
Outcome-Based Evaluation of a Social Skills Program Using Art Therapy and Group Therapy for Children on the Autism Spectrum

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There is a paucity of literature on social skills therapy for students on the autism spectrum, revealing an urgent need for additional research. Past research has focused on the use of small groups or single-case study designs. The present study examines the effectiveness of a social skills therapy program for school-age children ages 11 through 18. The program uses art therapy and cognitive-behavioral techniques in a group therapy format to broaden and deepen the state-of-the-art techniques used in helping children with social developmental disorders to improve their social skills. Pre- and posttest instruments were distributed to parents and teachers in October and May of the 2004–2005 school year. Scores revealed a significant improvement in assertion scores, coupled with decreased internalizing behaviors, hyperactivity scores, and problem behavior scores in the students. Implications for social work and policy are discussed.

KEY WORDS: *art therapy; autism spectrum disorder; group therapy; social developmental delays; social skills*

The need for intervention for children with autistic spectrum disorder (ASD), also referred to as pervasive developmental disorder (PDD), is becoming increasingly apparent. Social skills classes, individual therapy, and professional workshops for clinicians are expanding at an exponential rate. It is the consensus among professionals that children with PDD are in need of services to guide them along their path while they develop peer relationships. School social workers and psychologists are finding more ways to help these children in the school setting, and more independent professional services are becoming available.

Many curriculums being tried within therapy programs have not been tested or examined to determine which is the most effective for children with ASDs; however, the evaluation of such programs is needed for evidence-based practice. This study is a response to the necessity for an increase of outcome-based research that analyzes the effectiveness of therapeutic programs for children on the autism spectrum.

LITERATURE REVIEW

The “autism spectrum” is a phrase that presently includes several specific diagnoses, each with its own particular characteristics and symptoms. The autistic spectrum comprises a broad range of disorders characterized by interference with communication and social interactions and circular patterns of interest, activities, and behavior. PDD is a diagnostic category, according to the *DSM-IV* (American Psychiatric Association, 1994), which includes the ASDs. According to Gargiulo (2003) the conditions included in the diagnostic category of PDD are autism, Rett syndrome, childhood disintegrative disorder, Asperger’s syndrome, and pervasive developmental disorder not otherwise specified (PDD-NOS).

Because the awareness of these conditions within the medical field is still growing, many cases continue to go undiagnosed. Therefore it is difficult to document what percentage of the population suffers from these disorders. A report released in 2007 by the Centers for Disease

Control and Prevention (CDC, 2007a) states that 1 in 150 children in the United States has an ASD. It is the fastest growing developmental disability, with 10 percent to 17 percent annual growth. CDC statistics show that the number of children ages six to 21 years who received services for ASD increased from 22,664 cases in 1994 to 193,637 in 2005. At least 300,000 school-age children were diagnosed with ASD in 2004, according to a survey of parents (CDC, 2007b).

Characteristics of the Population

The characteristics of ASD are difficult to identify because the exact mechanism of social interaction skills is not known. Characteristics of children with autistic disorders vary, but some of the qualities include a tendency to withdraw from social contact and an increased sensitivity to crowds as well as an increased sensitivity to stimuli in general, such as sounds, smells, and tactile materials. These children have more difficulty developing conversational skills. Eye contact, facial expression, and tonal vocal variation in speaking may be restricted. Their vocabulary and form of speaking can come across as "stiff" and "unnatural" compared with that of their peers. Often they relate to adults better than to peers. They seem to be victimized by children with aggressive tendencies more than are other children.

Psychological Theories that Underlie Intervention

People with ASD live in individual worlds of their own, in which they are socially disengaged from others. They are often stressed by demands for social interaction or intimacy that they cannot give or manage. This mental and emotional stress can be so great as to cause a state of chronic anxiety.

