

# Parent-Child Interaction Therapy for Children on the Autism Spectrum: Research, Training, and Clinical Considerations

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**Abstract:** This research brief promotes the inclusion of Parent-Child Interaction Therapy (PCIT) for children with autism spectrum disorder (ASD) in a continuum of empirically supported ASD treatments. PCIT is a manualized, short-term intervention that improves child compliance and caregiver-child bond, and is an empirically-supported treatment backed by over 40 years of research. Caregivers are often unprepared to handle the needs of children with ASD presenting with comorbid behavioral problems. As a result, families frequently require mental health services for their children with ASD; however, access to empirically supported treatments for these families is limited. Furthermore, many mental health providers feel unequipped to treat this special population. Families with children on the autism spectrum are in desperate need of quality, time-limited, evidence-based treatments targeting disruptive behaviors. PCIT is a well-established treatment for disruptive behaviors that represents a promising treatment for complementing other evidenced-based ASD services. Research demonstrates that after PCIT, children with ASD demonstrate improvements in disruptive behavior, social awareness, adaptability, and positive affect. Currently, the PCIT-ASD literature provides a case for conducting PCIT with preschool children who are in the higher functioning range of the autism spectrum (Levels 1 and 2) and display comorbid behavioral problems. Providing PCIT clinicians with training in the special needs of children with ASD could improve access to services for this population. This paper accomplishes the following objectives: 1) Summarizes the PCIT-ASD research, 2) Reviews PCIT-ASD clinical considerations and training requirements, and 3) Suggests future directions for PCIT-ASD research.

## Background

Autism spectrum disorder (ASD) is a neurodevelopmental disorder wherein individuals have core deficits in (1) social-communication and (2) restricted and/or repetitive behaviors and/or interests. The prevalence estimates of ASD in the United States is 1 in 59, and many children with ASD often present with comorbid disruptive behaviors (Centers for Disease Control and Prevention, 2018). For instance, in a national sample of children referred for psychological treatment due to disruptive behaviors, as many as 40% had a diagnosis of ASD (Mandell, Walrath, Manteuffel, Sgro, & Pinto-Martin, 2005). In a sample of community-based mental health clinics, both therapists and caregivers reported disruptive behaviors as the most common presenting problem for children with ASD (Brookman-Frazee, Baker-Ericzén, Stadnick, & Taylor, 2012; Brookman-Frazee, Drahota, Stadnick, & Palinkas, 2012).

## Problem Statement

Because mental health providers often encounter children on the autism spectrum with comorbid disruptive behaviors, there is a need for a quality, time-limited, evidence-based treatment aimed at reducing disruptive behaviors, like Parent-Child Interaction Therapy (PCIT).

## Solutions

Over the past decade, there has been a proliferation of research into the application of Parent-Child Interaction Therapy for children with ASD (PCIT-ASD; Owen, Stokes, Travers, Ruckle, &

Lieneman, 2019). Children with ASD were historically excluded from participating in PCIT because social contingencies (e.g., verbal reinforcement, ignoring, and time-out) were assumed not to be effective, and social contingencies are a major component of PCIT. Early theoretical research provided a conceptual framework for PCIT-ASD. With a focus on developmental disabilities, McDiarmid and Bagner (2005) drew parallels between components found in current treatments for children with developmental disabilities and PCIT. Similarly, Masse, McNeil, Wagner, and Chorney (2007) published a theoretical justification for PCIT-ASD by exploring similarities between PCIT and well-known treatments for ASD, and suggesting that PCIT could be used to supplement other interventions to maximize the effectiveness of therapy. Broadly speaking, each treatment phase in PCIT-ASD has a specific, overarching goal. For children on the autism spectrum, CDI makes caregiver attention more reinforcing for the child, and makes caregiver-child play more rewarding. In the PDI phase, child compliance increases, which provides children with ASD more opportunities to learn and obtain benefits from complementary services (e.g., occupational therapy, speech therapy).

