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Parent perspectives on treatment: A mixed methods analysis of PEERS® for Preschoolers

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Abstract

Parent involvement in social skills training programs for autistic children has been associated with improvement in child and family functioning. However, limited research has explored parents' treatment experiences, which may elucidate key therapeutic elements mediating long-term maintenance of outcomes. This study examines parent perspectives on the University of California, Los Angeles Program for the Education and Enrichment of Relational Skills (PEERS®) for Preschoolers, a group-based social skills intervention for young autistic children with social challenges. Twenty-four parents reported on outcomes and participated in semi-structured interviews 1–5 years after program completion. Inductive thematic analysis was used to categorize parent responses across four domains: Parenting behaviors, Child Outcomes, Parent Perspectives, and Challenges within Treatment. Results demonstrated an overall positive impact of PEERS® for Preschoolers, with children displaying increased social competence in peer interactions and parents emphasizing greater positivity, new parenting strategies, increased understanding, and more robust community support. Mixed methods analyses revealed that parents who endorsed continued use of social coaching skills, in particular priming and preparing their child for social interactions, showed greater improvements in long-term child functioning and parenting stress. Findings validate the efficacy of PEERS® for Preschoolers, while emphasizing the value of providing strengths-based coaching and social supports to parents participating in social skills treatment for children on the autism spectrum.

Lay abstract

Autistic children have social communication differences that can contribute to difficulties making and keeping friends, as well as poor mental health (e.g. anxiety, depression). Social skills training programs for preschoolers on the spectrum have been shown to increase social functioning and improve outcomes. Parent involvement in these programs is essential, as parents are able to use the intervention strategies outside of sessions. Teaching parents skills to help their children is also thought to reduce parenting stress through empowerment, knowledge, and social support. However, we still do not know much about how parents experience social skills treatments and whether there are specific parts that are especially helpful to them. This study examined parent perspectives on the University of California, Los Angeles Program for the Education and Enrichment of Relational Skills (PEERS®) for Preschoolers, an evidence-based, group social skills intervention for autistic young children who are struggling socially. Twenty-four parents reported on their child's progress through questionnaires and participated in semi-structured interviews that asked about their experiences and perspectives 1–5 years after completing (PEERS®) for Preschoolers. Parents reported that their children displayed increased social skills and confidence after (PEERS®) for Preschoolers, while parents described feeling more positive, supported, and having greater understanding of their child and their development. Those parents who continued to use strategies taught in (PEERS®) for Preschoolers, particularly priming and preparing their child for social activities, showed greater improvements in long-term child outcomes and parenting stress. Overall, findings show that parents had a positive experience during and after PEERS® for Preschoolers, finding the program helpful in multiple ways to both their child and to themselves as a parent.

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Challenges in social functioning among children diagnosed with autism spectrum disorder (ASD) evolve and persist across the lifespan. Some of the earliest signs include reduced orientation to social contexts and limited use of play-related gestures (American Psychiatric Association [APA], 2013; Franchini et al., 2017). Beginning in the preschool years, autistic children tend to display marked differences in their relationships with peers, including more limited social networks, reduced social engagement and motivation, and poor quality of interactions with peers (APA, 2013; Camargo et al., 2014; Chen et al., 2019; Locke et al., 2013). As children age, these social challenges have been shown to have significant negative impacts on quality of life, mental health, and academic/vocational achievement (Camargo et al., 2014).

Social difficulties among autistic children can also have repercussions for family members. It is well documented that parents of autistic children have higher support needs and elevated levels of stress as compared to parents of typically developing children (Hayes & Watson, 2013; Kiami & Goodgold, 2017). In qualitative and quantitative studies, children's social difficulties represent a significant predictor and source of parenting stress in developmental years (DesChamps et al., 2020; Hayes & Watson, 2013; Huang et al., 2014; Hutchison et al., 2016). In turn, parenting stress has adverse impacts on child behavior, resulting in an increase in both internalizing and externalizing behavioral challenges among autistic children (Dennis et al., 2018; Hutchison et al., 2016). Given the persistent negative impact of social challenges on autistic youth and their families, it is crucial to promote social skills development as early as possible.

Parent-assisted social skills interventions represent a promising method to improve social challenges in preschool-age children on the autism spectrum (Gunning et al., 2019; Reichow & Volkmar, 2010). Young children participating in these interventions demonstrate increases in prosocial behaviors and decreases in behavioral challenges, alongside more robust peer relationships. However, much of the current evidence comes from single subject case designs and there is wide variability in treatment approach (Gunning et al., 2019; Reichow & Volkmar, 2010). Naturalistic developmental behavioral interventions are one approach that produces reliable benefits to social communication, language, and play outcomes (Crank et al., 2021) by focusing on multiple developmental domains and utilizing naturalistic, reinforcing contexts (e.g. play) to promote learning. However, an alternative avenue to support social functioning more specifically is through direct social skills training (SST), with didactic teaching and targeted skills practice in group settings. SST approaches in autistic preschoolers have shown successful generalization across settings and maintenance in the short-term after treatment (Gunning et al., 2019). Less is known about long-term durability, though one recent article showed ongoing maintenance on some outcomes 1–5 years after an evidence-based SST treatment (Tripathi et al., 2022). Sustained treatment effects are a fruitful indication that early social skills interventions can promote lasting social and behavioral success, thereby mitigating some of the far-reaching impacts of autism-related social communication differences on youth outcomes.

