20 Evidence-Based Social Skills Groups for Individuals with Autism Spectrum Disorder Across the Lifespan

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20.1 Introduction

Deficits in social interaction and communication skills are the common impairment shared by all individuals with autism spectrum disorder (ASD), regardless of cognitive or language ability (Carter, Davis, Klin, & Volkmar, 2005). Broadly, social deficits often observed across the autism spectrum and throughout the lifespan include poor social communication and impaired social cognition. These social impairments do not appear to improve as a result of development or maturation; in fact, when left untreated, they can become more apparent during adolescence and adulthood with the increasing complexity and demands of social interactions (Laushey & Heflin, 2000; White, Keonig & Scahill, 2007; Schall & McDonough, 2010).

Consequences of impaired social functioning often manifest in the form of peer rejection, peer victimization, poor social support, and isolation. Individuals with ASD frequently report higher levels of loneliness and poorer quality of friendships than typically developing peers (Bauminger & Kasari, 2000; Capps, Sigman, & Yirmija, 1996; Humphrey & Symes, 2010), as well as elevated levels of anxiety, depression, and withdrawal (Sterling, Dawson, Estes & Greenson, 2008; Ghaziuddin, 2002; Kim, Szatmari, Bryson, Streiner, & Wilson, 2000). Thus, the importance of evidence-based interventions to address social development for individuals across the spectrum cannot be underestimated.

Despite the pervasiveness of social deficits and the negative consequences commonly experienced among individuals with ASD, social skills are comparatively much less studied than other aspects of ASD (Reichow & Volkmar, 2010). Fortunately, there is a steady growth of research on social skills interventions, many of which are conducted in group settings. Group instruction is an intuitive method for social skills training, as it allows for the opportunity to interact with and practice newly learned social skills with peers. By definition, a social skills group consists of three or more students that are simultaneously taught a variety of social behaviors. The research evidence to date suggests that social skills groups are a promising avenue for improving social competencies among individuals with ASD. And while most of these studies focus on childhood (Reichow & Volkmar, 2010), a growing body of research evidence suggests that this form of intervention can improve social functioning across the lifespan (Gantman, Kapp, Orenski, & Laugeson, 2012; Kasari & Patterson, 2012; Laugeson, Frankel, Gantman, Dillon, &

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J.B. Leaf (ed.), *Handbook of Social Skills and Autism Spectrum Disorder*, Autism and Child Psychopathology Series, DOI 10.1007/978-3-319-62995-7_20

Mogil, 2012; Laugeson, Frankel, Mogil, & Dillon, 2009; Laugeson, Gantman, Kapp, Orenski, & Ellingsen, 2015; Leaf et al., 2017; Lerner & Mikami, 2012; Lopata, Thomeer, Volker, Nida, & Lee, 2008; Mandelberg et al., 2014; Minihan, Kinsella, & Honan, 2011; Vernon, Miller, Ko, & Wu, 2016; White et al., 2013).

20.2 Social Challenges for Individuals with ASD

Although deficits in social functioning are a pervasive and prominent feature of ASD, the social challenges experienced by individuals on the spectrum are broad and varied depending on developmental stage and level of cognitive and language ability. For example, in early childhood, preverbal social impairments are often exhibited, primarily in the domain of social attention. These deficits may include social orienting (i.e., failure to attend to social information in the environment), joint attention (i.e., shared attention to outside objects), and attention to the distress of others (Dawson, Meltzoff, Osterling, Rinaldi, & Brown, 1998; Klin, Lin, Gorrindo, Ramsay, Jones, 2009; Mundy, Sigman, Ungerer, & Sherman, 1986; Sigman, Kasari, Kwon, & Yirmiya, 1992). The considerable heterogeneity in the level of cognitive functioning among individuals with ASD also affects the presentation of social deficits. For example, Bauminger, Shulman, and Agam (2003) found that higher-functioning adolescents initiate social interaction with peers more frequently than do their lower-functioning peers. Yet, their interactions are often awkward and sometimes even intrusive or offensive. In fact, cognitively able adolescents may be no less affected by social deficits than those with cognitive limitations; rather, their heightened self-awareness and false appearance of being less impaired may actually increase the severity of their social limitations and motivation, perhaps increasing the likelihood of peer rejection and neglect.

