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Sibling-Mediated Interventions for Children with Autism Spectrum Disorder (ASD)

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According to the Diagnostic and Statistical Manual of Mental Disorders (DSM) 5 (American Psychiatric Association, 2013), children with autism spectrum disorder (ASD) show deficits in social communication and interaction. Rogers (2000) explained that social dysfunction may be the most significant feature of children with autism. Therefore, developing social competence should be a major focus for parents and educators of children with ASD.

Several studies have highlighted social interventions, such as peer-mediated strategies, as effective in enhancing social behaviors in children with autism (Rogers, 2000; Schmidt, & Stichter, 2012; Sperry, Neitzel & Engelhardt-Wells, 2010). However, very little research has investigated the effectiveness of sibling-mediated interventions on developing social competence in children with ASD (Tsao & Odom, 2006; Walton & Ingersoll, 2012). Siblings spend a significant proportion of the day with siblings with autism than do their typically developing peers. Therefore, sibling-mediated interventions should be a major part of the repertoire of interventions used to aid children with autism develop social skills. Bass and Mulick (2007) explained that using siblings as social intervention agents have several benefits, including constant practice opportunities in the natural setting, parental support and the increased probability of generalization of social skills learned. Therefore, this paper will examine validated sibling-mediated interventions and discuss their effectiveness in enhancing social competence in children with autism spectrum disorder.

### **Sibling-Mediated Interventions**

Sibling-mediated interventions (SMI) are approaches that are based on the principle that social skills can increase in children with autism when typically developing siblings initiate social interactions using previously validated practices (Bass & Mulick, 2007). The rationale for

SMI, is that typically developing siblings provide opportunities for socialization in the natural setting. Sibling-mediated interventions encourage typical siblings to engage in persistent social interactions with their siblings with ASD using interventions that have proven to work in the classroom with typically developing peers (Bass & Mulick, 2007; Tsao & Odom, 2006; Walton & Ingersoll, 2012). SMIs involve encouraging play, praising behavior and prompting children with autism to initiate social skills in a variety of settings (Celiberti & Harris, 1993). The advantages to such a method are that it gives students with autism greater opportunity to practice and initiate social interactions in multiple settings (e.g., home, car, store) (El-Ghoroury & Romanczyk, 1999), and it promotes maintenance and generalization of social behavior (Bass & Mulick, 2007).

### **Typically Developing Siblings as Social Teachers**

Sibling-mediated interventions are based on the principle that typically developing siblings can be effective intervention providers of social behavior to siblings with ASD. Celiberti and Harris (1993) conducted a study to find out whether typically developing siblings can be “teachers of social skills” to their siblings with autism spectrum disorder. The study investigated the effectiveness of an intervention program where typical siblings were taught how to use three sets of behavioral skills during play with siblings with ASD. The main goal of the study was to enhance typical siblings’ social behavior so as to improve the quality of social interactions with the sibling with autism. The study, which was conducted at the participants’ home, consisted of three 4-year-old children with autism and three siblings between the ages of 7 years to 10 years. The three behavioral skill sets taught to typically developing siblings include:

1. Skills eliciting appropriate commands during play, e.g. performing a task with toy (Put the toy on the table), and using appropriate speech (Make the sound of the fire truck);
2. Skills involving how to praise sibling's with autism appropriate behavior or speech, e.g. delivering praise every time appropriate behavior is displayed, and praising accompanied with physical contact;
3. Skills involving how to respond when a child with autism does not comply with request, e.g. providing feedback at every inappropriate behavior and providing a variety of prompts.

Celiberti and Harris (1993) explained that typically developing siblings were trained on how to use behavioral skills with siblings with ASD. The training involved observing the trainer demonstrate skills with the child with autism, role-playing with trainer, and practicing with the child with autism. Siblings received praise and corrective feedback while using skills with child with autism. Typically developing siblings were trained in each subset until they obtained at least 80% mastery of skills in two consecutive sessions. The results demonstrated that typically developing siblings can learn behavioral skills, and can use them during social interaction with siblings with ASD. This investigation proved that typically developing siblings can be effective “social skills teachers” to their siblings with ASD.

In addition, the results from the study by Celiberti and Harris (1993) showed that there was an increase in attempts by typical siblings to initiate interaction with siblings with ASD. Over time siblings were able to maintain their skills and use newly learned skills while interacting with other children with disabilities. The children with ASD also benefited from this

study as they displayed more appropriate behaviors during interaction, showed greater interest in play and responded more frequently to social cues. This study gives credence to the effectiveness of sibling-mediated interventions in improving social competence in students with autism spectrum disorder.

In another study, Tsao and Odom (2006) investigated the effects of SMIs on the social behaviors of children with ASD. The investigation involved finding out whether siblings can learn and use social skills strategies to interact with siblings with ASD and whether these strategies would increase the social participation of students with ASD. The principal goal was to find out whether sibling-mediated social intervention would increase social interaction and joint engagement of children with autism; as well whether it would lead to generalization of newly learned social behaviors. The study took place at the homes of four children with autism (3years-6 years) and four typically developing siblings (4 years-11 years). The intervention included teaching typically developing siblings a sequential chain of behaviors that can be used during play that would facilitate social interaction. These behaviors included establishing eye contact, proposing a play activity, initiating conversation and expanding on a comment.