Significant literature has credited increased maintenance and generalization of social skills following intervention to parent training and education (Gunning et al., 2019; Mandelberg et al., 2014; Wolstencroft et al., 2018). Positioning parents as social coaches may help reinforce social skills across developmental stages, in addition to providing opportunities for continued practice and growth outside of intervention sessions (Caplan et al., 2019; Dekker et al., 2014; Wetherby et al., 2014; Wolstencroft et al., 2018). The dual approach of targeting both parent education and child skill-building may further promote reduced parental stress and positive parental functioning (Corona et al., 2019). Despite the importance of parent involvement in social skills interventions, limited research has documented parent involvement in such programs or sought to understand the relationship between parent experiences and treatment outcomes. In an effort to give voice to the lived experiences of autistic individuals and their family members, qualitative and mixed methods research are gaining traction in the field of autism research and have proven fruitful in elucidating effective and ineffective aspects of treatment (Bölte, 2014; van Schalkwyk & Dewinter, 2020).

Existing qualitative and mixed methods research among parents of autistic children tends to focus on broad experiences around receiving diagnoses and barriers to adequate treatment, including challenges around accessing or making time for services, implementing interventions, and interacting with providers (Hartley & Schultz, 2015; Zuckerman et al., 2014). Others have focused on parents' own support needs while caring for an autistic child (Derguy et al., 2015; Dieleman et al., 2018). Only a few studies have documented parents' experiences within specific treatment programs autistic for children (Choque

Olsson et al., 2016; Ong et al., 2021; Stadnick et al., 2013; Stahmer et al., 2017). These studies broadly focus on evaluating feasibility for parents, positive outcomes, and identifying helpful components, such as use of active parent coaching (Stadnick et al., 2013; Stahmer et al., 2017). With respect to group-based SST programs for children and adolescents, the limited qualitative studies describe parent satisfaction with treatment, with parents reflecting on positive changes in their child's social skills and confidence (Choque Olsson et al., 2016) and on their own awareness and learning through the program (Ong et al., 2021).

Although these studies provide valuable information about parent experiences in behavioral treatment programs, there are remaining gaps in our understanding of parent perspectives of autism treatments. None of the above referenced studies include parents of preschoolers, a unique developmental period during which reciprocal friendships first emerge (Coelho et al., 2017). Furthermore, among those few studies examining qualitative outcomes following an SST intervention, most focus on parent perspectives of child outcomes, with less inquiry into personal impact on parental experiences with group-based interactions (Choque Olsson et al., 2016; Ong et al., 2021). Many parents report benefits from support groups and connections with other parents of autistic children, who are facing similar experiences (Edwards et al., 2018; Reinke & Solheim, 2015). Assessing the impact of the group modality within a social skills intervention may thus reveal treatment benefits that extend beyond traditional parent and child outcomes. Furthermore, there is significant room to understand the mechanisms by which parent involvement impacts treatment outcomes among children, an area that is currently lacking in qualitative and mixed methods research.

One intervention representing an ideal environment to study these unexplored domains is the Program for the Education and Enrichment of Relational Skills (PEERS®) for Preschoolers (P4P). A parent-assisted group social skills intervention, the P4P program has been shown to improve social functioning for autistic children between 4 and 6 years of age (Factor et al., 2022; Park et al., 2022), with robust maintenance of treatment outcomes between 1–5 years post-intervention (Tripathi et al., 2022). Children displayed significant, sustained reductions in core autism symptomatology, including improved social communication, motivation, engagement, and responsiveness (Park et al., 2022; Tripathi et al., 2022). However, little is known about which components of the program are most helpful in promoting long-term maintenance of treatment outcomes. Parent perspectives on the program may be helpful in elucidating which skills remain relevant over time while highlighting the lived experience of families in the program.

Methods

Participants

Participants included parents of children who previously completed the P4P SST intervention in an outpatient clinic setting at the University of California, Los Angeles (UCLA) PEERS® Clinic and who were invited to participate in a semi-structured interview 1–5 years after completing the program as part of a follow-up assessment. Initial enrollment in treatment required weekly participation from a parent fluent in English. Program fit was assessed through a phone screening interview, followed by an in-person intake interview conducted by a licensed clinical psychologist or postdoctoral psychology fellow. To enroll, children must have had adequate expressive language and no significant physical or behavioral conditions that would interfere with treatment.

Forty-five parents met eligibility criteria for this study by (1) having completed measures at baseline (T1) and immediately after completion of the program (T2) and (2) having a child with a previous diagnosis of ASD who had completed the program 1–5 years prior to study recruitment. Out of 45 eligible participants, 24 parents (53% response rate) agreed to participate in a semi-structured qualitative interview at follow-up. No differences in outcome measures of child and parent functioning were found at T1, T2, or between T1 and T2, among participants who completed the interview ($n = 24$) and eligible participants who did not complete the interview ($n = 21$). Demographic information reported by families who completed the interview is presented Table 1.

Procedure

Eligible participants were contacted by phone or email. Those interested in participating in the follow-up study completed informed consent and a battery of psychosocial measures through UCLA Qualtrics, a secure online survey platform. Parents who successfully completed follow-up forms received a US$25 gift card and were then invited to participate in an optional interview about their perspectives and experiences in the program. All procedures in the study were approved by and performed in compliance with the ethical standards of the UCLA Institutional Review Board.

