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Abstract

Coaching caregivers of young children with autism spectrum disorder (ASD) is a critical component of parent-mediated interventions. Little information is available about how providers implement parent coaching for children with ASD in Part C Infant/Toddler service systems. This study evaluated providers' use of parent coaching in a large Part C service system. Twenty-five early intervention sessions were coded for fidelity to established caregiver coaching techniques. Findings indicate overall low use of coaching across observations with significant variability in use of coaching across Part C providers. When providers did coach caregivers, they used only a few coaching strategies (e.g., collaboration and in-vivo feedback). Results indicate that targeted training and implementation strategies focused on individual coaching components, instead of coaching more broadly, are needed to improve the use of individual coaching strategies. Data indicate that a focus on strengthening the use of collaboration and in-vivo feedback may be key to improving coaching fidelity overall.

Key Words: caregiver coaching, parent coaching, early intervention, autism spectrum disorder

Caregiver Coaching within Early Intervention for Autism Spectrum Disorder: A Brief

Report

Increasingly, leaders in early childhood education recognize that coaching caregivers to use intervention techniques with their children enhances caregivers' self-efficacy and ability to improve their child's participation in daily routines (Hanft, Rush, & Shelden, 2004). Providing early intervention programs that encompass the entire family, not only the child, aligns with the family-centered practices the Division for Early Childhood recommends for Part C early intervention (DEC, 2017) and guidelines for Part C services set forth in the Individuals with Disabilities Education Act (IDEA, 2004). Caregiver coaching in early intervention is an interactive process between a practitioner and a caregiver intended to promote the caregiver's ability to support the child's participation in family and community settings (Hanft, Rush, & Shelden, 2004). High quality caregiver coaching leads to improved parent responsiveness and use of intervention strategies to promote their child's communication and participation in daily activities (McDuffie et al., 2013; Moore et al., 2014). Including caregivers as partners in intervention delivery also leads to improved self-efficacy and engagement, and reduced caregiver stress (Estes et al., 2014; Siller et al., 2018).

Most effective coaching models are largely based on adult learning theory, which posits that adults benefit from specific strategies other than didactic instruction to motivate and teach them (Knowles et al., 2020). Effective caregiver coaching should be provided directly in the family's natural setting, and include a complex repertoire of strategies to increase caregivers' skills, motivation, and self-efficacy (Dunst, Trivette, & Hamby, 2010; Rush, Shelden, & Hanft, 2003). Five core elements of effective coaching include: 1) the use of *authentic learning experiences*: taking advantage of learning opportunities that occur as part of real-life challenges

or usual daily routines, 2) *collaborative decision making*: actively involving the caregiver in selecting learning goals and intervention techniques, 3) *demonstration*: modeling the use of techniques through role-plays or actual application, 4) *in-vivo feedback*: observing the caregiver's use of intervention techniques and providing immediate feedback, and 5) *reflection*: engaging the caregiver in self-evaluation or assessment of their performance.

There have been increasing efforts to train Part C providers in the use of caregiver coaching strategies (Dunst, 2015; Dunst, Bruder, & Hamby, 2015). Depsite these training efforts, evaluations of early intervention providers' use of caregiver coaching indicate that providers infrequently use explicit coaching strategies during intervention sessions (Campbell & Coletti, 2013; Douglas et al., 2020) and that early intervention providers are more likely to work directly with the child instead of coaching caregivers (Salisbury et al., 2012). Caregivers often take on the role of observer instead of interacting directly with their child during intervention sessions (Campbell & Sawyer, 2007). When providers do use coaching strategies, they are more likely to use an expert teaching model, such as sharing information with caregivers, rather than providing direct feedback about their use of intervention techniques during sessions.