The results of Tsao and Odom's (2006) study indicated that the typically developing siblings were able to learn social behaviors and use it during play with siblings with autism spectrum disorder; however; some needed prompting of up to 50% of the time. The results also revealed an increase in social interactions between typically developing siblings and children with ASD. This increased interaction led to increased social participation of children with autism, as they responded more to social initiations and, in some cases, engaged in social play unprompted. Additionally, all children with ASD engaged in joint attention more frequently with

their siblings. However, although there was an increase in children with ASD directing social behavior towards their siblings, most found it challenging to play with siblings in different settings.

The research studies showed that typically developing siblings can be effective intervention agents for social behaviors. Siblings were able to evoke appropriate behaviors as well as initiate more appropriate interaction with children with ASD. This increased interaction provides encouraging evidence that SMIs have dual positive impact for families with children with ASD.

### **Effectiveness of SMIs in Developing Social Competence in Children with ASD**

Some studies have highlighted that sibling-mediated interventions are effective tools to enhance social skills development in children with ASD (Schmidt & Stichter, 2012). Walton and Ingersoll (2012) conducted a study to examine the effectiveness of reciprocal imitation training (RIT) in promoting imitation and joint engagement in children with autism spectrum disorder when used by typically developing siblings. They also sought to find out whether newly learned social skills by children with autism could be maintained and generalized. RIT involves one person imitating the other in extended turn-taking sequences. It is “a naturalistic imitation intervention” where children with ASD are taught to imitate during play (Ingersoll, 2010 p. 1154). The study was conducted at the homes of four children with autism (3 years-4 years) and six typically developing siblings (8 years -13 years). The results revealed that all children with ASD showed increased ability to imitate and engage in joint attention. However, some children were able to maintain and generalize the behavior. The fact that some maintained and

generalized the behavior indicates that typically developing siblings can effectively learn and use RIT to enhance social competence in children with ASD.

Further research has investigated the effectiveness of sibling-mediated strategies on children with autism. In a study by Strain and Danko (1995), three boys with autism spectrum disorder (3 years-4years) were taught social skills by their typically developing siblings (3 years-5 years) in their homes using social overtures. The aim of the study was to examine the effectiveness of a classroom-based intervention package on sibling interactions (including those with and those without autism). Parents were used as mediators, as their roles were to encourage social interactions between siblings using ideas from the intervention package. The classroom-based intervention package included five peer interactional strategies: getting someone's attention by tapping on the shoulder and calling name; sharing toys; offering an idea; providing assistance to a partner; and complimenting a partner.

Strain and Danko (1995) reported that parents were given social skills training where they learned and practiced several strategies to facilitate social interaction between a typical child and a child with autism spectrum disorder. After training, parents used the strategies at home to encourage social interactions between children. Adults would sometimes model the target social skills before having siblings practice the behavior. At the end of the intervention, there was an increase in positive social interaction between typically developing sibling and sibling with ASD and all children with autism showed an increase ability to initiate social interactions. This study supports other research showing that sibling-mediated interventions are effective in improving the social behaviors of children with ASD.



In addition, Reagon, Higbee and Endicott (2006) revealed that sibling-mediated interventions benefit children with autism spectrum disorder, by providing a model of correct social behavior. They investigated the impact of siblings as video models and play partners on the social skill development of a child with autism. The study involved a four-year-old boy with autism and his six-year-old brother; and took place in a university's preschool classroom. The typically developing sibling was taught the script of four scenarios (teacher, doctor, cowboy, and firefighter), and then act them out, to be videotaped. During intervention, the sibling and brother with ASD were shown the video, then were asked to play. Later, an opportunity was provided to assess maintenance and generalization of behavior, as the parent acted as new play partner at home.

Reagon et al. (2006) showed that the child with autism spectrum disorder was able to imitate the behavior as well as generate spontaneous words to complete conversations with his sibling. In addition, the child was able to maintain and generalize behaviors with his mother. The video modeling intervention was also beneficial to the typically developing sibling as he reported that he learned how to play with his brother. Reagon et al. (2006) concluded that the "potential benefits to using siblings in video modeling interventions include ready availability, parental support, willingness to have them participate and the increased likelihood of generalization of play skills at home" (p. 525).

Overall, the studies highlighted that SMIs help children with ASD learn, maintain and generalize social behaviors. The effectiveness of this intervention makes it an essential instrument that parents and professionals working with students with ASD should implement to minimize social dysfunction.

## Discussion

The literature has proven that sibling-mediated strategies have double impact: teach typically developing sibling how to interact with sibling with ASD and enhance social competence of children with autism spectrum disorder. Older typically developing siblings can be great teachers as they act as mentors to their siblings with ASD. They provide multiple avenues for social skills attainment because they accompany siblings with autism in a variety of settings (e.g., church, shop, vacation). As a result, children with autism spectrum disorder are provided with more opportunities to observe the modeling of appropriate behaviors, practice the behaviors and obtain corrective feedback on behaviors displayed.

Although sibling-mediated interventions can be time consuming, as well as demanding (in terms of the expert human resource needed), they have been proven to be effective in developing social ability of children with autism spectrum disorder. These interventions broaden the scope of strategies that can be used at home. Sibling-mediated interventions is a promising approach that is beneficial to both typically developing sibling and sibling with autism. Therefore, it should be a tool that parents (with typically developing children) consider when trying to develop social skills in their children with autism spectrum disorder.

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