Although the presentation of social deficits among individuals on the spectrum is varied, these social deficits are broadly observed in two areas: poor social communication and impaired social cognition. Poor social communication includes lack of reciprocity in conversation (i.e., having one-sided conversations), lack of attention to context and nuance in various social situations, and difficulty understanding nonverbal gestures (American Psychiatric Association, 2013). These pragmatic communication deficits within a social context appear to be universal for people with ASD. Specifically, inappropriate turn-taking in conversations, atypical prosody, pedantic manner of speaking, difficulty accounting for social context and setting, and challenges comprehending nonliteral language have been documented consistently through the research literature and have also been shown to influence social outcomes (Pijnacker, Hagoort, Buitelaar, Tuenisse, & Guerts, 2009). Individuals with ASD may perseverate on specific topics of personal interest and shift the conversation back to their preferred topic when their social partner transitions to a different subject (Ghaziuddin & Gerstein, 1996), often providing more information than necessary to illustrate a point (Elder, Caterino, Chao, Shacknai & De Simone, 2006). This inability to carry out a reciprocal bidirectional conversation makes it difficult for individuals with ASD to find common interests with social partners, limiting their likelihood of developing friendships, as friendships are often based upon common interests (Laugeson, 2013, 2014, 2017; Laugeson & Frankel, 2010). Therefore, enhancing two-way conversational skills might be considered an important element of training within social skills groups for individuals with ASD.

When providing excessive information on a topic of interest, youth with ASD frequently achieve the label of "little professor" for their extensive knowledge of a subject, as well as their "lecturing" style of conversing, characterized by a pedantic, or a formal and factual, style of speech (Ghaziuddin & Gerstein, 1996). Related to this pedantic style of speech, poor speech prosody, which includes the natural rising and falling of voice pitch and inflection that occurs during speech, has also been identified as a

communication deficit in individuals with ASD (Starr, Szatmari, Bryson, & Zwaigenbaum, 2003). Individuals with ASD often demonstrate atypical rhythms and sounds in their speech which can lead to miscommunication, as it can make the person speaking sound annoyed, bored, or lethargic, and may possess a robotic or automated quality (Shriberg et al., 2001). Atypical prosody may be one of the most immediately recognizable social characteristics of ASD and also one of the most challenging characteristics to modify over the lifespan. While atypical patterns of speech might be more appropriately addressed through speech and language therapy, one might argue that remediation of hyper-verbosity and focus on restricted interests in conversations is an appropriate and necessary element of social skills groups for individuals with ASD.

Another deficit often experienced by individuals on the autism spectrum in the area of conversational skills is difficulty understanding and using humor appropriately (Winter, 2003). Specific challenges with humor include difficulty understanding punch lines to jokes (Emerich, Creaghead, Grether, Murray, & Grasha, 2003) or a tendency to tell jokes that are socially immature (Van Bourgondien & Mesibov, 1987), often with little regard to the reaction of the audience. Other forms of nonliteral language such as understanding sarcasm, analogies, metaphors, and figurative use of language have also been shown to be problematic for those with ASD, as they tend to think in very concrete and literal terms (Kerbel & Grunwell, 1998; Starr et al., 2003). Difficulty interpreting and using humor and other nonliteral language can impede one's ability to meaningfully participate in a social exchange (Dennis, Lazenby, & Lockyer, 2001; Emerich et al., 2003; Happé, 1995; Martin & McDonald, 2003). Therefore, social skills groups designed for individuals with ASD might address the appropriate use of humor, while avoiding the use of figurative language during instruction.

Social communication also includes nonverbal elements such as social touch, gestures, and eye contact. Individuals with ASD often have difficulty understanding the value and meaning of these nonverbal elements of social interaction (Griffin, Griffin, Fitch, Albera, & Gingras, 2006; Volkmar & Klin, 1998). Thus, nonverbal communication elements are also important to consider as a target of intervention in social skills groups for individuals with ASD.

Impaired social cognition, also known as theory of mind, is another area of social deficit among individuals on the autism spectrum. Individuals with ASD often experience difficulties in expressing emotions, understanding the feelings of others, and empathizing (Baron-Cohen, 1995; Frith, 2004; Klin & Volkmar, 2003; Krasny, Williams, Provencal, & Ozonoff, 2003; Travis & Sigman, 1998), as well as an overall lack of understanding of social causality (Baron-Cohen, Leslie, & Frith, 1985). Such deficits make it very difficult to make sense of or predict the behavior of others, as well as to know when it is appropriate to show comfort, express emotions, or take actions that convey empathy in a socially correct manner (Baron-Cohen, 1995; Klin & Volkmar, 2003; Krasny et al., 2003). Consequently, incorporating perspective taking into social skills groups is critical to improving social cognition.

