Sibling Involvement: Highlighting the Influential Role of Siblings in Supporting Children with Autism Spectrum Disorder

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Abstract
Social impairments experienced by children diagnosed with autism spectrum disorder (ASD) can limit participation in meaningful occupations. Incorporating typically developing siblings of children with ASD in occupational therapy-based community settings is an emerging practice approach that aims to support children with ASD during social challenges to enhance their participation in daily activities. The inclusion of siblings in occupational therapy practice presents a unique opportunity to address social skill development while facilitating positive sibling relationships. In this Opinions in the Profession paper, the influential role siblings play as social models for their siblings with ASD will be examined. The purpose of this paper is to describe sibling-mediated interventions and the distinct role of occupational therapists in facilitating positive sibling interactions and relationships through a coaching approach to promote the achievement of positive social and emotional outcomes.

Comments
The authors declare that they have no competing financial, professional, or personal interest that might have influenced the performance or presentation of the work described in this manuscript.

Keywords
autism spectrum disorder, sibling, relationship, social skill development

Cover Page Footnote
The authors would like to thank Andrew Devitt and the rest of the Sport-Social staff for serving as a community partner for the Super Sibs capstone program. We are grateful for their collaborative spirit and continued dedication to supporting children and their families.

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The American Occupational Therapy Association’s (AOTA) mission of advancing the profession of occupational therapy through standard practice and advocacy efforts challenges occupational therapists to use clinical and professional reasoning to identify effective approaches that support health and well-being at the individual, population, and community level (American Occupational Therapy Association [AOTA], 2017). To further guide the profession, Vision 2025 emphasizes that occupational therapy aims to “maximize health, well-being, and quality of life” through participation in meaningful occupations (AOTA, 2017, 7103420010p1). The guiding tenets have contributed to the emergence of occupation-based approaches in the community to support health promotion for individuals across the lifespan.

Student-developed capstone projects present an opportunity to provide a lens and support community-based practice. “The goal of the capstone experience is to provide an in-depth [experience] . . . to demonstrate synthesis and application of knowledge gained” (Accreditation Council for Occupational Therapy Education, 2018, p. 44). This paper presents a capstone project that includes an overview of the identified community partner need and highlights how the student developed an evidence-supported program as part of their capstone experience to illustrate acquired knowledge.

Enhancing Social Participation in the Community

Promoting community health at the center of occupational therapy practice can enhance inclusion and address health challenges (Hyett et al., 2020). Specifically, for children diagnosed with autism spectrum disorder (ASD), community-based approaches can function to facilitate increased social interactions and peer friendships to support improved overall well-being. The most recent data from the Centers for Disease Control and Prevention reports that one in 44 children is diagnosed with ASD (Centers for Disease Control [CDC], 2018); the growing prevalence of ASD diagnoses further drives a need for increased community support to address barriers to occupational performance. The social and communication challenges present for children with ASD can hinder community participation because of deficits in social-emotional reciprocity or the inability to interact with others (American Psychological Association, 2022, p. 60), which further limits the number of opportunities available to practice and develop social skills.

Research suggests that children with ASD participate at decreased rates in their community compared to typically developing (TD) children (Budavari et al., 2022; Devenish et al., 2020). In addition, community participation tends to be more of a barrier for a child with ASD as they move into adolescence (Simpson et al., 2019). This concern further precipitates a need for intervening early in the community to support the achievement of optimized socialization for individuals with ASD. Identified community willingness to support the inclusion and involvement of children with ASD can result in improved physical, social, and psychological outcomes (Devenish et al., 2020).

Suggested Approaches for Children with ASD

Participation in organized community leisure experiences, such as tennis, martial arts, swimming, football, and horseback riding, has been recognized as a promising approach to supporting improved social-emotional outcomes for children with ASD (Rinehard et al., 2018). For example, inclusive community sports offer children with ASD a unique opportunity to practice social skills in a natural environment with peers who serve as strong motivators for enhancing participation. Common characteristics associated with an ASD diagnosis, including challenges with social interactions, modulation of sensory input, and coping with unpredictable events, create barriers to social and leisure
participation, including sports activities, which may lead to physical inactivity (Memari et al., 2015). Because of the communication, sensory, and social barriers, children with ASD may have limited opportunities to practice and refine the expected social and leadership skills related to being a member of a team. Occupational therapists can advocate for equal access to team-based sports and other community programs to promote participation by offering individualized support for children with ASD.

To support the unique needs of each child with ASD across all community programs, occupational therapists can modify the activity demands by using peer-mediated and sibling-mediated interventions. A peer-mediated intervention is widely used in educational settings and consists of training TD peers to implement social and behavioral strategies to increase the social engagement of their peers with ASD in diverse activities (Chang & Locke, 2016). Sibling-mediated interventions employ the foundational structure of peer-mediated interventions, however, instead of using TD siblings as social models. While incorporating siblings is currently not a common practice in occupational therapy practice and is limited within occupational therapy literature, preliminary findings from other disciplines highlight the advantages.