Numerous case studies followed to build upon theoretical research. One PCIT-ASD case report demonstrated reductions in disruptive behavior as measured by the Eyberg Child Behavior Inventory (ECBI) in a child presenting with ASD and disruptive behavior disorder (Budd, Hella, Bae, Meyerson, & Watkin, 2011). In this study, the child was 5 years of age and received 13, 90-minute sessions (Budd et al., 2011). Upon completing PCIT, Budd et al. (2011) found the child no longer met criteria for a disruptive behavior disorder and that behaviors improved to within normal limits as measured by the ECBI.

Given the complex clinical presentation of ASD, other researchers have published PCIT-ASD case reports with complex comorbidities. Case reports on complex PCIT-ASD cases (e.g., clients with comorbidities) are helpful for both clinical practice and research. Case reports provide rich details which providers may find helpful to guide effective treatment with similar cases. Furthermore these case reports guide future research because they explore the efficacy of PCIT-ASD with children who fall anywhere within the wide spectrum. For instance, Armstrong, DeLoatche, Preece, and Agazzi (2015) conducted PCIT-ASD with a 5-year-old child diagnosed with ASD, intellectual disability, attention-deficit hyperactivity disorder, and epilepsy. Armstrong et al. (2015) demonstrated that from pre-treatment to 5-month follow-up, caregiver- and teacher-reported child behavior decreased from the clinical to normal ranges on the ECBI. Researchers introduced visual supports to help the child better comprehend expectations (Armstrong et al., 2015).

Hansen and Shillingsburg (2016) examined the impact of PCIT-ASD on language in two children with ASD and considerable language impairments. Both children demonstrated changes in child vocalizations. One child was observed vocalizing 18 words at pre-treatment and 48 words following PCIT. Another child was observed vocalizing 50 words post-treatment as compared to 5 vocalizations pre-treatment. Primary findings from this study suggest that PCIT-ASD can address both behavior and language.

The earliest published PCIT-ASD group-design study was conducted by Solomon, Ono, Timmer, and Goodlin-Jones (2008) using a matched waitlist case-control design with 19 males ranging between 5 and 12 years old who met diagnostic criteria for ASD as well as demonstrated clinically significant externalizing behavior, IQ score above 70, and sufficient receptive and expressive language skills. According to Solomon et al. (2008), participants received an average of 12.5 PCIT sessions, and were assessed 2 weeks before treatment (i.e., pre-treatment) and 2 weeks after treatment (i.e., post-treatment). Overall, participants demonstrated clinically significant improvements in adaptability and atypicality; furthermore,

participants demonstrated significant decreases on ECBI Problem scores (Solomon et al., 2008).

Using a non-concurrent multiple baseline design, Masse, McNeil, Wagner, and Quetsch (2016) demonstrated the efficacy of standard PCIT protocol with children on the autism spectrum implemented in the home. Researchers adapted the treatment context by implementing PCIT in the client's home for 1-hour sessions twice per week. Child disruptive behavior significantly decreased from pre-treatment to post-treatment across all participants. From pre-treatment to three-month follow-up, all participants demonstrated increases in child compliance rates.

In an open-label pilot, Zlomke, Jeter, and Murphy (2017) examined the efficacy of standard PCIT for children with ASD. A sample of 17 caregiver-child dyads received treatment weekly with an average of 19 sessions per dyad. Results from this study demonstrated significant decreases in child disruptive behavior, improvements in child compliance, more positive parental following behavior, and fewer negative parental leading behavior. Additional analyses showed improvements in child adaptive functioning with a significant increase on measures of children's social skills.