20.3 Consequences of Social Challenges Common in ASD

Deficits in social communication and social cognition among individuals with ASD have significant consequences from early childhood throughout adulthood. Poor interpersonal skills are associated with rejection by peers, juvenile delinquency, early withdrawal from school, academic and occupational difficulties, and later mental health and adjustment problems (Buhrmester, 1990; Howlin & Goode, 1998; Myles, Bock, & Simpson, 2001; Tantam, 2003). Social engagement theory suggests that diminished social motivation and attention starting in early childhood may deprive a child with ASD of fundamental social learning opportunities during a critical developmental period and may lead to deficits in social cognition and ultimately social skills development (Chevallier, Kohls, Troiani, Brodkin & Schulz, 2012). The consequences of

this lack of social attention and engagement typically become more apparent as children mature and begin engaging socially with peers. Individuals with ASD report less peer interaction, fewer friendships, lower friendship quality, higher rates of peer victimization, and greater loneliness than their typically developing peers (Baron-Cohen & Wheelwright, 2003; Bauminger & Kasari, 2000; Koegel, Vernon, Koegel, Koegel, & Paullin, 2012; Lasgaard, Nielsen, Eriksen, & Goossens, 2010). Consequently, individuals on the autism spectrum report elevated levels of anxiety and symptoms of depression (Bauminger et al., 2003; Shtayermann, 2007; Sze & Wood, 2007). These consequences of social challenges persist across the lifespan, and social challenges specific to ASD may even be greatest upon entering adulthood, possibly due to the greater salience and complexity of peer relationships, growing drive toward identity exploration, lack of availability and knowledge about appropriate services, and uncertainty about the balance of responsibility between individuals themselves and those who support them (Tantam, 2003). Research with adults has found that at least half of the adult population with ASD report not having friends or significant relationships with peers (Howlin, 2000; Orsmond, Krauss, & Seltzer, 2004). Furthermore, adults with ASD often desire romantic relationships, but only about 14% report being in an intimate relationship (Farley et al., 2009). Researchers have hypothesized that although the aspiration for a romantic relationship is consistent with typically developing peers, this lower than average rate of engagement in such relationships may be due to the lack of social competence and skills to initiate and maintain a romantic relationship (Henault & Attwood, 2002; Mezhabin & Stokes, 2011; Stokes & Kaur, 2005). This lack of social skills may manifest through higher levels of inappropriate bids or actions with a potential romantic partner that may even be perceived as stalking or harassment (Stokes, Newton, & Kaur, 2007).

Despite their apparent social difficulties, individuals with ASD often desire friendships and even express concern about the lack of closeness in their peer relationships (Church, Alisanski, & Amanullah, 2000). Given this desire for social relationships and concurrent lack of social proficiency, training in appropriate social skills is a logical and necessary approach. Moreover, increased levels of social competence and having at least one close friendship decrease the risk of depression, anxiety, loneliness, and peer victimization and may also indicate greater ability to form successful romantic relationships later in life (Buhrmester, 1990; Jennes-Coussens, Magill-Evans, & Konig, 2006; Stokes et al., 2007).

20.4 Group-Based Social Skills Interventions for Individuals with ASD

Although typically developing individuals often learn basic rules of social etiquette through observation of peers and/or through instruction from parents in nonclinical settings (Gralinski & Kopp, 1993; Rubin & Sloman, 1984), individuals with ASD often require additional support and assistance. Although social skills treatment programs for individuals with ASD are growing in availability, few of these intervention packages have shown significant improvement in social skills outcomes. However, certain empirically supported methods of treatment delivery have been identified, and in recent years, the emergence of evidence-based interventions has increased for group-based social skills interventions (Miller, Vernon, Wu & Russo, 2014). Targeting interventions to focus on common social deficits shared among individuals with ASD through the teaching of ecologically valid social skills within a group setting, while using evidence-based methods of social skills instruction, may make social skills interventions more effective with this population.

Just as social challenges experienced by individuals on the spectrum are largely varied depending on developmental stage, so too are the areas of focus for social skills group interventions for this population. For example, in early childhood, the treatment priorities often focus on developing joint attention and social orienting, given their importance as fundamental building

blocks for deeper social communication and cognition. Additionally, social skills groups for preschool-aged children might place focus on play skills, as this is the primary form of socialization at this developmental stage. For example, topics of instruction might include sharing, asking for a turn, being a good sport, asking a friend to play, and body boundaries. Social skills groups for elementary school-aged children and adolescents tend to focus more on conversational skills and advanced social cognition, such as appropriate turn-taking in conversation, creating opportunities for social interaction, understanding of verbal and nonverbal social cues, ability to perspective-take, and competence at handling peer conflict (Laugeson & Ellingsen, 2014). Upon adulthood, dating etiquette might be added as a topic to social skills groups. Studies have shown that sexual development may mature at a slower rate for individuals with ASD, with an average 5-year delay in sexual maturation as compared to neurotypical peers (Stokes & Kaur, 2005; Volkmar, Carter, Sparrow, & Cicchetti, 1993). Thus, young adulthood, rather than adolescence, might be the most appropriate time for intervention and direct instruction regarding entering and maintaining romantic relationships.