While almost all caregivers of children with disabilities can benefit from coaching, there has been an increasing emphasis on using caregiver coaching for children with autism spectrum disorders (ASD), in large part due to the rise in evidence supporting parent-mediated interventions for ASD (Green et al., 2015; Oono et al., 2013). Growing evidence suggests that coaching caregivers of young children with ASD to implement intervention strategies for their child leads to improvements in children's cognitive ability, social functioning, functional behavior, and daily living skills (Green et al., 2010; Kasari et al., 2014; Rogers et al., 2012; Stahmer et al., 2020). There is little information available, however, about how these parent-

mediated interventions for children with ASD are translated into practice in Part C service systems. Given the poor implementation of caregiver coaching in early intervention more broadly, challenges with implementing parent coaching for young children with ASD are likely. A clearer understanding of how early intervention providers use coaching with caregivers of young children with ASD is a first step towards developing strategies to support the widespread implementation of evidence-based parent mediated interventions. The present study systematically evaluated the use of evidence-based caregiver coaching in usual practice settings for children with ASD within Part C early intervention.

Methods

Setting

Children < 36 months of age with or at high risk for ASD are eligible for intensive intervention through the Part C infant and toddler early intervention program. We collected data in the Part C early intervention system in one large US city. In this system, risk for ASD is determined through the *Modified Checklist for Autism in Toddlers* (Robins et al., 2013), a clinical observation, and parent interview conducted by a designated provider. Thirteen agencies provide these services and serve approximately 850 children each year with, or identified as having a high likelihood of, ASD. They use an interdisciplinary treatment approach, have a treatment philosophy that supports parents to engage therapeutically with their children, and provide home-based services. These services temporarily moved to a tele-intervention model of service delivery in response to the COVID-19 pandemic.

Participants

Providers. We conducted 25 observations of early intervention providers employed by the Part C service system. Inclusion criteria for providers was: 1) employed by a Part C early

intervention agency, and 2) have at least three children in the autism spectrum disorder service classification on their caseload. Agency leaders distributed information about the study to providers. Interested providers contacted the study team who were screened for eligibility.

Parents and children. Families were selected from participating providers' caseloads and invited to participate in the study. Inclusion criteria for families was: 1) child less than 36 months of age; 2) child has a classification of autism, or were considered high autism risk as determined by the EI system; 3) family receives EI services through the Part C early intervention system; and 4) parent speaks English or Spanish.

Observations

We recorded one early intervention session with each participating family. Sessions were approximately one hour long. Data collection for the study was initiated prior to the COVID-19 pandemic and continued during the pandemic, requiring a shift in data collection procedures. Prior to the pandemic, observations occurred in the family's home, the usual setting for the provision of Part C early intervention services. A research team member traveled to the family's home and video recorded one early intervention session with the family and provider. During the pandemic the early intervention system pivoted to providing early intervention services via tele-intervention. Video recordings were obtained via a secure teleconference platform for sessions delivered via tele-intervention. We observed 10 sessions in person before the pandemic, and 15 sessions via tele-intervention during the pandemic. The content and focus of early intervention sessions did not change due to the pandemic and continued to focus on administration of the child's Individualized Family Service Plan as much as possible as mandated by the early intervention system.

Coaching Fidelity Measure

We used an adapted coaching fidelity tool to assess each provider's use of evidence-based coaching strategies during observation sessions. The coaching fidelity tool combined elements from the Triadic Intervention and Evaluation Rating Scale (TIERS; Basu, Salisbury, & Thorkildsen, 2010) and a parent coaching fidelity form from a commonly used, parent-implemented ASD intervention, the Project ImPACT Fidelity of Implementation for Coaching Form (Ingersoll & Dvorstak, 2010). The TIERS is a validated observational tool designed to measure the use of parent-focused and collaborative coaching techniques within EI settings. The Fidelity of Implementation for Coaching Form was developed for the Project ImPACT curriculum and has been used to assess parent coaching of parents of young children with autism and developmental delays (Stadnick et al., 2015; Stahmer et al., 2020). We combined the TIERS and Project ImPACT: Fidelity of Implementation for Coaching Forms to ensure we captured generally agreed-upon parent coaching activities as well as those that are used in autism-specific interventions. The combined set of items was reviewed to remove duplicate items. We categorized the retained items under the five elements of parent coaching: collaboration, daily routines, demonstration, in-vivo feedback, and reflection/problem solving. We then added new items to ensure the form captured provider's fidelity to all 5 parent coaching elements. Items that could not be grouped into one of the five parent coaching strategies were excluded. Last, we consulted experts in parent coaching to assess the construct validity of the adapted tool and made modifications to the tool based on their expert feedback. All of the experts rated the final tool as having high construct validity for measuring the essential elements of parent coaching. The adapted coaching fidelity form consisted of 25 items (see Table 1 for items). Fidelity was rated on a 5-point scale (1 = never observed to 5 = almost always observed), with rating of 4 or 5 indicating acceptable fidelity. We calculated a summary score for each coaching domain by

averaging the ratings for each item in the domain (e.g., a fidelity score for collaboration was calculated as the mean of the 4 items in the collaboration domain for each provider), and an overall fidelity score was calculated as the mean for all of the scored items.