Chu and Pan (2012) implemented a peer-mediated and sibling-mediated intervention with children with ASD in an aquatic program aimed at facilitating improved social and motor skills. During the program, TD children were taught how to model, prompt, and reinforce the children with ASD they were paired with during the aquatic activities. The findings suggest that the inclusion of peers and siblings as social models results in an increased frequency of social interactions initiated by children with ASD (Chu & Pan, 2012). In addition, as the sessions progressed, the participants with ASD presented with a reduced reliance on adult instructors and an increased observation and consequent imitation of their TD peers and siblings (Chu & Pan, 2012). The findings highlight the potential effect of peer and sibling inclusion on teaching skills in comparison to traditional methods of teaching.

In another recent study, the researchers used peer-mediated interventions with high school students to determine if adolescents with ASD could generalize social skills to three different natural settings using an Applied Behavioral Analysis approach. TD peers were given training consisting of the social challenges, appropriate prompts, and reinforcements to provide the adolescents with ASD. A TD peer was paired with an adolescent with ASD in typical high school environments and coached to ensure the targeted social skills were prompted by the TD peer. The outcome of using this behavior-based approach to skill development showed generalization of social skills across the natural environment that persisted to 4 months after the peer-mediated interventions were implemented (MacFarland & Fisher, 2019).

Sibling Inclusion

While both peers and siblings provide a rich learning experience, using TD siblings as interventionists has potential differential benefits in comparison to peers. In addition to supporting social skill development (Chu et al., 2012; Daffner et al., 2020), sibling-mediated interventions provide siblings an opportunity to strengthen their sibling bond through meaningful interactions in various settings (Tsao et al., 2006). Because of social skill deficits, children with ASD may experience increased difficulty in connecting with their siblings and demonstrate infrequent and potentially negative interactions with them (Hinek et al., 2019). In addition, TD siblings may perceive increased conflict and reduced emotional closeness with their siblings with ASD; their attempts to connect can be particularly difficult, so they experience increased frustration because of the lack of a reciprocal relationship (Orsmond & Fulford, 2006).
Furthermore, potential feelings of abandonment experienced by TD siblings because of the parental attention required for supervision commonly result in a tendency for them to play in isolation rather than with their sibling with ASD (Hinek et al., 2019; Ting et al., 2016). The lack of social interaction and connectedness between siblings can strain developed relationships in the family unit, thus impacting a family’s overall well-being.

Occupational therapists can promote the development of positive sibling relationships by including siblings in sessions and facilitating the identification of activities that precipitate shared enjoyment. Consistent sibling interactions offer children the opportunity to discover the unique and admirable qualities of their sibling that they can connect with, which can support enhanced feelings of emotional closeness (Ferraioli et al., 2012). The entire family can build on the siblings’ interactions and share in mutually enjoyable activities for enhanced family dynamics (Ferraioli et al., 2012). The establishment of cohesion in the family unit supports the enjoyment of common activities and facilitates friendship, which can promote improved psychosocial adjustment (Fullerton et al., 2017; Patelas, 2012).

In addition to the benefits from general sibling inclusion in supporting natural interactions, implementing sibling-mediated interventions in which TD siblings are taught specifically how to model, prompt, and reinforce their siblings with ASD during cooperative activities can promote improvements in distinct areas of social and emotional development for children with ASD. When implemented into treatment sessions as interventionists, TD siblings are considered the behavioral agents of change (Shivers & Plavnick, 2015). They provide a sense of familiarity, motivation, and reinforcement during novel social experiences (Ferraioli et al., 2012). According to the Occupational Therapy Practice Framework: Domain and Process (OTPF), for individuals to “achieve full participation, meaning, and purpose…they must engage comfortably” in their world (AOTA, 2020, p. 7412410010p9). Including TD siblings in sessions can provide children with ASD a sense of familiarity and comfort as they navigate novel situations and social challenges. In addition, since siblings are readily available in the daily lives of a child with ASD, they support the carryover and generalization of learned skills to multiple environments (Ferraioli et al., 2012; Kryzack & Jones, 2017).

A sibling-mediated intervention has the potential to benefit both a sibling with ASD and their TD sibling as they work collaboratively to achieve a common goal. Research indicates that for children with ASD, the intervention supports improvements in social competence and skill acquisition and a reduction in maladaptive behaviors (Ferraioli et al., 2012; Rum et al., 2021). Furthermore, for TD siblings, findings suggest that the formal or informal training they commonly receive before implementation of the intervention provides them with an opportunity to assume a leadership role, which improves their sense of self-efficacy and increases their sensitivity to others (Shivers & Plavnick, 2015). When sibling-mediated interventions are applied in a group setting, TD siblings have reported expanded peer friendships from connecting with other siblings (Shivers & Plavnick, 2015). In addition, structured time spent with their sibling with ASD supports a TD sibling’s improved understanding of the presentation of the diagnosis, a higher level of empathy, greater maturity, and an enhanced acceptance and tolerance of others (Baron-Cohen & Bolton, 2000; Corsano et al., 2016; Patelas et al., 2012; Ward et al., 2016).
Application of Siblings in Practice

Capstone Program

Super Sibs, a sibling-focused educational program, was developed by an occupational therapy doctoral student to address the need for increased community-based services. The purpose of this program was to enhance sibling relationships and support the achievement of optimal social skill outcomes for children with ASD. The program was offered for sibling dyads, which included a sibling diagnosed with ASD and a TD sibling. It was designed using a strengths-based approach highlighting all children’s unique contributions to the sibling bond while focusing on the natural benefits of including siblings in social group sessions. For example, rather than employing a sibling-mediated intervention focused on training TD siblings on how to be effective social models, all of the participants were present throughout the program to learn how to create and maintain positive sibling relationships.