These are just a few of the targeted areas in which social skills group instruction might be focused based on developmental stage. Importantly, the skills that are taught should be relevant to the population being served, including attention to developmental stage, level of functioning, as well as cognitive and language ability. Approaches to teach individuals with significant cognitive and verbal limitations may require simplified content, intensive repetition and instruction and prompting, augmentative communication devices, visually based teaching strategies, and tangible reinforcers. Approaches tailored to cognitively able individuals, on the other hand, will likely include verbally mediated strategies, instructor modeling (i.e., role-playing), and self-reinforcement. Above all, the content of social skills group interventions should be ecologically valid. Ecologically valid social skills are those behaviors that are exhibited by socially accepted individuals, rather than those gleaned from conventional wisdom (Laugeson, 2013, 2014, 2017; Laugeson & Frankel, 2010). One reason that the majority of social skills interventions used with individuals on the spectrum have not demonstrated strong outcomes may be that the skills being taught are those deemed appropriate by adults, clinicians, or researchers, rather than skills actually established by the dominant peer group. If the goal of social skills training is for the individual to be accepted by the dominant peer group, teaching the wrong set of social behaviors is futile and ineffective and could even increase levels of peer rejection. To illustrate this point, consider what many social skills interventions teach children and adolescents to do when they are being verbally bullied or teased. Most youths are told to ignore the person, walk away, or tell an adult (Laugeson, 2013). When asked whether those strategies work, most children and adults will say they are ineffective. For example, if you ignore the teaser, they will simply keep teasing you. If you walk away, they will follow you and keep teasing. If you tell an adult, they will likely want to retaliate. However, a more ecologically valid and effective tactic would be giving a short comeback that suggests what the teaser said did not bother you (Laugeson, 2013, 2014, 2017; Laugeson & Frankel, 2010). The individual being teased might respond by saying "Whatever" or "Anyway" or "Yeah, and?" or any other number of comments that show the teaser they were unaffected. This ecologically valid approach makes the teasing less enjoyable for the teaser, and thus, he or she will be less likely to target this individual after repeated failure to elicit the desired response. This is just one demonstration of the importance of teaching ecologically valid skills during social skills instruction. Instead of teaching a strategy (e.g., telling an adult) simply because it appears to be appropriate, teaching social skills naturally utilized by socially accepted individuals will be more likely to lead to improved social functioning and peer acceptance.

20.5 Effective Treatment Delivery Methods for Teaching Social Skills in a Group Setting

In addition to teaching developmentally appropriate and ecologically valid social skills, the treatment delivery methods for social skills groups should be research-based and empirically supported for use with individuals with ASD. Effective methods of instruction and treatment formats include:

- Evidence-based treatment manuals
- Didactic instruction
- Small group format
- Behavioral modeling
- Behavioral rehearsal
- Parent/caregiver social coaching
- Homework assignments
- School-based interventions
- Inclusion of typically developing peers

20.5.1 Evidence-Based Treatment Manuals

The use of evidence-based treatment manuals may help to ensure that individuals in community settings achieve comparable treatment gains as research participants upon which the evidence is based. Using treatment manuals may also help to standardize group interventions, although actual treatment delivery may still vary (Smith et al., 2007). Although there is a dearth of empirically supported social skills group interventions, a few publically available treatment manuals do exist (Frankel & Myatt, 2003; Laugeson, 2014, 2017; Laugeson & Frankel, 2010); yet, the extent to which these published manuals are used with fidelity is unknown. Unfortunately, measurements of treatment fidelity are underreported in ASD treatment research, but adherence to the original guidelines for delivering evidence-based group interventions may be particularly important for treatments delivered by parents or less experienced or credentialed professionals (Matson, 2007).

20.5.2 Didactic Instruction

The use of structured lesson plans to teach social skills using concrete rules and steps of social behavior is key to the development and successful implementation of an effective social skills group. Structured lesson plans ensure that a core set of skills will be taught. Some social skills programs attempt to teach social skills through "process groups" in which individuals are asked to give a recount of their week, while group leaders and other group members attempt to troubleshoot potential problems and brainstorm how to behave in a more socially constructive manner moving forward. The benefit of these types of process groups is unknown, but the risk of possibly failing to teach a core set of skills necessary to function adaptively in the social world may outweigh any benefits. The use of structured didactic lessons is recommended to ensure that some predetermined core set of ecologically valid skills is learned.