Communication disorders on this spectrum become progressively debilitating as children grow older. The loneliness and confusion that these children feel becomes accentuated when they reach ages of socialization in later elementary school and even more so as they become adolescents. They are considered "different" and "eccentric" and experience rejection and

bullying. Children with autism are more likely to suffer from depression, and 20 percent of children and adolescents with developmental delays attempt suicide (Gargiulo, 2003).

Children with ASD are not able to understand that other people have thoughts, ideas, and ways of thinking that are different from theirs; in this way they have difficulty understanding the attitudes, actions, and emotions of others. This grouping of behavioral actions is known as *theory of mind* (Winter, 2003). According to theory of mind, individuals who suffer from autistic disorders are not able to connect emotionally, through empathy, with others. As a result, children with ASD do not act appropriately for their age, and they are unable to reciprocate in social interactions to participate in cooperative play. These children are often described as socially stiff, awkward, emotionally flat, socially unaware, self-absorbed, lacking in empathy, prone to show socially unacceptable behavior, and insensitive or unaware of verbal and nonverbal social cues.

The theory of mind has been particularly helpful in identifying the neurological component, rather than relying on family dynamic theory, in the assessment of PDD. The Autism Society of America (2007) recognizes that autism is the result of a neurological disorder rather than a psychological impairment due to lack of healthy nurturing.

Present Intervention Practice Models

Research studies have documented that the brain systems that control communications and social skills do not function normally in children with autism. Therefore, it is deemed necessary to train other parts of the brain to take over these functions. Teaching social and communication skills to children gives them the ability and the opportunity to fulfill their need for friendship and companionship.

Presently, a combination of behavior training and cognitive teaching is used for this population. A variety of instructional techniques such as social storytelling and chunking have been developed to teach children how to deal with social situations and social cues. Children are taught by means of role modeling and model-

ing two-way interactions. Documentation for evaluative research is usually gathered through frequency counts of particular behaviors such as eye contact, interrupting, and staying on subject.

The Use of Group Therapy to Improve Social Skills

One of the reasons that individual therapy has been used most often thus far is the lack of available groups of children suffering from PDD with whom to work. PDD is a spectrum condition in which children who are low functioning are often diagnosed early and are often given separate classroom environments. Conversely, children at the high end of the spectrum may never be diagnosed; thus treatment may not be sought. Because the diagnostics category is a relatively new one, many doctors, teachers, social workers, and psychologists are unfamiliar with the diagnosis or are not able or willing to discern which students need additional help with social skills.

To complicate matters, many social skills deficits are due to emotional or behavioral causes, not neurological conditions. Therefore it is contraindicated to group children with emotional disturbances (ED) with children with ASD. Although the issue being addressed for both groups may be social skills, the origins of the deficits are different. Children with ASD have a neurological condition that makes it difficult for them to read and intuit social cues, whereas children with ED have a psychological impairment but are able to read social cues. Grouping these children together can result in a situation in which social "aggressors" (those with ED) are grouped with social "victims" (those with ASD), making it difficult, if not impossible, to create a safe environment for therapy and learning. Because school staff know that grouping children with ED with children with ASD would be detrimental to the latter population, they are likely to undertreat autism rather than to risk subjecting a child with ASD to an abusive environment. This situation leads to increased confusion, considering that many children are assigned to school social skills therapy groups on the recommendation of school social work-

ers, special education staff, and teachers, some of whom are not qualified to make behavioral diagnoses. Clearly, correct diagnoses are important when grouping children if significant positive outcomes are to be expected. Overall the greatest reason that children are not diagnosed adequately enough to form therapy groups is that PDD is only lately being studied; thus, treatments are only in the beginning stages of being proven effective.

The use of group therapy in school settings is increasing. One example of this practice is illustrated in a study by Mishna and Muskat (2004), in which the researchers studied four school-based groups of four to six members each, all of whom received direct interventions in social skills from the school social worker along with indirect interventions consisting of consultation for teachers, parents, and peers. The goals were improvement of the students' psychosocial functioning and increased understanding of the disorders for students, school staff, and parents. The evaluation showed some attainment of these goals (Mishna & Muskat). Group therapy for children on the autism spectrum not only has great potential to improve social skills in a way that can be generalized to other environments in the children's world, but also helps them form friendships by teaching them social skills in groups.