Video Coding

Video recordings of each session were coded by trained research assistants using the adapted coaching fidelity form described above. Research assistants were trained to inter-rater agreement at the item level of at least 90% inter-observer agreement prior to coding any videos. Twenty percent of the videos were double coded to ensure agreement. Inter-observer agreement was strong (Mean = 95%, Range = 86% - 100%), discrepancies were discussed and resolved through consensus.

Data Analysis

We calculated descriptive and summary statistics for each observation and across observations. We calculated mean fidelity for each coaching strategy and overall coaching fidelity for each observation. Summary means, standard deviations, and ranges for each coaching strategy and overall fidelity were calculated across providers. We were also interested in whether use of particular coaching strategies was correlated with use of other coaching strategies. We, therefore, computed a multiple correlation coefficient to assess the relationship between coaching fidelity for each of the coaching strategies. An independent samples *t*-test was conducted to compare coaching fidelity for sessions conducted in-person and via tele-intervention.

Results

Demographic characteristics for providers and families are presented in Table 2. Consistent with the inter-disciplinary approach of Part C service systems, providers varied in their disciplinary backgrounds: 79% were special instructors (instructors who provided services

in families' homes), 11% were occupational therapists, 5% were speech and language pathologists, and 5 % were physical therapists. Providers had an average of 8.5 years of experience working in early intervention (Range = 1 to 30 years), 78% reported receiving specialized training in autism interventions, and 68% reported receiving prior training in parent coaching. The providers were all female and 63% were White, 16% were Black, 11% were Hispanic, 11% were Asian, and 5% identified as multi-racial. The demographic characteristics and training experience of these 25 providers were consistent with those of providers in the early intervention system overall.

Twenty-five caregivers of young children receiving Part C early intervention services participated. Caregivers were from diverse ethnic backgrounds: 28% were Black, 28% were Hispanic, 24% were White, 12% were multi-racial, and 8% were Asian. Children were on average 21.5 months of age (SD: 7.78, Range: 12-35 months).

We found no statistically significant differences in coaching fidelity between in-person and tele-intervention sessions for any of the coaching strategies (collaboration: $t(19) = -.21$, $p = .83$; daily routines: $t(10) = -.70$, $p = .49$; demonstration: $t(16) = -.74$, $p = .47$; in-vivo feedback: $t(19) = -.46$, $p = .65$; reflection/problem solving: $t(14) = .58$, $p = .57$) or for overall coaching fidelity ($t(14) = -.62$, $p = .54$). Providers demonstrated considerable variability in their use of coaching strategies (Figure 1). Providers had the overall lowest fidelity ratings for working within Daily Routines (Mean = 2.22, SD = .71) followed by Collaboration (Mean = 2.58, SD = .95). The mean fidelity score for Demonstration was 3.49, with greater variability in use of this strategy across providers (SD = 1.21). Mean fidelity for Reflection and Problem Solving was 3.70, with less variability across providers (SD = .67), and mean fidelity for In-Vivo Feedback was 3.80 (SD = 1.07). Mean overall coaching fidelity was 3.27 (SD = .60).

Correlations among fidelity to the coaching components are presented in Table 3. A strong correlation was observed between Collaboration fidelity and In-Vivo Feedback Fidelity (r = .68, p = .0001, indicating that providers who used Collaborative coaching strategies more often during their sessions were more likely to provide In-Vivo Feedback. A moderate correlation was also observed between the use of Collaboration and Daily Routines (r = .44, p = .027) and In-vivo Feedback and Daily Routines (r = .43, p = .038)

Discussion

We assessed providers' use of parent coaching during their usual early intervention sessions with families of young children with autism spectrum disorder in a large Part C early intervention system. Providers overall use of parent coaching strategies was low, and they used some strategies more than others. We observed variability in providers' use of coaching strategies across providers (i.e., some providers used specific coaching strategies consistently but other providers rarely used them) and within providers (i.e., individual providers used some coaching strategies but did not use other strategies). A deeper understanding of the factors that influence providers' decisions to implement specific coaching strategies is needed to improve their implementation.