Additionally, when providing social skills instruction to individuals with ASD, it is important to consider the unique manner in which information is processed. Individuals with ASD tend to think in very concrete and literal terms and often struggle to comprehend metaphors, analogies, and other forms of figurative language (Kerbel & Grunwell, 1998; Starr et al., 2003). Therefore, didactic lessons presented using concrete rules and steps of social etiquette (and avoiding figurative use of language) will enhance comprehension of social skills instruction, even when presenting more complicated or abstract social behaviors. For example, consider how one might teach strategies for joining a conversation, a skill that can seem particularly complicated for individuals with ASD. By breaking down conversational entry into concrete steps, this complex social behavior becomes more manageable. There are three basic steps involved in conversational entry (Laugeson, 2014, 2017; Laugeson & Frankel, 2010). First, *watch and listen* to the conversation. This is the necessary first step to determine what the group is talking about and whether we share a common interest, while watching inconspicuously from a short distance and

making periodic eye contact. Second, *wait for a pause*. Waiting for a brief pause in the conversation or some sign of receptiveness from the group helps us avoid being intrusive and allows for a more natural entrance into the conversation. Third, *say something on topic*. This last step involves joining the conversation and making a comment, asking a question, or giving a compliment that is on topic, so that we are adding to the conversation, rather than hijacking the conversation by being off-topic. While this sophisticated social behavior of peer entry might seem abstract at first, when broken down to its concrete parts, it becomes quite manageable for the individual with ASD and provides a good example of the necessity for teaching social skills using concrete rules and steps during didactic instruction.

20.5.3 Small Group Format

Social skills training in a small group format allows for the opportunity to practice newly learned social skills with peers, in addition to live performance feedback from group facilitators. Of course, there are several considerations that should be made before conducting social skills groups. First, group facilitators should have a shared understanding of each group member's history and current level of functioning, including language and cognitive ability, maturity level, as well as amount and degree of maladaptive social behavior. Heterogeneity of the group should be limited in order to aid learning and group cohesion (White, 2011). Even with these considerations, it is likely that the facilitator will have to deal with some disruption from group members. Therefore, a small group size (e.g., 8–10 group members) is ideal for being able to troubleshoot clinical issues when they arise. It is further suggested that social skills groups for adolescents and adults only include those members who are motivated to participate in the treatment (Laugeson, 2014, 2017; Laugeson & Frankel, 2010), thereby improving the likelihood of success and reducing the negative impact of treatment resistance and negative group contagion.

Another important consideration when forming social skills groups relates to the gender and age range of the group members. Although gender and age of group members ought to be considered when forming groups, it may be difficult to create groups with equal gender balance given that many more males than females are diagnosed with ASD. The interests of males and females can be very different – particularly during middle childhood and adolescence – and there is some evidence to suggest that being the only girl in a group of adolescents with ASD can be an uncomfortable and isolating experience (Barnhill, Cook, Tebbenkamp, & Myles, 2002). However, assuming the facilitator is mindful of gender differences, it may be useful to have a mixed-gender group, since this reflects the natural setting for most individuals outside of the treatment setting (White, 2011). It is also helpful to keep the age range of group members as homogeneous as possible, with particular attention paid to the context of the social setting. For example, segregating groups based on school or work setting (i.e., preschool, elementary school, middle school, high school, college, or work) would be more advantageous than creating groups based on a specific age range. For example, a 10-year-old boy in grade school and an 11-year-old boy in middle school may share less in common than 11- and 14-year-old boys both attending middle school.

Given the fact that many individuals with ASD have a history of peer rejection, an environment that provides support and care among group members and facilitators is particularly important for any social skills intervention for individuals with ASD (White, 2011) and another reason to teach social skills in a group format. Although it should be noted, a group format is not always the most appropriate setting for individuals who exhibit severe maladaptive behaviors (e.g., severe anxiety, unprovoked aggression) that could make interacting with group members aversive or unsafe (White, 2011).

20.5.4 Behavioral Modeling

A critical component to social skills groups is the use of behavioral modeling, or role-playing demonstrations, to act out certain targeted behaviors. This method of instruction in social skills groups is particularly important as it brings life to the lesson being taught, making concepts that might be viewed as theoretical or conceptual, more real and concrete. For example, individuals with ASD receiving instruction about having two-way conversations would more successfully synthesize this information by visually observing these tactics in action. In-person modeling by social coaches or watching a video demonstration (i.e., video modeling) is an effective observational learning format for elementary-aged children, adolescents, and adults. However, a more developmentally appropriate and engaging approach for young children might be to use puppets in role-playing demonstrations (Laugeson, Park, & Sanderson, 2016).