The Use of Art Therapy to Improve Social Skills

Another form of therapy for this particular population that has not been extensively explored is art therapy. According to Cooper and Widdows (2004), art therapy is particularly appropriate for children on the autism spectrum because they are often visual, concrete thinkers. Art therapy as a component to social skills training may increase the willingness of children to participate because art is an activity that they find acceptable (Julian, 2004).

Art therapy offers a way to solve problems visually. It forces children with autism to be less literal and concrete in self-expression, and it offers a nonthreatening way to deal with rejection. It replaces the need for tantrums or acting-out behaviors because it offers a more

Through the child's art, the therapist can gain insight into what the child is experiencing, which is information that is not readily available through verbal means.

acceptable means of discharging aggression and enables the child to self-soothe (Henley, 2000).

Use of icons, symbols, and social stories help the children to remember what they were taught. When children and therapists collaborate to custom make these symbols, icons, and stories for each child's unique challenges and goals, the children take ownership of them and integrate them into their internal experience (Gray, 1994).

A technique already widely used among therapists who teach social skills to children with autistic tendencies is the use of comic strips as teaching tools. Comic strips are drawn by the teacher and then "taught" to the children, with discussion and analysis of the portrayed events. Children who are visual learners take in this information in a way that stays with them. For example, learning about conflict between people by seeing it drawn in a comic strip is more effective with children on the autism spectrum than is learning about it through a theoretical discussion, and it is less threatening than role playing.

Program staff involved in the present study have developed the use of therapeutic comic art in a converse application, in which the therapist invites the children to draw the comic strip. This act of creation becomes an avenue of expression for children with practical language skills difficulties. The children are then able to intellectually and emotionally integrate their personal experiences by viewing and reflecting on the art that their own creativity has mirrored for them. In addition, through the child's art, the therapist can gain insight into what the child is experiencing, which is information that is not readily available through verbal means.

Art therapy need not be restricted to comic strips. Art can be explored in many forms, including drama and music. The concrete, vi-

sual characteristics of art help these children, who often experience anxiety in social situations, to relax and enjoy themselves while they are learning social skills in the carefully controlled environment of the therapeutic group setting.

PROGRAM DESCRIPTION

Location and History

The program for this study is SuperKids, which is located in Ridgefield, Connecticut, a small town in the southwest corner of the state. Demand has been so high for services that a satellite program opened in 2004 in Hamden, Connecticut, just north of New Haven. The location of the program is ideal for developing curriculums and therapeutic techniques for students on the autism spectrum for several reasons. Fairfield County, a bedroom community to New York City, is a relatively affluent area of the country. This community represents a wealthy socioeconomic stratum where parents have the financial means, education, access to state-of-the-art therapy, and interest in social skills development in their children.

The SuperKids social skills program began in 1999 in response to the need among individual therapy clients (children and teenagers) in local private practices. Each practice had a number of children who had social and communication difficulties, including Asperger's syndrome, high-functioning autism, or PDD-NOS. Therapists in local private practices found that working in individual therapy with children who had difficulties with their peers offered limited opportunity for the development of social skills.

Program Model

The SuperKids therapeutic model uses group therapy with groups of approximately six children of similar age and social communication ability. Each leadership team has at least one therapist with a master's degree. Leaders are selectively paired to offer diversity of expertise. Professional backgrounds include art therapy, drama therapy, school counseling, and special education. The groups meet weekly during the school year, from September to May.

Cognitive-behavioral strategies are used throughout the group therapy session. An example of this would be a therapist asking a student, "When you're frustrated/happy, what do you say to yourself? What's your self-talk?" Artwork solicited by the therapist often shows a deeper level of meaning than words can deliver because these students have communication disorders. Usually the group is led in a brainstorming exercise to discover ways to change self-talk to improve feelings or make better choices with difficult feelings.