Ginn, Clionsky, Eyberg, Warner-Metzger, and Abner (2017) conducted the first randomized controlled trial examining the efficacy of PCIT for children with ASD. Specifically, the experiment utilized only the CDI phase, not the full PCIT protocol. Thirty participants were assigned to an immediate treatment group or a waitlist group, and received eight sessions of CDI over ten weeks. Children in the immediate treatment group demonstrated improved levels of social awareness, significantly more positive parent following behaviors, fewer negative parent leading behaviors, and fewer child disruptive behaviors compared to those on the waitlist. Furthermore, researchers found that growth in parenting skills significantly mediated improvements in child behavior problems, which parallels previous research in typically-developing populations (Bagner & Eyberg, 2007). Extending upon the work of Ginn et al. (2017), Furukawa et al. (2018) completed a study examining the effects of CDI on Japanese children with ASD. This study utilized a wait-list control design with 21 caregiver-child dyads with children diagnosed with ASD and ranging from 4 to 7 years of age (Furukawa et al., 2018). According to Furukawa et al. (2018), children with ASD demonstrated improvements in social cognition, decreases in disruptive behavior, and reductions in parental stress.

Zlomke and Jeter (2019) conducted the first study comparing the effect size for PCIT between children with and without ASD. Of the 37 families of children with externalizing behavior problems who completed PCIT, 14 children were in the ASD group. Caregivers of children with and without ASD both reported similar improvements in the intensity of disruptive behavior after receiving PCIT. Researchers also found statistically significant and clinically meaningful improvements in atypical, withdrawal, and adaptability behavior for children with and without ASD. For instance, children with ASD moved from the "clinically significant" range to "average" range for Atypicality scores. Interestingly, children with ASD demonstrated significant improvements in functional communication from pre- to post-treatment. Furthermore, both caregivers of children with and without ASD reported significant improvements in parenting stress after receiving PCIT.

More recently, Ros and Graziano (2019) evaluated the feasibility and efficacy of a large-group adaptation of PCIT-ASD with 37 preschoolers with co-occurring ASD and externalizing behavior problems. Group PCIT-ASD was conducted in conjunction with an 8-week multimodal intervention (i.e., summer treatment program for pre-kindergarteners) with four CDI and four PDI sessions (Ros and Graziano, 2019). Each session occurred weekly, with one hour dedicated to

the PCIT protocol, and utilized the following format: large group didactic, two to three caregiver subgroups to practice skills with their children, and group discussion to review. Because sessions were weekly for two hours, half of each session was dedicated to school readiness topics and included a focus on strategies used in PCIT. Overall, Ros and Graziano (2019) demonstrated the feasibility and efficacy of group PCIT-ASD for children with ASD and externalizing behavior problems. From pre- to post-treatment, caregivers showed significant improvements in parenting stress and negative parenting practices; at six month follow-up, caregivers showed significant improvements in positive parenting practices (Ros and Graziano, 2019). Additionally, Ros and Graziano (2019) demonstrated significant improvement in caregiver “do” skills, “don’t” skills, and treatment knowledge from pre- to post-treatment.

Replicating and extending upon previous studies, Parladé et al. (2019) conducted a study evaluating PCIT-ASD using a matched case-control design with 16 children with ASD and 16 children without ASD. Overall, both groups demonstrated significant improvements in child externalizing behavior, executive functioning, parenting skills, and parenting stress (Parladé et al., 2019). This study provides additional evidence that children with disruptive behavior with and without ASD demonstrate similar outcomes following standard PCIT. According Parladé et al. (2019) both groups also demonstrated significant improvements in child disruptive behavior and externalizing problems. Moreover, children with ASD in this study demonstrated improvements in core symptoms of ASD. For the ASD group, participants demonstrated statistically significant improvements in multiple core symptom areas of ASD from pre- to post-treatment: overall social responsiveness, social awareness, restricted and repetitive behavior, overall adaptive skills, adaptability, social skills, and activities of daily living (Parladé et al., 2019).

Scudder, Wong, Mendoza-Burcham, and Handen (2019) discussed lessons learned from an open clinical trial and randomized controlled trial examining the efficacy of standard PCIT for reducing disruptive behavior in children with ASD with a mental age of at least 30 months. Please see Scudder et al. (in press) the forthcoming findings from the randomized controlled trial. In the open clinical trial, Scudder et al. (2019) found four of eight participants to be “PCIT responders”; where in, participants who responded to treatment demonstrated a  $\geq 20\%$  decrease in ECBI Intensity score from pre-treatment to post-treatment. Furthermore, Scudder et al. (2019) noted that increased parental use of PRIDE skills may not always be associated with improved behavior for children with ASD. Specifically, Scudder et al. (2019) noted that PDI seems to play an important factor before improvement on the ECBI Intensity score was found.