Previous research has found that individual factors such as attitudes and beliefs about interventions, and self-efficacy related to implementing an intervention are associated with variability in use of specific evidence-based practices in schools for children with ASD (Locke et al., 2019). Future research evaluating early intervention providers' attitudes and beliefs about specific coaching strategies, as well as their perceived self-efficacy with using them, can inform targeted implementation strategies to improve the use of coaching in early intervention for families of young children with ASD.

We were interested in learning if there were certain coaching strategies that providers tended to use together to inform potential training and implementation supports. Our correlational analyses found that providers who used collaborative coaching strategies were more likely to use in-vivo feedback during sessions. Collaborating with caregivers about their child's treatment has been associated with increased caregiver empowerment and buy-in in terms of their child's treatment (Dempsey & Dunst, 2004; Thompson et al., 1997). Similarly, in-vivo feedback is a core component of coaching linked to improvements in caregivers' use of intervention strategies and subsequent gains in children's communication and behavior skills (Caron, Bernard, & Dozier, 2018; Shanley & Niec, 2010). Although the findings reported in this paper are preliminary, they signal a co-occurring relationship between two coaching strategies. We hypothesize that feedback and collaboration occurred together because taking the time to collaborate with caregivers and empower them to become active partners in their child's intervention strengthens the therapeutic alliance and makes it easier to deliver constructive feedback. This is consistent with previous findings demonstrating the additive value of combining several adult learning practices, such as collaboration and in-vivo feedback, on improving adult learner outcomes (Dunst & Trivette, 2012). Training and implementation efforts should focus on increasing the use of collaboration paired with in-vivo feedback for parent coaching.

The lowest levels of fidelity were observed for implementing intervention practices within daily routines. Providers rarely coached families to practice intervention skills during usual daily activities. Instead, providers were more likely to use a contrived play session. Intervention goals for young children with ASD are often focused on improving social communication skills and using a child's motivation and interests to guide the intervention.

These approaches lend themselves to following the child's lead and teaching through play-based activities. However, guidance for coaching caregivers of young children emphasizes the importance of learning skills within daily routines to facilitate sustained practice (Romano & Schnurr, 2020; Santana, 2020). Coaching caregivers to use intervention strategies within daily routines can also improve the ecological validity of their child's intervention and reduce caregiver burden by providing them with tools to support their child within already occurring routines, instead of adding additional time for intervention into their family schedule (Stahmer & Pellecchia, 2015). Approaches to embedding ASD intervention strategies within naturally occurring routines have been developed within recent years (Wetherby & Woods, 2006), but our data suggest they are not being implemented within community-based early intervention.

Training and supervision for providers working with young children usually emphasizes child-directed intervention strategies (Dunst et al., 2018; Dunst, Espe-Sherwindt, & Hamby, 2019). Although many intervention manuals mention training parents of children with ASD, they largely focus on how to work directly with the child instead of how to coach parents. In recognition that early intervention providers working with families of young children with ASD need training beyond how to intervene directly with the child, the EI system partnering on this work has provided county-wide didactic training about caregiver coaching for providers. In fact, most providers we observed reported receiving previous training in caregiver coaching. Our findings indicate that providers' attendance at coaching training workshops did not lead to use of caregiver coaching during their sessions. This is consistent with previous research indicating that training alone is not sufficient to change provider behavior (Beidas et al., 2012). Targeted implementation supports paired with training are needed to improve the use of caregiver coaching within early intervention for families of young children with ASD.