The specific social skills addressed at SuperKids include compromise, graciously winning or losing a game, conversation skills, eye contact, voice modulation, friendship skills, understanding nonverbal cues, awareness of the environment, learning to identify and express feelings, awareness of others' feelings, and modulating intense emotions. Social skills are "taught" by therapists who carefully watch how children approach or do not approach each other, intervening in a helpful, nonthreatening, concrete manner so that the children learn how to structure their own play time in a social context. Each group is assessed by its own therapist team in weekly clinical supervision to determine which skills intervention is needed. As each group progresses, the individual teams of therapists make decisions on how to best use the group therapeutic experience for their particular students.

A typical hour-long group therapy session for ages six through 12 is as follows:

- Children come into the room and are greeted by the therapists with a snack and drinks.
- Conversation skills are practiced in an unstructured manner (10 minutes), with leading questions such as "What's the best thing (or worst thing) that happened today?" and "Does anyone have any news to share with the group?"
- Structured activity (30 minutes), with instructions such as "Fold the paper in half and on one side draw a picture or write something about yourself that you love and would never change, and on the

other side draw or write something about yourself that you wish you could change." Another instruction might be "Draw a picture of what animal you would be if you were an animal." This activity is followed by creating a zoo or jungle over the subsequent weeks in which all animals can live together. In such a project the students explore sharing space and materials as well as dealing with issues like sensory overload and frustration.

- Unstructured free time (20 minutes) in which the students can choose an activity, such as play a game or create art, with the one rule that they cannot do it alone. Group leaders stand back and coach the children in skills such as communicating, brainstorming, initiating play, joining into existing play, and compromising about rules.

SuperKids staff keep parents informed of their child's progress through two meetings per year. Likewise, staff encourage other professionals who treat the children and adolescents to collaborate. This peer collaboration includes school teachers and allied professionals such as psychiatrists, psychologists, social workers, psychotherapists, and speech and occupational therapists.

The SuperKids staff also respond to requests to share their expertise with school districts in an effort to help school personnel learn ways to help this population. They conduct seminars and furnish ongoing supervision of school staff when needed.

METHOD

Recruitment of Participants

Seventy-nine primary and secondary school children were enrolled by their parents in September 2004 for one-hour group therapy sessions held once a week after school at the SuperKids program. A nonprobability convenience sample was used for this study. All children were considered eligible for participation in the study.

Introductory letters were sent to all parents in October because the Social Skills Rating

System (SSRS) (Gresham & Elliott, 1990) was created to be used at least two months after a teacher has begun to observe the student in his or her classroom. Letters informed the parents of the proposed grant-based research study, explained the protocol, requested written permission to enroll their child in the study, and requested the name and address of the child's school teacher or special education teacher who had the most exposure to the student's behavior around peers.

Of the 79 parents notified, 70 gave permission for their children to participate. Of these 70, four withdrew their children from the program some time during the year for varying reasons, mostly because of family relocation. Sixty-six children were eligible to participate in the study. The children were not aware that the research study was being carried out; therefore, they were not asked to complete any surveys for their participation in the study.

Data Source and Instrumentation

The SSRS, developed by Gresham and Elliott (1990), was used in this study. The SSRS was constructed to screen and classify children suspected of having social behavior problems (Conoley & Impara, 1995).

Questionnaires were designed separately for parents and teachers. The questionnaire is divided into two sections, social skills and problem behaviors. The social skills section measures positive social behaviors in the following four categories: cooperation, assertion, self-control, and responsibility. The problem behaviors section measures negative behaviors in the following three categories: externalizing problems, such as aggressive acts and poor temper control; internalizing problems, such as sadness and anxiety; and hyperactivity, such as fidgeting and impulsive acts. Scoring for each behavior is as follows: 0 = never, 1 = sometimes, and 2 = always. In the social skills section, there are 10 questions for each characteristic behavior, so a score of 20 signifies mastery of social skills, and a score of zero signifies absence of any social skills. Social skills total is a summative score of all of the social skills categories. In the problem behaviors section, there are six

questions for each characteristic behavior, so a score of 12 signifies difficulty with all problem behaviors, and a score of zero signifies absence of any problem behaviors. Problem behavior total is a summative score of all the problem behavior categories. The category of hyperactivity does not appear on the secondary school questionnaires. Internal consistency has been reported from .83 to .94 for the social skills questionnaire and .73 to .88 for the problem behaviors questionnaire, representing a high level of homogeneity among items (Conoley & Impara, 1995).