Intervention .P4P is a 16-week social skills intervention for children 4–6 years of age with autism or other social challenges (for a thorough description of the lesson content and intervention, please see the studies by Park et al., 2022 and Tripathi et al., 2022). The didactic teaching approach in the child group was modified from other PEERS® programs (Laugeson, 2017; Laugeson & Frankel, 2010), with input from the broader autism community, specifically

Table 1. Demographic and descriptive characteristics of participants ($n = 24$).

Variable	*M*	*SD*	%
Child age			
Baseline (T1)	4.95	0.89	
Post-treatment (T2)	5.42	0.86	
Follow-up (T3)	7.88	1.51	
Child gender			
Males			79
Females			21
Child race/ethnicity			
White			33
Latinx/Hispanic			13
Asian			25
Multiracial			17
Other			12
Child diagnoses			
ASD			100
Anxiety			4
ADHD			17
Participating parent relationship to child			
Mother			83
Father			17
Participating parent highest education			
Some college			8
Bachelor's degree			42
Advanced graduate degree			50
Percentage of P4P sessions attended			92

SD: standard deviation; ASD: autism spectrum disorder; ADHD: attention-deficit hyperactivity disorder; P4P: PEERS® for Preschoolers.

parents and clinicians serving young autistic children. Material was adapted to meet the developmental needs of preschoolers, with lessons being delivered in a circle time format using a puppet show. Skills practice exercises, called behavioral rehearsals, are embedded into sessions within familiar games (e.g. Red Rover, Musical Chairs, Duck Duck Goose) that are adapted to allow for repeated practice of a given skill. Children are also assigned to "mock playdates" for the last ~20 min of each session, where they are paired with another group member to play turn-taking games (e.g. Connect Four, Don't Break the Ice). During the mock playdate portion of the session, parents join the child lesson and provide social coaching to their child on using the skills, while PEERS® team members provide feedback to parents. Families are assigned socialization homework assignments focused primarily on skills practice with family and peers, as well as identification of and enrollment in play groups and participation in playdates, to promote generalization and maintenance.

Importantly, neurodivergent team members are consistently involved in program implementation and associated data collection to at the UCLA PEERS® Clinic ensure that the program remains responsive to community goals.

P4P parent group. Parents participate in a separate, concurrent parenting skills group for the first 60 min of weekly sessions, then join the child group for the mock playdates and assignments of homework for the final 30 min. A typical parent session involves homework review, during which the group leader provides individualized feedback and support. After homework review, the parent group facilitator leads a didactic lesson focused on providing (1) psychoeducation about social development, (2) information about the child social skills lesson for that week, (3) information about parenting skills to promote child socialization (e.g. how to identify play groups, how to suggest a playdate to another parent), and (4) social coaching strategies and tips to further promote their child's social success.

Many of the social coaching strategies fall within the PEERS® "4 P's" of social coaching: (1) Priming, (2) Prompting, (3) Praising, and (4) Providing Corrective Feedback. Priming encompasses the parents' role in preparing the child and environment for socialization. Examples of priming include reviewing and/or practicing social rules and steps with the child before socialization opportunities (e.g. a playdate, school drop-off), choosing activities that promote interaction and are unlikely to cause conflict, and setting up the environment (e.g. putting away special objects). Prompting involves providing reminders in teachable moments. Parents are taught to keep prompts short using buzzwords (e.g. terms and phrases used in the PEERS® intervention taught to the children, which create a "shared language"), to avoid prompting too frequently, and to incorporate prompting during regular family interactions. Praise involves using verbal comments to acknowledge desired behaviors and use of social skills after a child has appropriately demonstrated the skill. Providing corrective feedback strategies emphasize incorporating feedback within two statements of praise, known as a "praise sandwich" (e.g. "Great job asking your friend to play! Next time remember to share and take turns, but nice job!"), while also taking a graduated approach such that the most interfering social errors are addressed through feedback initially, followed by "fine-tuning" over time.

Measures

Social Responsiveness Scale, Second Edition—School Age. The Social Responsiveness Scale, Second Edition—School Age (SRS-2; Constantino & Gruber, 2012) is one of the most routinely utilized measures in autism research for rating the presence and severity of autism-related social impairments among individuals 2.5 years of age and older (Moody et al., 2022 Wolstencroft et al., 2018). The measure produces *T*-scores with a mean of 50 and standard deviation of 10. Higher T-scores suggest greater autism-related social-impairments, with scores of 59 and below categorized in the typical range. The School Age form for

children ages 4 to 18 years used in this study demonstrates strong inter-rater agreement (e.g. alpha coefficients ranging from 0.72 to 0.82) and internal consistency (e.g. alpha coefficient 0.95).

Quality of Play Questionnaire. The Quality of Play Questionnaire (QPQ; Frankel & Mintz, 2011) evaluates the frequency and quality of one-on-one playdates in the previous month based on parent report data. On average, school-aged children referred for social problems have less than 2.5 play dates per month while typical children participate in over 2.5 play dates per month (Frankel & Mintz, 2011). The QPQ is gaining traction across SST programs as a method to evaluate adaptive social functioning among autistic children (Gilmore et al., 2022; Goh et al., 2020).