We were surprised that there was no difference in use of coaching between sessions delivered in-person and via tele-intervention. Recent reports of the use of telehealth for ASD treatment report that caregivers are more involved during telehealth sessions (White et al., 2021; Yi & Dixon, 2021). Our results, however, found no significant difference in use of evidence-based coaching strategies for sessions occurring in-person vs via tele-intervention. We found that caregivers who were involved during all of the tele-intervention sessions were typically involved in lengthy conversations about the child's goals, updating on the family's activities since the previous sessions, and talking through suggestions for practice instead of using direct coaching strategies to actively engage the caregiver in learning intervention strategies. A distinction between caregiver involvement and active caregiver coaching is needed within the field of early intervention. Involving caregivers during early intervention sessions is necessary but not sufficient to promote caregiver use of intervention strategies.

Several limitations are worth noting. The small sample size limits the generalizability of the findings. However, our findings are consistent with previous evaluations of caregiver coaching in early intervention showing limited use of caregiver coaching with families of young children more broadly (Douglas et al., 2020; Romano & Schnurr, 2020). This improves the validity of our findings and likelihood that they represent the use of caregiver coaching for young children with ASD in early intervention. Additionally, the providers we observed responded to our recruitment flyer and were interested in participating in the study. It is possible that these providers were more engaged and motivated than other providers in the early intervention system. The use of evidence-based coaching observed in these providers may be an overestimate of the use of coaching in Part C early intervention more broadly, which would amplify the need for additional implementation supports to improve the use of parent coaching for young children

with ASD.

Conclusion

Parent-mediated interventions for young children with ASD are gaining increasing support as effective and feasible models of intervention delivery. Parent coaching is a critical aspect of all parent-mediated intervention models. Our observations of usual early intervention sessions for young children with ASD found infrequent use of evidence-based coaching strategies, highlighting an important and under-studied implementation gap. Future research is needed to understand the reasons for this implementation gap so we can develop implementation strategies to improve the use of evidence-based caregiver coaching with families of young children with ASD served in publicly funded early intervention settings. We also found that providers used some individual coaching strategies but did not use others. Targeted training and implementation strategies focused on individual coaching components, instead of coaching more broadly, are needed to improve the use of individual coaching strategies.
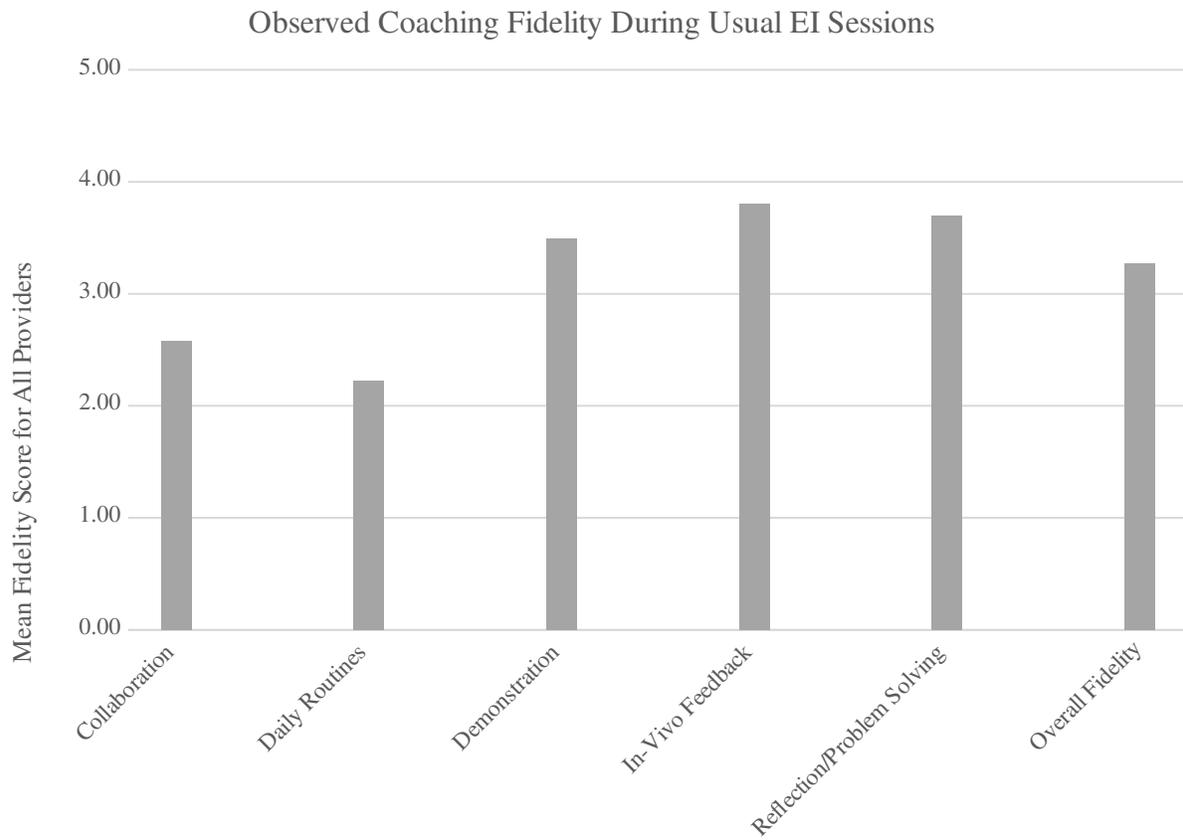
Figure 1. Mean fidelity scores and standard deviations for coaching strategies across providers working with caregivers of young children with ASD during usual early intervention sessions.