This instrument was selected by the researcher for several reasons. First a child's demonstrated social skills may vary between school and home, so an instrument that measures both is preferable. Second the SSRS is a standardized, norm-referenced instrument intended for use with typical school children or those with mild disabilities related to social skills, which makes it well suited for the sample at SuperKids program. Although many rating scales have been developed for autistic children, most of the students enrolled at SuperKids function in a mainstream classroom and many of them attend public schools. Some of them have not received a *DSM-IV* diagnosis. The therapists at SuperKids do not accept students whose behavior is violent or disturbing, and they screen for a level of verbal and cognitive skill that will enable students to benefit from the program. Third SSRS uses a strengths-based approach to assessment in the wording of the questions and in the intention of the measurements. Other social skills rating instruments measure social skills deficits more directly through the ways in which the questions are worded and the scores are recorded. Finally, the SSRS is widely used and accessible.

Data Collection

The first phase of the research study was to contact all parents, explain the research study, request written permission for their child to participate in the study, and request the name and contact information for the student's school classroom teacher or special education teacher. These letters were sent and returned in

October. Parents on the list of unreturned letters were contacted by phone. October was chosen because the recommendation is for teachers to have observed the student for two months before filling out the questionnaire (Gresham & Elliott, 1990). With school beginning in late August, late October was the first time pretests could be carried out without compromising the accuracy of the results.

The second phase of the study was to send out SSRS pretest questionnaires to the parents and teachers of all participating students. Several parents did not give the names of teachers because they felt that no one teacher had enough class time to assess their child accurately (especially high school students) or because they wished to avoid having their child identified as developmentally disabled by school staff. This mailing was done in late October. Every few weeks thereafter, teachers or parents who had not returned questionnaires were contacted by phone until most of the questionnaires were received.

The third phase of the study was to send out identical, blank SSRS questionnaires as posttest surveys in late May. Every few weeks thereafter, teachers or parents who had not returned questionnaires were contacted by phone until most of the questionnaires were received.

RESULTS

Sample Characteristics

For the 66 students eligible to participate in the study, pre- and posttests were received from a total of 44 parents. Thirty pre- and posttests were received from teachers. All responses were used for analyses purposes. Because of the small number of pairs, power analysis did not allow for the use of paired parent and teacher comparisons for each child.

Of the 44 paired pre- and posttest parent responses, mothers filled out the paired tests in all cases except four. A father filled out one pair, and three paired tests were filled out by mother and father together. Of the 30 paired pre- and posttest teacher responses, 18 were filled out by regular classroom teachers, 12 were filled out by resource teachers, and three were filled out by school psychologists.

Of the 44 students who made up the study sample, all were white, except for one Hispanic secondary school male student and one biracial primary school male student. Six were female secondary school students, 12 were male secondary school students, and the other 29 were male primary school students. The socioeconomic range of the students was mainly upper middle to upper class. The homogeneity of the sample is the result of both the high cost of living of the study location and the high cost of the group therapy program.

Data Analysis

I hypothesized the following: Participation in the SuperKids program would improve social skills and the social skills frequency ratings between pre- and posttests, and participation in the SuperKids program would decrease ratings of the frequency of problem behaviors between pre- and posttests.

Descriptive statistics for the SSRS at both pre- and posttest are presented in Table 1. The table shows matched pairs for 44 students at both pre- and posttest. Paired samples *t* tests were conducted on these 44 students to determine change over time.

