevalence of ASD varied from 0.12% to 0.14%, which showed a big discrepancy compared to international data (Chauhan et al., 2019). These figures might not be accurate due to the lack of standard tools. Furthermore, the absence of a national survey and the lack of prospective studies have created a sizable gap in data about ASD in India (Malhotra & Vikas, 2005). Existing studies conducted in clinical settings have had small sample sizes. Therefore, we examined the effects of art therapy for children with ASD in India to document overall symptoms and developmental stages in art.

The etiology of ASD is unknown, and there is no cure. However, early interventions are helpful in improving symptoms, developing communication skills, and promoting social behaviors, as well as enhancing quality of life through physical and emotional functioning (LaGasse, 2014; Lanning, Baier, Ivey-Hatz, Krenek, & Tubbs, 2014; Siewertsen, French, & Teramoto, 2015). Children with ASD show impairment in symbolic play, creativity, and imagination (Craig & Baron-Cohen, 1999; Kondekar, Joshi, Shah, & Subramanyam, 2016). However, most individuals with ASD are visual thinkers. For people with ASD, understanding pictures is easier than understanding words. Visual intelligence is a very powerful talent that can be developed (Berube, 2007).

Art therapy can offer a creative way to establish reciprocity to understand children with ASD and to communicate with them (Emery, 2004; Gabriels, 2003). While expressing and sharing experiences with a therapist, children with ASD are able to develop meaningful relationships and learn behavioral and communication skills (Evans & Dubowski, 2001). Art interventions have also been used to reduce problem behavior in children with ASD (Kuo & Plavnick, 2015). It is used to build foundational skills related to motor, cognitive, and social communication areas. All elements in art therapy such as art medium, tools, and activities can be used to develop spatial skills as well as basic academic, art, and play skills. Appropriate sensory activities are useful to enhance social interaction and sensory integration by engaging with new materials (Gabriels, 2003). Art therapy is currently being used as a routine form of treatment for ASD, although more research is needed in this area (Van Lith, Stallings, & Harris, 2017).

Martin (2009) stated that the general aim of art therapy for children with ASD is to help them "move from drawing nothing to drawing something that is, to move from scribbling into representational drawing" (p. 31). Commonly, early drawings of children with ASD are very disorganized and uncontrolled. Through art therapy, drawing skills can be learned and the quality of artwork can be improved. According to Lowenfeld (Lowenfeld & Brittain, 1987), artwork reflects children's development of emotion, cognition, motor skills, creativity, personality, and social

Jongsoon Koo is a PhD student at Christ University and a certified art therapist with the Korean Art Psychotherapy Association. Elizabeth Thomas is Associate Professor in the Department of Psychology, Christ University, Bangalore, Karnataka, India. Correspondence concerning this brief report should be addressed to the first author at lily900@naver.com.

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functioning. Lowenfeld developed six stages of development in art: the scribbling stage, the preschematic stage, the schematic stage, the gang stage, the pseudo-naturalistic stage, and the adolescent art stage. Drawing and art activity are universal, but Lowenfeld's theory has not been studied in India so far.

Method

Research Design

The study used an experimental design. Following the approval from the appropriate institutional review board, permission was obtained from a center for autism to conduct this study.

Participants

The sample for this research included children with ASD between the ages of 4 and 12. Purposive sampling was used to choose 20 participants from a center for children with ASD in Bangalore. Two children dropped out due to personal reasons. Nine participants were assigned to the experimental group to receive an art therapy intervention, and nine participants were assigned to the control group.

Measures

The Childhood Autism Rating Scale (CARS) was used to assess the symptoms of children with ASD (Schopler, Reichler, & Renner, 1988). There are 15 criteria including relating to people, imitation, emotional response, body, object use, adaptation to change, visual response, listening response, taste–smell–touch response and use, fear and nervousness, verbal communication, nonverbal communication, activity level, level and consistency of intellectual response, and general impressions. Reliability and validity of CARS were satisfactory for diagnosis and research work in India (Russell et al., 2010).

Procedures

I (the first author) obtained informed consent from the participants' parents. Class teachers administered the CARS pretest, which the researcher scored according to the manual. One week after the pretest, I conducted eight 30-min sessions of individual art therapy over 10 weeks with the participants in the experimental group (further described later). The control group attended regular classes and did not receive art therapy. At the end of the intervention, the same class teachers completed the posttest. During every session, I collected the participants' artwork.