Social Skills Improvement System Rating Scales. The Social Skills Improvement System Rating Scales (SSiS; Gresham & Elliot, 2008) is a widely used parent-rated measure that evaluates social skills and problem behaviors in autistic children between 3 and 18 years of age (Marro et al., 2019; Wolstencroft et al., 2018). Standardized scores are available for social skills, with higher scores indicating better social functioning, and problem behaviors, with higher scores indicating more severe behavioral problems. Standard scores between 85 and 115 are considered within the average range. Psychometric validation indicates high internal reliability with alpha coefficients at a minimum of 0.80 for overall scales and 0.70 for subscales.

Parenting Stress Inventory, Fourth Edition, Short-Form. The Parenting Stress Inventory, Fourth Edition, Short-Form (PSI-SF-4; Abidin, 2012) examines caregiver stress among parents of children 0 to 12 years of age. Total scores are summative across three domains: Parental Distress, Parent–Child Dysfunctional Interaction, and Difficult Child. The measure produces *T*-scores based on population data, with a normal range between 39 and 57 *T*-scores. Higher scores are indicative of greater parenting stress. The PSI-SF-4 demonstrates robust internal reliability, with alpha coefficients ranging from 0.80 to 0.87 for each domain. The measure has been validated across multiple high-risk groups and remains a fundamental tool for measuring family functioning and caregiver stress among parents of autistic children (Barroso et al., 2016; Kuhn et al., 2023; Lee et al., 2016).

Semi-structured interview. Participants in the follow-up study were invited to complete a semi-structured interview, which lasted between 20 and 45 min. Parents were asked to share their opinions on program elements and skills, as well as any changes and challenges they experienced through the intervention. Interview questions were developed by the research team using an established framework (Kallio et al., 2016) in which prior knowledge of the program and common parent concerns during group sessions were used to generate a pilot interview structure. Preliminary interview questions were slightly modified after the first three participants for clarity, with goals of capturing both broad parent experiences and specific thoughts related to this study. See Appendix 1 for the relevant interview questions analyzed in this study. To standardize the interview experience across participants, follow-up questions were limited to clarifying and probing questions (i.e. "In what ways?" or "How so?"). In the event of participant confusion around a question, the interviewer first attempted to repeat the question, and then reworded, if necessary.

Coding

All interviews were recorded and transcribed in Word by the first author, who also conducted the interviews. The first author reviewed all transcripts and generated a preliminary set of thematic codes using inductive analysis to identify raw categories and patterns in the data without applying a prior hypothesis (Azungah, 2018). In an iterative process, the first and second author applied, revised, and further defined the coding system and guidelines on a set of randomly selected transcripts to establish a final coding system.

Subsequently, the first and second authors independently coded all 24 transcripts. A reliability of 76.5% was calculated as the total number of concordant codes ($n = 629$) divided by the total number of codes ($n = 822$). Discrepant codes were highlighted and independently reviewed by each author to determine whether the coder wanted to change their discrepant code or remain with their original code. Once this independent review was complete, 92.72% ($n = 762$) of codes were concordant between the two authors. As is standard practice in qualitative research, the remaining discrepant codes ($n = 60$) were discussed and categorized through consensus. Codes were consolidated and collapsed into the final themes represented in Table 3.

Data analytic plan

Binary coding data were produced based on initial binary responses (i.e. "yes or no") to interview questions. Given the inductive analysis coding approach (Azungah, 2018), all thematic constructs were generated from direct parent responses, through line by line reading of transcripts. However, parents' responses were viewed through the lens of the P4P program—for example, many parents did not explicitly use the program terms (e.g. "priming"), but described parenting actions consistent with these strategies. In the data, thematic codes were entered as binary variables as well, indicating the presence or absence of a given theme in a participant's qualitative interview. Links

Table 2. Binary results from interview questions.

Domain	Number of parents	Percentage endorsed
Continue to use program skills	23	95.8
Use of the buzzwords	17	70.8
Use 1+ of the foundational PEERS® parent social coaching techniques (4 P's)	19	79.2
Change in parenting style	22	91.7
Change in child's peer interactions	20	83.3
Change in perception of child's autism diagnosis	17	70.8
Change in perception of autism and the autism community based on group interactions	20	83.3
Positive impact from program	23	95.8

Program for the Education and Enrichment of Relational Skills; ASD: autism spectrum disorder.

between thematic codes were discussed among the research team, resulting in identification of four broad categories: parenting behaviors, child outcomes, parent perspectives, and challenges within treatment. Binary and thematic coding data for each participant was summarized and entered into SPSS version 28, the software used to conduct data analysis.

Descriptive analyses were utilized to provide information about endorsement and prevalence of individual themes across parents interviewed. Using independent samples *t*-tests, mixed methods analyses were conducted to determine whether the children of parents who endorsed use of social coaching strategies taught in P4P in their qualitative interview showed greater gains from T1 (baseline) to T3 (follow-up) on primary outcome measures (i.e. SRS-2, QPQ, SSiS, PSI-4-SF). This comparison was selected due to the posited role of parent social coaching and change in parent behaviors corresponding to improved maintenance after program completion in previous studies (Mandelberg et al., 2014; Tripathi et al., 2022).