In contrast to video modeling, video self-modeling involves individuals observing themselves performing a targeted behavior successfully on video and then imitating the targeted behavior. While this method has demonstrated improvements in social skill acquisition, (Bellini, Akullian, & Hopf, 2007; Bernard-Ripoli, 2007; Boudreau & Harvey, 2013), the use of video self-modeling is only advisable in individual treatment settings and should be avoided in group settings in order to minimize shame and embarrassment when the targeted skills are not perfectly executed.

20.5.5 Behavioral Rehearsal

Another important approach to teaching social skills in a group setting involves the use of behavioral rehearsal (i.e., practice) with performance feedback through coaching (Laugeson et al., 2012; Laugeson, Ellingsen, Sanderson, Tucci, & Bates, 2014; Laugeson et al., 2015). It is recommended that individuals with ASD practice newly learned social skills with social coaches, peer mentors, or other group members before practicing these skills outside of the treatment setting. There are multiple benefits to in-group behavioral rehearsal. For one, the individual can practice the new skill in a comfortable and supportive environment, thus easing the initial anxiety of using the skill outside of the group setting. Also, it is important for group facilitators to witness the individual's understanding of and ability to implement the skills they have been taught to avoid misunderstanding or misuse of newly learned skills. Providing performance feedback through coaching during sessions is crucial to troubleshoot difficulty with acquisition and application of skills. Having multiple trainers or coaches in the group to prompt the individual and provide feedback is useful in ensuring that the individual does not become dependent on any one person to provide social cues (White, 2011). Given that individuals on the autism spectrum have likely experienced fewer successes in their social lives (particularly once they've entered adolescence or adulthood), it can also be helpful to set up behavioral rehearsals early in the intervention that will guarantee at least some degree of achievement (White, 2011).

20.5.6 Parent/Caregiver Social Coaching

Parents and caregivers (e.g., grandparents, aunts/uncles, adult siblings, job/life coaches) can have significant effects upon acquisition of social skills for individuals with ASD, both in terms of direct instruction and supervision and supporting the development of an appropriate peer network (Frankel et al., 2010; Gantman et al., 2012; Laugeson et al., 2012, 2015; Miller et al., 2014). The use of a parent-assisted (also known as parent-mediated) group model of social skills training was first introduced by Frankel and Myatt (2003) through the Children's Friendship Training Program (CFT), which has been shown to be effective in improving friendship skills for elementary-aged children with ASD (Frankel et al., 2010). The effectiveness of using parent/caregiver assistance has also been demonstrated for adolescents and young adults through the

Program for the Education and Enrichment of Relational Skills (PEERS: Laugeson, 2017; Laugeson & Frankel, 2010), an evidence-based social skills group intervention targeting friendship and relationship skills for individuals with ASD (Gantman et al., 2012; Karst et al., 2015; Laugeson et al., 2009, 2012, 2015; McVey et al., 2016; Schohl et al., 2014; Van Hecke et al., 2015; Yoo et al., 2014).

Parent or caregiver involvement in social skills groups may be crucial to help individuals with ASD improve their social skills, as these individuals are often quite dependent on their parents or other caregivers for support, even into their adolescent and adult years (Howlin & Moss, 2012). As an example, PEERS incorporates significant parental or caregiver involvement to ensure practice and generalization of social skills outside of the treatment setting. Parents and caregivers assist and monitor adolescents or adults in their completion of weekly homework assignments to practice the use of social skills taught during previous group sessions. Parents and caregivers are also taught to act as social coaches, when appropriate, in order to promote the generalization of skills to other settings such as the home and community. Involvement of parents and caregivers in the intervention is also critical to the expansion or enhancement of a peer social network. Parents and caregivers are taught to work with the adolescent or adult on identifying appropriate extracurricular activities and social hobbies where they might meet potential friends with common interests (Laugeson, 2017; Laugeson & Frankel, 2010). Findings from randomized controlled research trials with adolescents and young adults reveal significant gains in social skills across raters and settings, as well as increased frequency of social interactions in adolescent and adult participants (Gantman et al., 2012; Laugeson et al., 2009, 2012, 2015). Results of follow-up assessments further revealed maintenance of treatment gains 14 weeks after the completion of treatment (Laugeson et al., 2012) and as long as 1–5 years post-intervention (Mandelberg et al., 2014), strongly supporting the use of parents and caregivers within group treatment. Parents and caregivers are arguably the one factor that remains consistent across time, thereby enhancing generalization of social skills and maintenance of treatment gains across the lifespan.