I custom designed the art therapy sessions for each child with the guidance of a supervisor, who was also an art therapist. Sessions tended to follow a similar sequence. I visited the children in their classroom, escorted them to the art therapy studio, and explained the activities for that session. They were free to select their art materials from drawing, painting, clay or Play-Doh, and craft or collage. During sessions, children learned the basic art concepts and practiced their motor skills. They were encouraged to imagine and to create a story to enhance abstract thinking.

Table 1. Analysis of Covariance Results

Source	SS	*df*	MS	*F*	Partial η^2
Group	57.00	1	57.00	9.92**	.40
Error	86.15	15	5.74		

**$p < .01$.

Validity

The validity of the study was ensured by allocating participants to the experiment and control group through random assignment to reduce participant variability. No other interventions were provided to the two groups during the time of the study that might have influenced the results. The pretest and posttest were completed by the same teachers to increase the validity of tools and testing.

Data Analysis

Analysis of covariance (ANCOVA) was used to determine the differences between pretest and posttest of CARS scores after the art therapy intervention. Paired sample t test and Wilcoxon signed-rank test were used to compare pretest and posttest scores of the subdomains in the experimental group to ascertain which specific domain was affected by intervention. Content analysis was used to assess the participants' development in art and quality of the artwork according to Lowenfeld's theory. Two separate investigators, who were also art therapists, apart from the researcher, interpreted the art images independently, after which the researcher and the investigators discussed the results.

Results

CARS

The results of the ANCOVA (Table 1) indicated that there was a statistically significant difference in posttest scores of CARS between the experimental group and the control group, $F(1, 15) = 9.92$, $p = .007$, partial $\eta^2 = .40$. The result suggested that art therapy was effective to improve symptoms of ASD.

To explore the precise areas that improved after art therapy interventions, pretest and posttest scores of the

Figure 1. AD's Drawings (Left: First Session; Middle: Second Session; Right: Eighth Session)

Figure 2. K's Drawing (Left: First Session; Right: Sixth Session)

subdomains of the CARS in the experimental group were compared by paired sample t test and Wilcoxon signed-rank test. There was a significant improvement in the level and consistency of intellectual response of children with ASD, $t(8) = 2.83$, $p = .02$, and in relating to people, $z = -2.45$, $p = .014$.

Developmental Stage

Before the art therapy intervention, there were six children in the scribbling stage, two children in the preschematic stage, and one child in the schematic stage. After the intervention, artwork progressed to the higher developmental stages: four children in the scribbling stage, three children in the preschematic stage, and two children in the schematic stage. Three cases demonstrate progression across the stages.

Case 1: AD (11 years old, girl), Development From the Scribbling Stage to the Preschematic Stage. AD attended all eight sessions. She was able to understand the therapist's instructions in English, but she used some echolalia and peculiar words in Hindi. She sang Hindi songs. She did not understand other's feelings or nonverbal communication. Her CARS pretest score was 38 and posttest was 36.

Figure 1 showed that her drawings began in the controlled scribbling stage. There was no eye–motor coordination and she was not able to trace shapes with scissors. While working with clay or Play-Doh, she needed some verbal support to complete the activity. Otherwise, she just rubbed clay with her fingers. After learning the human body, she traced her hands and cut them using scissors with little support in the last session. After that, she drew a body and hands with basic geometrical shapes by herself. Although the spatial relationship of objects in her drawing did not change, she showed great development in art from the controlled scribbling stage to the preschematic stage. She showed better management of craft—using scissors, glue, tools, and so on, and making clay work.

Case 2: K (6 years old, girl), Development From the Preschematic Stage to the Schematic Stage. K was able to communicate verbally and was good at making art. She suggested what she wanted to do and asked for her preferred materials. Her CARS pretest score was 32.5 and posttest was 30.

Figure 3. A's Drawing (Left: First Session; Middle: Seventh Session; Right: Eighth Session)

In the first session, K drew persons who looked like cartoon characters with round ears and a stick body (Figure 2). She added other objects such as a strawberry, ice cream, carrots, and a rainbow, while saying "they like a strawberry … and ice cream … ." The objects did not seem to be related to each other as evidenced by size and location. In each session that she made artwork, she showed her various interests and created stories about her images. From the fourth session onward, she started to draw a base line. Her art improved in size and color. She was able to express what she was thinking about the garden. In the sixth session, she collected leaves and flowers from the garden, glued them on paper, and drew bees, flowers, a tree, grass, and a butterfly with a base line.