Results

Quantitative

Binary, non-thematic responses to interview questions were coded as depicted in Table 2. A majority of parents (95.8%) continued to use the skills taught in P4P long after completing the program. Parents highly endorsed employing the shared language used to discuss social skills in the program (i.e. buzzwords; 70.8%), as well as the foundational social coaching techniques (i.e. priming, prompting, praising, and providing corrective feedback; 79.2%). Most parents (95.8%) expressed an overall positive impact of the program, with improvements in their child's interaction with peers (83.3%), as well as changes in their own parenting (91.7%) and perceptions related to the autism diagnosis and autism community (70.8% and 83.3%, respectively).

Table 3. Representative qualitative themes from parent interviews.

Domain	Number of parents	Percentage endorsed
Change in parenting behaviors		
General social coaching strategies	12	50
Priming and preparing for play	11	45.8
Prompting and providing corrective feedback	10	41.7
Praise and positive reinforcement	8	33.3
Parent perception of child outcomes		
Child is more socially competent	18	75
Child is more socially engaged	9	37.5
Child is more confident	7	29.2
Child is experiencing continued social challenges	7	29.2
Change in parent perspectives		
Learning parenting strategies	19	79.2
Sense of community and support	18	75
Increased understanding of typical and atypical development	17	70.8
More positive	15	62.5
Greater understanding of child	12	50
Challenges within the treatment process		
Difficult emotions among parents	7	29.2
Lack of long-term support	6	25
Difficulty completing homework	8	33.3
Need for more didactic in the parent room	7	29.2
Need for more socialization practice	4	16.7

Qualitative

Results of the iterative inductive analysis produced four broader categories of themes: parenting behaviors, child outcomes, parent perspectives, and challenges within treatment. Within each category, more specific thematic codes were identified, with prevalence of endorsement detailed in Table 3. In describing each theme and specific code, we will draw upon parent quotes to illustrate the data.

Change in parenting behaviors .Although over 90% of parents endorsed that participating in P4P changed their parenting style, there was variability in how parents described these changes. Half of the parents (50%) reported use of general social coaching strategies, including use of the program's shared language ("buzzwords"), modeling desired behaviors, increased patience, and supporting transitions.

With respect to the "4 P's" of social coaching (i.e. priming, prompting, praising, providing corrective feedback),

the most frequently endorsed was priming (45.8%). Parents described continued use of priming and preparatory strategies prior to their child's social interactions. Parents also reported taking a more proactive approach to creating social opportunities through playdates and modifying the play environment to promote interactions.

> Making sure that during those play dates there's a focus on, you know, peer to peer interaction. . . as opposed to popping them down in front of a movie or letting them play videogames or something. So having them, you know, the skills we learned in the class where. . .they'll do a board game or a craft or something where they're really interacting. I think that's been helpful.

In addition, several parents reported continuing to prime their child for social interactions by reviewing the rules and steps taught in the P4P curriculum.

> I mean, she has a hard time saying hi to anyone, so even the first step of like reminding her in the car. And you know, before we get out. And then saying, okay, what do we do? And we go through the steps.

Several parents also endorsed that they use prompting and/or providing corrective feedback (41.7%). Parents described findings moments during socialization opportunities to remind their child of the skills they learned and support the child's peer interactions. Parents also appreciated the focus on making feedback constructive, rather than critical. Not only through combination with praise, but also in being able to tell their child what to do, rather than what not to do.

Finally, a third of parents (33.3%) reported increased used of praise and positive reinforcement following the program. Parents often reported combining praise with the specific skills and buzzwords taught in the program. In describing positive reinforcement more broadly, parents discussed how they learned to make socialization more rewarding for their child. This is consistent with P4P's emphasis on activity choice, choosing peers with common interests, and preparing for playdates to reduce challenges. Parents saw praise and reinforcement as powerful tools that enabled them to continue to promote prosocial behaviors in their child.

Parent perception of child outcomes .Parents witnessed concrete improvements in their child's social behaviors following the program. Most parents (75%) described seeing greater competency in the ways their child socializes and engages with other children after implementing the skills taught in the program. Often, parents credited this increase in social competency to their child's better understanding of the rules and norms around social engagement. Many parents further described how the steps described in the program allowed their children to move from parallel play to more age-appropriate associative play, which is naturally reinforced through positive feedback from peers and friendship formation.

> Before I would watch him on the playground and he would just stand there jumping up and down and I could tell that he would want to play. . . but [he] couldn't figure out how to enter . . . But what I started to notice shortly after [P4P], because they really encourage you to get the kids in activities and social groups outside of school so that they can practice these tools that they're learning . . . [using the skills] becomes natural for them because they start to see that the end result is that they're kind of let into this, you know, secret world, which is playing.

Supplementing an increase in social awareness and prosocial behaviors, several parents noted a decrease in disruptive or problem behaviors, such as bullying, following the intervention as well.

Beyond improved performance in social interactions, several parents (37.5%) describe improvements in their child's social engagement after the program, predominantly manifesting as greater interest during play.

> She's been more engaged . . . If the peer or friend doesn't want to do something, then she [used to] just go off and do her own thing. Like she [didn't] really try to play together. But I find that she's been trying to do that more and being more accommodating.

Many parents also noticed that their children were requesting to have more play dates and opportunities to interact with children, perhaps due to learning more language through the program to describe social motivation. Some parents also described that their child seemed to express more enjoyment of play with peers after completing the program.