### **Clinical Recommendations**

Clinicians with experience working with children on the autism spectrum and certified PCIT therapists are well positioned to provide PCIT-ASD. PCIT therapists who are interested in working with children on the autism spectrum are encouraged to seek out additional training and/or consultation in PCIT-ASD from master clinicians. For more information about becoming a certified PCIT therapist, please visit the PCIT International website (i.e., [pcit.org](http://pcit.org)); Warner-Metzger (2019) discusses PCIT-ASD core training competencies in more detail (e.g., potential mechanism for ASD-specific training). Certified PCIT therapists treating children with ASD should understand the assessment and diagnosis of ASD, be able to connect families with ASD services and resources, and have prior experience working with children on the autism spectrum. Please see Table 1 for an overview of clinical recommendations.

Most children participating in PCIT-ASD studies range in age from two to six years, which coincides with the recommended age range for standard PCIT (McNeil & Hembree-Kigin, 2010).

Successfully adapting PCIT to older children requires careful consideration due to the size of the child, not just mental age (Stokes, Scudder, Costello, & McNeil, 2017).

Language ability impacts treatment, and providers are encouraged to assess language ability in deciding the appropriateness of PCIT-ASD. Based upon the current body of research, providers ought to ensure children have at least the equivalent of 24-month-old language comprehension to understand simple commands. Primarily, research has focused on children with receptive and expressive language abilities at or above 24 months. Future research should examine changes in child vocalizations and language ability from pre- to post-treatment.

The literature does not provide clear guidance on whether a child with ASD is appropriate for PCIT based upon cognitive functioning. Scudder et al. (2019) recruited participants with IQ scores of equivalent to age 30 months and above; however, some studies did not specify or exclude participants based upon IQ requirements. It is recommended that providers use PCIT-ASD for children with IQ scores above 70, as this population is expected to require less adaption from standard PCIT.

### **Research Recommendations**

While randomized controlled trials provide strong support for the efficacy of evidence-based practice, there are difficulties to conducting such trials in children with ASD (e.g., treatment switching, contamination, and funding constraints). Future research should add more methodological diversity to the PCIT-ASD literature. Providers and researchers are also encouraged to collaborate on scientific endeavors. Providers can often easily obtain rich datasets by including additional research consents at intake. Researchers are encouraged to bridge the science-to-practice gap by working closely with providers to examine relations between child characteristics and treatment outcomes, replicating studies, and examining underrepresented populations.

Future PCIT research would also benefit from developing a third phase of treatment: Social Directed Interaction (SDI). SDI is an experimental, third phase of PCIT with the goal of improving social functioning—a core deficit in children with ASD—as well as language. During this phase of treatment, the caregiver is taught and coached to coach his or her child in either PRIDE skills or other target skills (e.g., eye contact, asking questions). Children are coached on PRIDE skills for two reasons: 1) PRIDE skills make the child's play more reinforcing to other children, and 2) PRIDE skills encourage appropriate social play and conversation. Lieneman, Ruckle, and McNeil (2019) were the first to implement a SDI phase upon the completion of standard PCIT. Future research should investigate the feasibility, acceptability, and efficacy of SDI.

### **Conclusions**

PCIT is a promising treatment for children with autism and co-occurring disruptive behavior (McNeil, Quetsch, & Anderson, 2019). Furthermore, children on the autism spectrum receiving PCIT may also gain improvements in social awareness, adaptability, positive affect, atypicality, socially withdrawn behavior, and functional communication. The PCIT-ASD literature provides initial support that PCIT improves social interactions for children with ASD, and future research should include measures assessing these outcomes. Primarily, the PCIT-ASD literature has focused on children with mental or chronological ages between 3 and 7 years and with language ability consistent with 24 months. Future research should prioritize collaborations with providers and practitioners to provide additional evidence about the efficacy and effectiveness of PCIT-ASD. Moreover, research should identify interactions between subgroups of children with ASD and PCIT-ASD treatment components to guide timely, effective treatment practice.