20.5.7 Homework Assignments

Another treatment method to facilitate generalization of newly learned social skills is assignment of homework between sessions to practice the skills outside of the group. For example, in the case of joining a conversation, group members might be given a homework assignment to practice the steps for peer entry (i.e., watch and listen, wait for a pause, say something on topic) in a more natural environment like school or work. A portion of each group session (ideally at the beginning) should also be used to review the completion of homework assignments and troubleshoot any issues that may have come up. Homework review is also a nice opportunity to individualize the treatment within a group setting (Laugeson, 2014, 2017; Laugeson & Frankel, 2010); therefore, considerable time should be allotted for reviewing these assignments.

20.5.8 School-Based Social Skills Groups

The use of school-based interventions to improve social skills is not uncommon. In fact, many school districts require instruction on social skills through Individualized Education Plans (IEPs) for students with special needs, like those with ASD. Despite the widespread use of school-based social skills instruction, the effectiveness of this approach has been tested very little (White et al., 2007). Most social skills interventions provided in the schools are taught by speech and language pathologists, special education teachers, and school psychologists, many of whom develop their own programs based on an amalgam of existing interventions. Lack of adherence to evidence-based treatments is most likely due to short supply of empirically supported school-based curricula. However, the use of evidence-based social skills group interventions in

the school setting has been studied to a limited extent and has been shown to be effective for middle and high school adolescents with ASD (Laugeson, 2014). The notion that teachers can effectively teach social skills in the classroom, much like teaching math or science, is a novel approach but is slowly gaining research evidence (Kaale, Smith, & Sponheim, 2012; Laugeson et al., 2014; Lawton & Kasari, 2012;). The use of teachers as social skills facilitators may be a nice alternative to traditional social skills groups as this method of treatment delivery has the capacity to reach a greater number of children and adolescents with ASD, while teaching social skills in a more natural social environment.

20.5.9 Inclusion of Typically Developing Peers

Inclusion of typically developing peers in social skills groups has gained popularity in recent years with promising results (Minihan et al., 2011; White et al., 2013). Socially competent peers are typically trained beforehand and then participate in the groups to teach, model, and reinforce appropriate social behavior. For example, White et al. (2013) included typically developing peer tutors in their social skills groups for adolescents with ASD. Before participating in a group, tutors met with the principal investigator to learn about ASD and the format of the group. They were given specific tasks for each session such as modeling the specific target behavior, being the first participant to practice in front of the group, or engaging another group member in the interaction.

20.6 Future Directions for Social Skills Groups

While social skills groups have increasingly become a popular method for helping individuals with ASD adapt to their social environment, with a growing body of evidence highlighting their effectiveness, there is still considerable work to be done to address limitations in our knowledge of what are the most effective group intervention strategies. As the field of social skills intervention moves forward, recommendations for future research include:

- An emphasis on older populations (including adolescents and adults)
- The use of randomized controlled trials as the standard for examining the efficacy and effectiveness of social skills group interventions
- Assessment of treatment outcome using a combination of standardized outcome measures and behavioral observations with multiple independent raters
- Group research designs with large sample sizes and well-characterized populations
- Long-term follow-up assessment to examine the maintenance of treatment gains over time

20.6.1 Adolescents and Adults

With emphasis on early intervention, most social skills treatment studies have targeted younger age groups on the autism spectrum, and research examining social skills interventions for adolescents and adults with ASD are especially rare. A meta-analysis conducted by Kasari and Patterson (2012) evaluated social skills interventions for individuals with ASD from early childhood through late adolescence. Out of 34 identified studies focused on social skills treatment, three reported on toddler interventions, 12 targeted preschoolers, 19 focused on school-aged children, and only two addressed adolescent social skill development. In a best evidence synthesis of 66 studies of social skills interventions for individuals with ASD published between 2001 and 2008, only three studies contained adolescent or adult participants (Reichow & Volkmar, 2010). Therefore, future research on social skills groups for individuals with ASD should focus on older age groups, including adolescents and particularly adults. To date, only two intervention studies for adults with ASD used a RCT design and found significant improvement in overall social and psychosocial functioning post-intervention; both of

these interventions were conducted in a group setting (Gantman et al., 2012; Laugeson et al., 2015).

20.6.2 Randomized Controlled Trials

The use of RCTs is essential to testing the efficacy of an intervention. The key distinguishing feature of a RCT is that participants are randomly assigned to receive one or other of a particular treatment after being assessed for eligibility. After randomization, participants are treated in the same manner, the only difference being the treatment they receive. The benefit of using RCTs in the evaluation of treatment outcome is that they minimize selection bias, promote the comparison of equivalent groups, and allow the researcher to examine the true benefit of an intervention with fewer confounding variables. Within the ASD treatment literature, there is a particular need for more RCTs of social skills groups. A recent meta-analysis of group-based social skills interventions for adolescents with ASD revealed that only six of 44 studies reviewed implemented RCT methods to evaluate pre-post outcomes (Miller et al., 2014). These findings suggest the need for higher-quality research across the social skills treatment domain for individuals with ASD.