Four categories of behavior showed change toward improvement of statistical significance. Of the social skills measured, there was a statistically significant change in mean assertion scores between pre- and posttest, with an increase in scores at posttest (9.30 and 10.32, respectively). Of the three problem behaviors measured, there were statistically significant mean changes between pre- and posttest in internalizing behaviors (6.64 and 5.89, respectively) and in hyperactivity (8.77 and 7.81, respectively). Both showed a decrease in internalizing scores at posttest. In addition, there was a statistically significant change in the mean of all problem behaviors (summative) between pre- and posttest (16.70 and 15.43, respectively), with a decrease in problem behaviors at posttest.

All other behaviors also showed improvement between pre- and posttest; however, the measurements were not statistically significant. The one exception was responsibility, which showed no change in mean scores between

Table 1: Pretest and Posttest Scores on the SSRS

Behavior	M	SD	z
Social Skills^a			
Cooperation			-1.14
Pretest	9.07	3.61	
Posttest	9.55	3.76	
Assertion			-2.55*
Pretest	9.30	3.42	
Posttest	10.32	3.17	
Responsibility			0.00
Pretest	12.14	3.29	
Posttest	12.14	3.97	
Self-control			-0.90
Pretest	10.59	3.60	
Posttest	10.95	3.38	
Total			-1.29
Pretest	41.09	10.20	
Posttest	42.95	11.47	
Problem Behaviors^b			
Externalizing			0.21
Pretest	4.98	2.31	
Posttest	4.93	2.20	
Internalizing			2.50*
Pretest	6.64	2.23	
Posttest	5.89	2.06	
Hyperactivity			2.57*
Pretest	8.77	2.20	
Posttest	7.81	1.77	
Total			2.50*
Pretest	16.70	6.28	
Posttest	15.43	5.61	

Note: SSRS = Social Skills Rating System (Gresham & Elliott, 1990).

^aA score increase indicates improvement.

^bA score decrease indicates improvement.

**p* < .05.

pre- and posttest. The mean scores for cooperation increased from 9.07 to 9.55. For self-control the scores increased from 10.59 to 10.95. The responsibility scores remained at 12.14 for both pre- and posttest. The summative scores of mean change for all social skills increased from 41.09 to 42.95. The only problem behavior change that was not statistically significant was in externalizing behaviors, which was 4.98 at pretest and 4.93 at posttest.

DISCUSSION

Importance of the Study

The evaluation shows a statistically significant improvement in assertion scores coupled with decreased internalizing behaviors, hyperactivity scores, and problem behavior scores. All other social skills and problem behaviors also showed improvement, although the measurements were not statistically significant (with the exception of responsibility, which showed no change). These behavioral improvements are particularly important to note with this population that suffers from delayed social skills development. The SSRS instrument, used in a pre- and posttest study, shows a change in behaviors that are relatively difficult to teach. Generally a student would score similarly year after year on the SSRS, remaining at a somewhat stable level of social effectiveness, altering slightly with circumstances. It is significant for a behavioral program to produce such consistent results in improving social skills.

To make the significance of this outcome measurement even more clear, another aspect of this population should be considered. Developmentally delayed children are not diagnosed as infants because they must first enter into age-appropriate social interaction; delays in social development may become apparent at any age thereafter. What tends to happen for these children is that their social development begins to fall behind that of their peers. Resulting anxiety, poor self-esteem, frustration, and depression compound the problem. These children are at risk of falling farther and farther behind in development over time as their social attempts are met with rejection. From a statistical perspective, the scores of these children on social skills tests are more likely to fall than they are to remain the same.

Implications of the Study

Implications of the study are that social skills can be taught in therapeutic group settings that sufficiently meet the needs of this special population. The study suggests that group therapy and art therapy very likely lend themselves well to this kind of intervention. The study also shows that outcome measurements can be gathered to

statistically prove the demonstrable effectiveness of the program.