In tandem, almost a third of parents (29.2%) witnessed an increase in their child's confidence post-intervention. Parents described a range of behavioral changes, including their child feeling less shy and anxious, more outgoing, expressing a more positive outlook, or experiencing greater comfort around peers. Importantly, parents stated that changes in their child's confidence occurred over a longer period of time compared to the other improvements, only after sustained practice and use of the skills outside the intervention.

Notably, 29.2% of parents emphasized that their child experienced persistent difficulty with socialization even after completing the program. Parents who noted lack of improvement in their child after P4P often described that their child had difficulty implementing the foundational skills of the program, such as introducing oneself or joining games. Other parents reported that social anxiety or difficulty generalizing outside of the intervention context

interfered with progress. Some children were victims of teasing and bullying, or experienced misunderstandings with their peers due to their social differences, which made it difficult to implement the skills.

Change in parent perspectives .Many parents credited a change in their perspective as the most helpful aspect of the PEERS® program. The large majority of participants (79.2%) felt that the program equipped them with new knowledge and behaviors to reframe their approach to parenting a child on the spectrum.

> "We didn't know anything about autism or how to help her and had been struggling for so long . . . But after the PEERS® program, there was such a shift in how we dealt with her social skills."

Many also described learning from other parents in their P4P group, through the informal sharing of helpful parenting strategies outside of the curriculum. Group interactions imparted a newfound sense of community and support among 75% of families, often reducing the feelings of isolation that can accompany raising an autistic child. In addition to increased connectedness and reassurance during the program, some parents even developed lasting friendships with other families.

> Seeing other parents react in the same way that I might react or get frustrated . . . It allows me to see I'm not alone . . . I think sometimes parents of kids with autism, you know, deal with other like another kind of layer of difficulty. And so being able to relate on that level, I think, was really comforting.

Attributed to both group interaction and program content, more than two-thirds of parents (70.8%) endorsed a greater understanding of typical and atypical development. The program helped many parents recognize autism as more of a spectrum through seeing the differences among the participating children. In addition, parents emphasized learning about the importance of socialization in an organized way, including didactic information, regular observations of their child's play through mock playdates, and structuring their role as a social coach. Similarly, many parents felt more prepared through learning broad information about social development (e.g. typical number of play dates per week, sociodevelopmental milestones, role of parent initiation and planning).

> The playdate skills, the focus is on setting up regular play dates and making that a part of our lives. We didn't really realize the importance of that. And that's something that we've tried to keep up as much as possible.

Approximately 62.5% of parents further expressed feeling more positive after completing the P4P program. Often, this was driven by an increased sense of confidence, hope, and empowerment as they learned to navigate the social challenges facing their autistic child.

> I remember feeling a little bit flustered before we entered the program on how to respond in certain situations. And after the program, I felt more empowered to have the sort of key phrases to use with him when he started acting a certain way . . . I guess I felt sad about [his ASD diagnosis] beforehand and hopeless. And after the program, I felt like this was something I could work with.

Almost all parents who endorsed feeling more positive discussed the relief associated with normalizing their child's social behaviors through information received from the program and their interactions with community of families facing similar difficulties. The program even facilitated a shift in many parents from focusing on their child's challenges to recognizing their individual strengths, capabilities, and potential.

> Just in terms of opening our eyes to the possibility and kind of seeing him being capable of doing certain things. Not only do you see it work, but you kind of get into acceptance, or at least I did, of like, however my child is, he's going to have a place in this world.

These changes in parenting perspectives may translate to positive impacts on the parent–child relationship as well. After completing the P4P intervention, 50% of parents felt that they had a greater understanding of their child and their individualized support needs, which then led to many parents reporting greater empathy and acceptance toward those support needs.

Challenges within the treatment process .The semi-structured interviews with parents elicited various challenges and barriers within the treatment process. Although no challenges were highly endorsed (i.e. defined as endorsed by more than one-third of parents) across all interviews, it is important to recognize the difficulties that some parents faced. Some participants (29.2%) described challenging emotions and reactions to the program, such as hopelessness, fear, or skepticism, that made it difficult to invest in continued learning.

> "You put all this effort into doing a program like PEERS. If you don't see it working right away, then you could sort of beat yourself up."

Others were experiencing external pressures that increased their stress and anxiety levels during the intervention. Some parents desired greater individualization of the program to include either more didactic (29.2%) or more practice sessions (16.7%) depending on the needs of their child. Several structural barriers were also discussed, such as difficulty completing the weekly assignments due to limited time or challenges finding peers and play groups