20.6.3 Assessing Treatment Outcome

One commonly cited issue in assessing social functioning in social skills research is the subjective nature of the measurements. The notion is that the assessment of social skills is difficult to measure accurately and without bias. To combat this criticism, future research should employ more objective methods of measurement, including observational behavior data taken by raters who are blind to the research conditions under investigation. The use of objective tests using standardized measures of social functioning that include norm-referenced scores would be a good start – allowing the researcher to compare the scores of a given participant to a larger population. Examples of well-regarded standardized measures of social functioning include the Social Skills Improvement System (SSIS; Gresham & Elliott, 2008) and the Social Responsiveness Scale-Second Edition (SRS-2; Constantino, 2012). Arguably, a good battery of social skills group treatment outcome measures should not only involve a combination of standardized ratings but should come from a variety of reporters, including independent raters who are blind to the conditions under investigation (i.e., do not know whether the individual is receiving treatment). When raters are blind to the treatment condition, there is a reduced chance of collecting biased ratings.

In some cases, it may not be feasible to have parents, caregivers, or teachers of individuals participating in social skills groups blind to the treatment condition. In that case, it would be advantageous for researchers to include behavioral ratings of social functioning. Behavioral ratings further enhance treatment outcomes by providing an even more objective rating of social behavior. For example, behavioral ratings might include observing targeted social behaviors, such as conversational skills, and then coding the behaviors of the participant and/or the responses of other individuals (e.g., peers) who observe the individual's social functioning. Behavioral ratings of social skills are underrepresented in the treatment literature but may characterize an unbiased and perhaps more accurate picture of the individual's social functioning, if raters are kept blind to the treatment conditions.

20.6.4 Generalization of Outcomes

Another factor that should be prioritized when conducting social skills group intervention research is generalizability of findings or the extent to which findings from a given study can be generalized to the larger population. Regrettably, most social skills intervention studies are limited in their ability to generalize research findings to other settings and other populations of individuals with ASD. Two of the biggest offenders to generalization are sample size and participant characteristics. Most research

studies on social skills groups for individuals with ASD have small sample sizes, which may include a very heterogeneous group of individuals with developmental disabilities. While single subject designs offer good internal validity and may be useful as precursors to larger RCTs, they are difficult to use in a group intervention context. Future research would benefit from group research designs with larger sample sizes and well-characterized populations to better assess treatment efficacy and improve generalizability (Matson, Matson, & Rivet, 2007).

20.6.5 Maintenance of Treatment Gains

Whether or not targeted social skills are adequately maintained over time is another important consideration for social skills group intervention research. Assessment of maintenance of skill acquisition is rarely targeted in treatment studies or clinical programs, calling into question how beneficial these programs are over time. A recent study investigating the maintenance of treatment gains for high-functioning adolescents with ASD found that teens receiving the PEERS group intervention maintained positive outcomes in the areas of social responsiveness and social skills, frequency of peer interactions, and social skills knowledge 1–5 years posttreatment (Mandelberg et al., 2014). While these findings are promising for maintenance of treatment gains in a group intervention utilizing parent assistance, little is known about the social trajectories of individuals with ASD following other types of social skills treatment .

20.7 Conclusions

Despite the pervasiveness of social deficits affecting individuals across the spectrum and throughout the lifespan, social skills intervention research remains limited at this time, particularly for adolescents and adults. Fortunately, studies examining social skills interventions for individuals with ASD are steadily increasing, and a growing body of research evidence has identified several effective treatment elements and delivery methods for social skills groups. These include using a small group format, treatment manuals, didactic instruction, behavioral modeling, behavioral rehearsal, parent/caregiver involvement, homework assignments, school-based interventions, and involving typically developing peers. Perhaps most importantly, the social skills taught must be ecologically valid and relevant to the population being served, including attention to developmental stage, level of functioning, language ability, and cognitive aptitude. Suggestions for moving the field forward to address existing limitations in our knowledge base include greater attention to older age groups (particularly adults), higher-quality research designs (including RCTs), and the use of standardized outcome measures, behavioral observations, multiple independent raters, and long-term follow-up assessments. Taken in conjunction, these recommendations have the capacity to move the field forward in the development of more effective social skills group treatments to improve the social functioning of individuals with ASD.

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