Madrigal and Winner’s (2008) *Superflex: A Superhero Social Thinking Curriculum* was used to guide program sessions. *Superflex* is one aspect of the Social Thinking Methodology created by Michelle Garcia Winner, a speech-language pathologist, to help individuals develop social competencies and overcome social learning challenges for improved well-being. Social Thinking follows three theories: central coherence theory, executive dysfunction, and the theory of mind (Winner, 2007). It applies evidence-based practices for supporting children with ASD, including “modeling, naturalist intervention, reinforcement, and visual supports” through lessons and activities (Crooke & Winner, 2016, p. 403).

The Superflex curriculum aimed to empower learners to use their inner superhero, termed Superflex, to overcome various ‘Unthinkables,’ which represent common social challenges using self-regulation strategies (Madrigal & Winner, 2008). Occupation-based coaching was applied during the program to encourage the participants to assist their siblings in reflecting on experienced social challenges and consequently use the language present in the curriculum in the home and other environments to recognize an Unthinkable character and identify strategies to defeat it. Employing the curriculum across all environments was designed to mitigate the potential placement of blame on a sibling, and instead offered siblings the language to describe social difficulties or maladaptive behaviors using the Unthinkable characters. This strategy served to facilitate improved social skill development and strengthen sibling relationships through collaborative efforts to resolve interpersonal conflict.

Furthermore, Super Sib’s sessions provided numerous opportunities for siblings to practice positive interactions through the implementation of cooperative play activities. Dyads worked toward achieving a common goal through various gross motor, fine motor, and sensory-based play activities. During the activities, dyads naturally encountered various social challenges and were encouraged to use communication and self-regulation strategies to practice conflict resolution. Super Sibs sessions followed a consistent schedule, as shown in Table 1, which included the following: mindfulness, Social Thinking lesson, Social Thinking activity, collaborative sibling dyad activity, and unstructured playtime with siblings and peers. Program outcomes associated with participation in Super Sibs included increased participation in session activities, increased verbalizations of Unthinkable characters and associated self-regulation strategies, and the demonstration of collaborative sibling relationships suggested by positive interactions and increased time spent in proximity together during sessions.
Implications for Practice

Favorable program outcomes highlighting sibling involvement in occupational therapy sessions may promote a catalyzation of teaching and learning approaches used in traditional settings. Specifically, improved sibling participation supports the potential benefit of initiating a shift from occupational therapists as the primary facilitators during sessions to siblings, who would take on a more active role and guide their sibling with ASD through various occupations, including play, education, and social activities. TD siblings, who are familiar with their sibling’s unique interests, can support the provision of occupation-based, client-centered services by initiating the selection of activities that are meaningful and motivating to the child with ASD, further enhancing overall participation.

To support the achievement of targeted outcomes while implementing sibling-mediated interventions, occupational therapists can apply a coaching approach to intervention, a therapeutic tool used to empower individuals to recognize physical and social changes that enhance performance in daily life (Kessler & Graham, 2015). Occupational therapists are skilled in identifying the influence of tasks and environments on occupational performance and, consequently, how to grade or modify them accordingly. Therefore, occupational therapists can use their expertise to guide TD siblings as they fulfill a social model role to optimally support their sibling with ASD and maximize social learning. An additional desired outcome of the implementation of this approach is to increase the self-efficacy of TD siblings so they can serve as natural facilitators for their siblings with ASD across all settings, further promoting the maintenance and generalizability of skills.

Conclusion

The use of sibling-mediated interventions supports a continued need for an expansion of services at the community level to support children with ASD in the achievement of social and emotional outcomes. Occupational therapists are well-equipped to bridge the research-to-practice gap by incorporating alternative approaches to intervention, like occupation-based coaching and inclusive sibling-mediated designs in the community, to initiate a significant shift toward the implementation of top-down and family-centered approaches. Published findings related to sibling-mediated interventions suggest that using TD siblings as social models in practice can facilitate improvements in social skills and increased occupational participation for siblings with ASD (Budavari et al., 2022; Chang & Locke, 2016; Chu & Pan, 2012; Daffner et al., 2020). In addition to the advantageous social skill outcomes achieved by children with ASD, sibling-mediated interventions can also benefit TD siblings, who take on a leadership role and gain a sense of mastery in supporting their siblings with ASD (Shivers & Plavnick, 2015). TD siblings provide a rich learning experience for their siblings with ASD and support the generalization and maintenance of learned skills that can support well-being and enhance the overall quality of a sibling relationship.

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