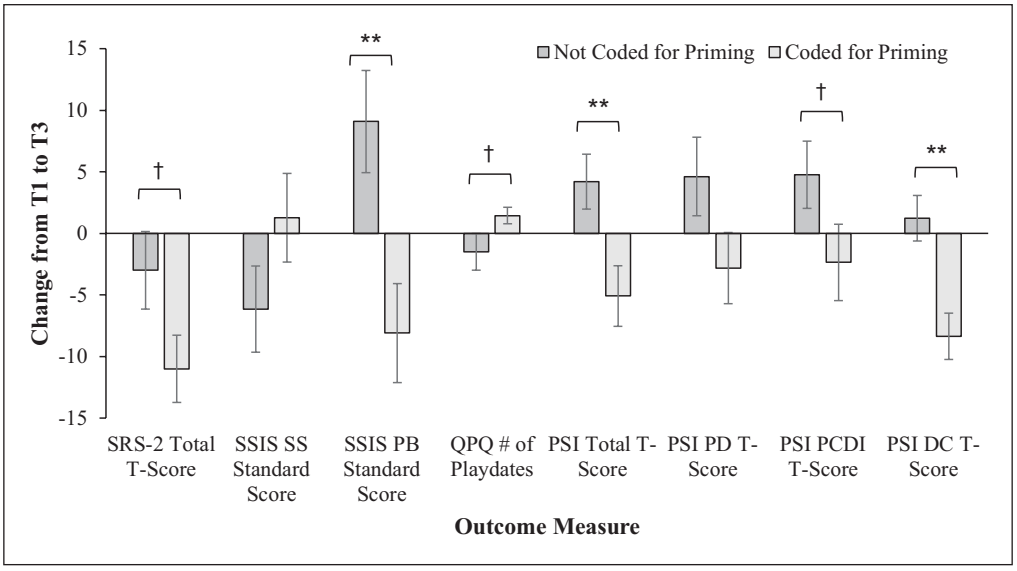

Figure 1. Differences in PEERS® for Preschoolers outcomes from baseline to long-term follow-up by parent priming code.
Negative change scores on SRS-2, SSIS PB, and all PSI scales indicate improvement, while positive change scores on SSIS SS and QPQ indicate improvement. SRS-2: Social Responsiveness Scale, 2nd Edition, $d = 0.77$. SSIS SS: Social Skills Improvement System Social Skills, $d = -0.60$. SSIS PB: Social Skills Improvement System Problem Behaviors, $d = 1.24$; QPQ: Quality of Play Questionnaire, $d = -0.73$; PSI: Parenting Stress Index, $d = 1.15$; PSI PD: Parenting Stress Index Parent Distress: $d = 0.70$; PSI PCDI: Parenting Stress Index Parent Child Dysfunctional Interaction, $d = 0.71$; PSI DC: Parenting Stress Index Difficult Child, $d = 1.48$.
$^{\dagger}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

in their community (33.3%), as well as lack of long-term support for their child's socialization needs after P4P ended (25%).

Mixed methods

In examining the impact of parent social coaching behaviors on P4P treatment response, we found several marginal and significant differences across multiple outcome measures between parents who endorsed use of priming and those who did not, with consistently moderate to large effect sizes across all outcomes even when nonsignificant. Independent samples *t*-test results are displayed in Figure 1. The direction of all results indicated that parents who spontaneously reported use of priming in qualitative interviews showed greater, sustained improvements 1-5 years after P4P treatment than those who did not, on both child and parent outcomes. Specifically, parents who endorsed priming showed significantly greater long-term reductions in problem behaviors on the SSiS ($M_{change} = -8.1$; $SD = 12.7$) than parents who did not describe ongoing use of priming in their qualitative interviews at follow-up ($M_{change} = 9.1$; $SD = 15.0$), $t(21) = 2.91$, $p = 0.008$, $d = 1.22$. Similarly, on the PSI-SF-4 Total *T*-Score, parents who were coded for priming their child for socialization showed significantly greater long-term improvements in parenting stress ($M_{change} = -5.1$; $SD = 8.1$) than those who did not report using this social coaching strategy in their interview ($M_{change} = 4.2$; $SD = 8.0$), $t(22) = 2.81$, $p = 0.010$, $d = 1.15$. Results showed a similar pattern, marginally or significantly favoring the parents who were coded for priming, on the SRS-2 Total *T*-Score ($t(22) = 1.88$, $p = 0.073$, $d = 0.77$), QPQ total playdates ($t(21) = -1.75$, $p = 0.095$, $d = -0.73$), PSI Difficult Child domain ($t(22) = 3.62$, $p = 0.097$, $d = 1.48$), and PSI Parent–Child Dysfunctional Interaction domain ($t(22) = 1.73$, $p = 0.010$, $d = 0.71$). Notably, the mean score changes in the group of parents who were not coded for priming often represented declines in child and parent functioning over the long-term, 1-5 years after treatment (e.g. increases in mean standard or *T*-scores on the PSI-SF-4, $M_{change} = 4.2$, and SSiS-PB, $M_{change} = 9.1$) from baseline to long-term follow-up.

In contrast to priming, findings were less robust for prompting and providing corrective feedback, for which there were no marginal or significant associations with child or parent outcomes 1-5 years after P4P treatment. With respect to praise, only one of the eight outcomes approached significance: SRS-2 Total *T*-Score, $t(22) = 2.06$, $p = 0.052$, $d = 0.89$. Specifically, parents whose interviews were qualitatively coded for praise had marginally greater improvements in social responsiveness on the SRS-2 from baseline to long-term follow-up ($M_{not\ coded} = -3.63$, $SD = 9.75$; $M_{coded} = -12.75$, $SD = 11.22$).