## References

1. Armstrong, K., DeLoatche, K. J., Preece, K. K., & Agazzi, H. (2015). Combining parent-child interaction therapy and visual supports for the treatment of challenging behavior in a child with autism and intellectual disabilities and comorbid epilepsy. *Clinical Case Studies, 14*(1), 3-14. doi:10.1177/1534650114531451
2. Bagner, D., & Eyberg, S. M. (2007). Parent-child interaction therapy for disruptive behavior in children with mental retardation: A randomized controlled trial. *Journal of Clinical Child & Adolescent Psychology, 36*(3), 418–429.
3. Budd, K. S., Hella, B., Bae, H., Meyerson, D. A., & Watkin, S. C. (2011). Delivering parent-child interaction therapy in an urban community clinic. *Cognitive and Behavioral Practice, 18*(4), 502-514.
4. Brookman-Frazee, L., Baker-Ericzén, M., Stadnick, N., & Taylor, R. (2012). Parent perspectives on community mental health services for children with autism spectrum disorders. *Journal of Child and Family Studies, 21*(4), 533–544. doi:10.1007/s10826-011-9506-8
5. Brookman-Frazee, L., Drahota, A., Stadnick, N., & Palinkas, L. A. (2012). Therapist perspectives on community mental health services for children with autism spectrum disorders. *Administration and Policy in Mental Health and Mental Health Services Research, 39*(5), 365–373. doi:10.1007/s10488-011-0355-y
6. Centers for Disease Control and Prevention (CDC). (2018). Prevalence of autism spectrum disorder among children aged 8 years – autism and developmental disabilities monitoring network, 11 sites, United States, 2014. *Morbidity and Mortality Weekly Report Surveillance Summaries, 67*(6), 1–23.
7. Furukawa, K., Okuno, H., Mohri, I., Nakanishi, M., Eyberg, S. M., & Sakai, S. (2018). Effectiveness of child-directed interaction training for young Japanese children with autism spectrum disorders. *Child and Family Behavior Therapy, 40*(2), 166-186. doi:10.1080/07317107.2018.1477344
8. Ginn, N. C., Clionsky, L. N., Eyberg, S. M., Warner- Metzger, C., & Abner, J. P. (2017). Child-directed interaction training for young children with autism spectrum disorders: Parent and child outcomes. *Journal of Clinical Child and Adolescent Psychology, 46*(1), 101–109. doi:10.1080/15374416.2015.1015135
9. Hansen, B., & Shillingsburg, M. A. (2016). Using a modified parent-child interaction therapy to increase vocalizations in children with autism. *Child and Family Behavior Therapy, 38*(4), 318-330. doi:10.1080/07317107.2016.1238692
10. Lieneman, C., Ruckle, M., & McNeil, C. (2019). Parent-Child Interaction Therapy for a child with autism spectrum disorder: A case study examining effects on ASD symptoms, social engagement, pretend play, and disruptive behavior. In C. B. McNeil, L. B. Quetsch, & C. M. Anderson (Eds.), *Handbook of Parent-Child Interaction Therapy for children on the autism spectrum* (pp. 677-696). New York: Springer.
11. Mandell, D. S., Walrath, C. M., Manteuffel, B., Sgro, G., & Pinto-Martin, J. (2005). Characteristics of children with autistic spectrum disorders served in comprehensive community-based mental health settings. *Journal of Autism and Developmental Disorders, 35*(3), 313–321. doi:10.1007/s10803-005-3296-z
12. Masse, J., McNeil, C., Wagner, S., & Chorney, D. (2007). Parent-child interaction therapy and high functioning autism: A conceptual overview. *Journal of Early and Intensive Behavior Intervention, 4*(4), 714–735. doi:10.1037/h0100402
13. Masse, J. J., McNeil, C. B., Wagner, S., & Quetsch, L. B. (2016). Examining the efficacy of parent-child interaction therapy with children on the autism spectrum. *Journal of Child and Family Studies, 25*(8), 2508-2525. doi:10.1007/s10826-016-0424-7