Table 1. Items included in the adapted coaching fidelity scale.

General Items:
1) Arrange aspects of the environment to promote parent-child interaction.
2) Maintain a position that would not interfere with the parent-child interaction
3) Create/maintain opportunities for caregiver and child to interact.
4) Interact with the child and the caregiver together as a dyad, rather than separately
5) The coach skillfully balances child attention and parent explanation/description.

Collaboration:
6) Let caregivers make decisions and take charge of the intervention session.
7) Use and expand caregiver ideas during a session.
8) The coach and parent collaboratively set goals for child's progress.
9) Ask for caregiver input or invite feedback on what is observed.

Daily Routines
10) Engage caregiver and child in activities that are related to their usual daily routines.
11) Explain how embedding strategies in daily routines helps child development.
12) Connect skills being learned in current routines to other/future routines.
13) Suggest things to do with the child within and outside the intervention session.

Demonstration
14) Explicitly teach a strategy to the caregiver.
15) Explain the purpose of techniques implemented.
16) Demonstrate techniques that promote parent-child interaction.

In-vivo Feedback
17) Comment on specific strategies that are working well (*positive* feedback).
18) Observe ongoing interactions and provide (*constructive*) feedback about current actions.
19) Allow sufficient time for the caregiver to practice strategies.

Reflection and Problem Solving
20) Answer caregiver concerns.
21) Listen to what the caregiver has to say.
22) Evaluate progress with the caregiver.
23) Ask caregiver questions about routines, use of strategies, or child's actions.
24) The coach helps the parent work through any obstacles in the implementation of the techniques using reflective strategies.
25) The coach asks the parent about possible barriers to practice and discusses solutions.

Note. Items rated using the Following Scale: Almost Always Observed (5), Often Observed (4), Sometimes Observed (3), Rarely Observed (2), Never Observed (1), and No Opportunity.

Table 2. Demographic Characteristics of Study Participants

	Providers	Parents
Gender		
Female	100%	96%
Male	0%	4%
Race/Ethnicity		
White	63%	24%
Black	16%	28%
Hispanic/Latino	11%	28%
Asian	11%	8%
Multi-Racial	5%	12%
Provider Occupation		
Special Instructor	79%	--
Speech Therapist	5%	--
Occupational Therapist	11%	--
Physical Therapist	5%	--
Highest Level of Education		
High School Diploma or less	0	28%
Some College	0	20%
College Degree	37%	36%
Graduate Degree	58%	8%
Unknown	5%	8%
Years of early intervention experience [M (Range)]	8.5 (1-30)	--
Previous Training in Parent Coaching	68%	--

Table 3. Correlations among Fidelity of Use of the Coaching Strategies					
	Collaboration	Daily Routines	Demonstration	In-Vivo Feedback	Reflection/ Problem Solving
Collaboration	1.00				
Daily Routines	.44*	1.00			
Demonstration	.17	.43*	1.00		
In-Vivo Feedback	.68**	.42*	.27	1.00	
Reflection/Problem Solving	.36	.15	-0.04	.24	1.00

Note: * $p < .05$, ** $p < .00$

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