Case 3: A (9 year old, boy), Development of Imagination Skills in the Schematic Stage. A was an active participant in art therapy. He rarely spoke, but he was able to understand and communicate verbally with simple words ("I want art," "I want red color," "Car," and "Over") and nonverbal expressions. He was good at creating art with various art tools such as colored pencils, clay, scissors, or a brush. His CARS pretest score was 42.5 and posttest was 39.

The first of A's drawings was one that he repeated many times. He always drew cars with the same pattern at school and at home. He was able to copy photographs of cars from brochures. Repeated drawing patterns are a typical feature in the schematic stage, but his drawing was fixated on one type of car. It was very similar to one of the symptoms of ASD, a restricted and repetitive behavior. For him, art therapy aimed at developing his schema for other objects to enhance his abstract thinking and imagination and to expand his interests. Rather than force him to draw something different, he was encouraged to draw anything that he wanted related to cars with any of the art materials.

He drew a restroom next to his incomplete car. It was the first time he drew something unrelated to cars. After drawing one object, he took time to draw the next one. It seemed that he needed to develop his new schema. After drawing a person, he said, "A (himself) shower." He showed progress of imagination and expression in his environment in the seventh session.

For his last work (Figure 3), he asked for red and purple colored pencils and said, "I like." After drawing cars and drivers, he wrote "red" and "purple'" under the cars. On another paper, he drew a road. I asked him to think about what could be along the road. He added a traffic signal and grass. After completing this drawing, he said, "We are going." One month later, he moved to another city on account of his father's job. He used his drawing to communicate a life event.

Discussion

The results indicated that there was a statistically significant difference in overall symptoms of autism as assessed by CARS between the experimental group and the control group. Among these subdomains, level and consistency of intellectual response and relating to people were significantly improved. Regarding developmental levels, five children showed development to the next stages. The children who improved in their CARS scores from pretest to posttest also showed improvement in their developmental stages in art. These findings indicate that art therapy helped the children in their cognitive, social, and motor skills.

After completing art therapy, the children developed a new cognitive schema. Statistically, art therapy was effective in the areas of level and consistency of intellectual response. Through the sessions, they learned the concepts of basic shape, color matching or mixing, pattern, sequencing, and so on. These various processes could be the base of knowledge. Drawing might not only reflect intellectual development, but might also encourage growth. When children draw something in detail and therefore pay careful attention to the world, they could show improvement in their cognitive skills (Kellogg, 1969/2015; Lowenfeld & Brittain, 1987).

The art therapy sessions also afforded opportunities to help the children expand their interests and thoughts. This aspect was enhanced by encouraging them to express themselves through storytelling based on their artwork. Some children showed development in abstract thinking and imagination. For children with ASD, repetitive and restricted thinking patterns could be reflected in their artwork (Evans & Dubowski, 2001; Martin, 2009). For many of the participants, this tendency was altered as

evidenced by drawing new objects and thereby demonstrating increased flexibility with their artwork.

In this study, art therapy was significantly effective in enhancing social and communication skills. Art can be an excellent bridge to form a relationship between children with ASD and their world. Emery (2004) suggested that creative art-making activities help children with ASD to be mindful of self and to relate to their environment. This was evident in how the participants observed, recognized, and understood the world as seen in their art. The autonomy to choose the materials and to take part in art therapy provided an environment for the children to express their thoughts and feelings, which provides art therapists with meaningful messages.

Improvement of motor skills might be a basic expectation from art therapy. Participants were given opportunities to practice their motor skills and sensory integration through art medium, tools, and various creative activities. Children showed progress in these areas through their copying skills, and eye–hand coordination in basic art activities such as tearing, cutting, drawing, and touching new materials. Sensory-based activities were effective in managing and adjusting new materials; it helped them to reduce oversensitivity to the world. According to Gabriels (2003), learning motor coordination is the basic requirement to participate in a multistep project and art group activities.

Practical Implication

This study determined that art therapy helped children with ASD in India to enhance their cognitive skills, social-communication skills, motor skills, and development. This research can help special educators, psychologists, and parents of children with ASD to understand the benefits and characteristics of art therapy.

Limitations

The small sample size of this study limits its generalizability. Future studies with large sample sizes will increase the external validity. Long-term intervention and a second postintervention test after a long period of time can be conducted in the future.

Conclusion

This study further validated the significance of art therapy as an effective intervention for children with ASD. Art therapy can support children to communicate with others effectively, learn basic academic skills, and relieve their emotional problems as well.

ORCID

Jongsoon Koo http://orcid.org/0000-0001-7843-099X

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