14. McDiarmid, M., & Bagner, D. (2005). Parent-Child Interaction Therapy for children with disruptive behavior and developmental disabilities. *Education and Treatment of Children*, 28, 130–141.
15. McNeil, C. B., & Hembree-Kigin, T. L. (2010). *Parent-Child Interaction Therapy* (2nd ed.). Boston, MA: Springer US. doi:10.1007/978-0-387-88639-8
16. McNeil, C. B., Quetsch, L. B., & Anderson, C. M. (Eds.) (2019). *Handbook of parent-child interaction therapy for children on the autism spectrum*. New York: Springer.
17. Owen, C. K., Stokes, J., Travers, R., Ruckle, M. M., & Lieneman, C. (2019). Parent-Child Interaction Therapy with children on the autism spectrum: A narrative review. In C. B. McNeil, L. B. Quetsch, & C. M. Anderson (Eds.), *Handbook of Parent-Child Interaction Therapy for children on the autism spectrum* (pp. 297-319). New York: Springer.
18. Parladé, M. V., Weinstein, A., Garcia, D., Rowley, A. M., Ginn, N. C., & Jent, J. F. (2019). Parent–Child Interaction Therapy for children with autism spectrum disorder and a matched case-control sample. *Autism*. doi:10.1177/1362361319855851
19. Ros, R., & Graziano, P. A. (2019). Group PCIT for Preschoolers with Autism Spectrum Disorder and Externalizing Behavior Problems. *Journal of Child and Family Studies*, 28(5), 1294-1303. doi:10.1007/s10826-019-01358-z
20. Scudder, A. T., Wong, C. B., Mendoza-Burcham, M., & Handen, B. (2018). Summary of lessons learned from two studies: An open clinical trial and a randomized controlled trial of PCIT and young children with autism spectrum disorders. In C. B. McNeil, L. B. Quetsch, & C. M. Anderson (Eds.), *Handbook of Parent-Child Interaction Therapy for children on the autism spectrum* (pp. 443-456). New York: Springer.
21. Scudder, A., Wong, C., Ober, N., Hoffman, M., Toscolani, J., Handen, B. L. (in Press). Parent child-interaction therapy in young children with autism spectrum disorder. *Child & Family Behavior Therapy*.
22. Solomon, M., Ono, M., Timmer, S., & Goodlin-Jones, B. (2008). The effectiveness of parent-child interaction therapy for families of children on the autism spectrum. *Journal of Autism and Developmental Disorders*, 38(9), 1767–1776. doi:10.1007/s10803-008-0567-5
23. Stokes, J. O., Scudder, A., Costello, A. H., & McNeil, C. B. (2017). Parent-child interaction therapy with an eight-year-old child: A case study. *Evidence-Based Practice in Child and Adolescent Mental Health*, 2(1), 1-11. doi:10.1080/23794925.2016.1268938
24. Warner-Metzger, C. M. (2019). Core Training Competencies for PCIT and ASD. In *Handbook of Parent-Child Interaction Therapy for Children on the Autism Spectrum* (pp. 339-348). New York: Springer. doi:10.1007/978-3-030-03213-5\_18
25. Zlomke, K. R., & Jeter, K. (2019). Comparative effectiveness of parent-child interaction therapy for children with and without autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 1-12. doi:10.1007/s10803-019-03960-y
26. Zlomke, K. R., Jeter, K., & Murphy, J. (2017). Open-trial pilot of Parent-child interaction therapy for children with autism spectrum disorder. *Child & Family Behavior Therapy*, 39(1), 1–18. doi:10.1080/07317107.2016.1267999