Discussion

In this study, we sought to gather supplemental qualitative and mixed methods evidence to support the growing evidence base for PEERS® for Preschoolers. When interviewed, over 91% of parents described that PEERS® for

Preschoolers changed how they parent their child, describing their use of a diverse range of social coaching strategies that were directly taught in the program (e.g. using "buzzwords," praise, priming). This reinforces that parent participants were able to understand, apply, and remember the social coaching strategies years after the program. The majority of parents also described changes in their child's peer interactions, which they attributed to P4P. Eighteen of the 24 parents interviewed felt their child displayed greater social competence after P4P, the direct target of SST. This finding is encouraging in that P4P is indeed promoting ecologically valid social behavior in everyday social situations. Finally, parents felt that their participation changed their perspective and enhanced their knowledge in a number of ways. Of particular note, a large percentage of families felt they gained a sense of community and social support, which previous literature suggests is a powerful protective factor in relation to parental mental health, quality of life, and parent–child relationships (Marsack & Samuel, 2017; Zablotsky et al., 2013). This benefit is an especially important outcome given pervasive and elevated parenting stress in parents of autistic children. Another shift in perspective described was a movement toward positive reframing and strengths-based mindsets, which have also been linked to positive family outcomes (Hutchison et al., 2016; Steiner & Gengoux, 2018).

Challenges encountered in treatment were the least frequently coded theme, suggesting that overall, the PEERS® for Preschoolers program was acceptable to parents. The most commonly coded challenge was difficulty completing homework assignments. Parents frequently shared struggles identifying play groups and playdate partners for their child, most notably due to busy schedules or difficulty finding a friend organically for their child. Given that PEERS® for Preschoolers targets young autistic children, families may have been navigating multiple competing demands on their time, including obtaining and participating in early intervention services or finding childcare for siblings, that they had to balance with the time commitments of PEERS® (Hartley & Schultz, 2015; Kiami & Goodgold, 2017). Challenges finding consistent playmates may also speak to the smaller play networks and reduced reciprocal friendships documented among autistic children, indicating early signs of social isolation (Chen et al., 2019; Kasari & Sterling, 2013; Locke et al., 2013).

Our mixed methods analysis was able to find significant relationships between parents' use of PEERS® social coaching strategies and outcomes over time (from baseline to long-term follow-up). In prior research on the PEERS® for Adolescents and PEERS® for Preschoolers program, there has been evidence of long-term durability of gains following participation in these programs (Mandelberg et al., 2014; Tripathi et al., 2022). The current results strengthen the hypothesis that parents as social coaches serve to promote ongoing positive social functioning (Caplan et al., 2019; Wetherby et al., 2014; Wolstencroft et al., 2018). Furthermore, there was specificity observed, such that priming was the only social coaching strategy to display some consistency in connection to outcomes. Priming, which includes reviewing and practicing skills before socialization as well as preparing the environment for successful social interactions, may be especially potent for autistic children who have difficulties generalizing skills across settings, benefit from repeated practice, and may need adjustments to their environments to thrive (APA, 2013; Gengoux et al., 2015).

Limitations and future directions

Similar to many qualitative studies, due to the time-intensive nature of interviewing and coding, this study is limited by a relatively small sample size. In drawing from an outpatient clinical archival database, we were also limited in ability to strictly characterize the sample (e.g. independent confirmation of diagnosis, intelligence quotient (IQ) assessment). Future research could replicate these qualitative and mixed methods approaches in the PEERS® for Preschoolers program, and further extend them to other evidence-based social skills programs like PEERS® for Adolescents (Laugeson & Frankel, 2010), PEERS® School-Based Curriculum (Laugeson, 2014), and PEERS® for Young Adults (Laugeson, 2017).

Of note, data presented in this article were drawn from and coded in the context of a semi-structured interview using open-ended questions. The identified thematic codes were spontaneously generated by parents, rather than in response to direct confirmatory questions (e.g. asking about each, specific social coaching strategy). Thus, some parents may indeed be using strategies but did not generate or remember this in the moment while completing the interview. Furthermore, some parents who were more naturally talkative may have been coded for more themes, not due to true differences but simply due to parent response style. Although results may have differed with use of more direct questions, focusing on the pre-determined question set was useful in standardizing the interview experience across participants, thereby improving reliability and validity (Azungah, 2018; Morse, 2015). In addition, utilizing only open-ended questions may more accurately represent the most salient elements in parents' experiences due to reduced respondent bias (e.g., demand characteristics, social desirability) and interviewer involvement (Kallio et al., 2016; Morse, 2015).

Conclusion

Our results suggest that parents who participated in PEERS® for Preschoolers alongside their autistic child overwhelmingly found the program to be helpful and impactful in many ways—from their child's social behavior to their own perspectives as a parent. In semi-structured

interviews, many parents spontaneously described continued use of the key social coaching strategies taught in the program years after completion, demonstrating sustainability of the parenting skills. In particular, parents whose thematic responses were consistent with priming and preparing one's child and the environment for socialization had better outcomes. It is possible that this social coaching strategy is an essential active ingredient of PEERS® for Preschoolers.

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Appendix 1

Interview questions

1. What was helpful about the Program for the Education and Enrichment of Relational Skills (PEERS®) Intervention?
2. Did you continue to use the PEERS® skills after the program? Which ones?
3. Did the PEERS® intervention change your interactions with your child? In what ways?
4. Did the PEERS® intervention change your child's interactions with his or her peers? In what ways?
5. Was there anything that you would change or add to the PEERS® for Preschoolers intervention?
6. Is there anything that made it difficult for you or your child to get the full benefit from the program at the time that you participated?
7. Did PEERS® and your interaction with other parents in the program influence your perceptions of autism and the autism community?