Recommendations for School

Social Workers

School social workers are often the professionals most likely to first encounter and recognize the characteristics of autism spectrum behaviors. As a result, in many cases they provide the first referral to psychiatrists or psychologists for diagnosis. A social worker is distinctive in many ways from other professionals when a child presents behaviors that are indicative of the autism spectrum. Specifically, they provide an interface between school staff and parents, they have access to confidential information about families and school behavior records, they are trained in recognizing emotional and behavioral problems, and they are the professionals to whom parents and teachers first turn for help.

In school systems that have the resources to support social skills interventions, school social workers can use the study findings in several ways. The findings add to the wealth of information that a school social worker must sort through in regard to recognizing the presence of autism behaviors and recognizing the difficulties these social skills difficulties pose in their students. The findings also discuss some of the current interventions that are being used to treat PDD. If the school system can support the social worker in creating social skills groups, this article provides information that can be used in the design and programming of curriculums. In addition, the report gives pertinent information that can be passed on to interested parents who are looking for resources and available programs or therapies that could possibly be beneficial to their children.

Because this study addresses a private therapy program held outside the public school system, the report opens doors for school social workers to become more aware of opportunities for referring parents to private therapy programs for their children. As the number of programs outside the school system grows and they become more recognized, the possibility of consultations and cooperative programs between

the private and public sectors will likely (and should) develop. School social workers can be key instigators in this movement by staying acquainted with current information on treatment and outcomes of social skills programs.

Limitations of the Study

The study has several limitations. First, a convenience sample with a single program from an affluent community was used, thereby limiting generalizability. Second, a control group would have been useful to control for improvement that might occur through age-related maturation. No control group was available.

Other factors that were not addressed because of the small sample size are variations in psychological development, economic factors, parenting styles, age at which intervention began, level of disability, and range of diagnoses.

Another limitation is that there is no statistical evidence that art therapy or even group therapy were vitally important ingredients in the success of this intervention. Any assumption that these modalities enhance the social skills learning leans heavily on the personal experience and expertise of the professional therapists who designed and implemented the classes.

Recommendations for Further Study

Similar evaluative research will be more generalizable when students from a greater variety of socioeconomic groups can be evaluated. Control groups would confirm the reliability of the results, but comparison groups would be preferable to the use of control groups in which no intervention is used so that no child who suffers from ASD would go untreated.

To better control for maturation variables, future research should track both the specific age groups that receive treatment as well as when treatment began. Concurrent psychological testing could give greater accuracy to evaluations of outcomes.

Future studies would benefit from data collection that uses triangulation. Although this study used two sources of data, it was not possible to compare the data because of the small number of teacher-parent pairs at both pre- and posttest. This indicates that a larger number of children


would be needed to increase the number of teacher–parent pairs for triangulation analysis.

Use of multiple groups and a variety of therapeutic techniques would help to isolate whether art therapy and group therapy are more effective than are other interventions.

CONCLUSION

There is a growing need for treatment for individuals who suffer from social developmental delays and a parallel need for outcome-based research to analyze the effectiveness of these interventions. This research study provides evidence of improvement in social skills and resolution of problem behaviors through comparison of pre- and posttest results in school-age children attending a social skills group therapy program.

The study compares primary and secondary school students on the autism spectrum who were enrolled in the 2004–2005 after-school group therapy classes at SuperKids. Significant statistical evidence based on questionnaires filled out by teachers and parents shows that both at home and at school the frequency of assertive social skills increased, whereas internalizing behaviors, hyperactivity, and problem behaviors decreased. This is particularly important for children who are developmentally delayed in social skills because they are at a higher risk of social maladjustment and resulting emotional stress.

The SuperKids program incorporates group therapy and art therapy to translate abstract social–emotional concepts into a curriculum that reaches children who function more easily in a visual/kinesthetic orientation than in the social/intuitive environment. The improvements seen by comparing means of test scores on the SSRS show that children who suffer from ASD can improve at a faster rate than would otherwise be expected when given specific intervention such as that which the SuperKids program provides. 

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