

The Effect of the Mand Model Provided Through Parent Coaching on the Social Skills of Children with Autism Spectrum Disorder

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Abstract

The need for family-centered and evidence-based interventions to support communication and social skills in children with autism spectrum disorder (ASD) is increasing. This study examined the effect of the instruction parents received from the researcher on their ability to implement the mand model correctly and effectively. In addition, the implications of parents' mand-model teaching on the social skills of children with ASD were evaluated. Furthermore, the intervention's social validity was assessed through individual interviews with the parents and through social comparisons with typically developing peers. Four parent-child pairs participated in the study, and a multiple-probe design was used in accordance with single-subject research methods. The research results show that parents learned the mand-model instruction through the coaching, maintained these skills after the intervention and generalized them to new situations. Data from the children revealed that the mand-model instruction provided by the parents positively affected children's social skills. The children continued to use the skills they acquired after the study ended and were able to generalize them to different situations.

Key words: *Mand Model, naturalistic instruction, parent coaching, parent-mediated intervention*

Introduction

Children with autism spectrum disorder (ASD) experience limitations in social communication and interaction (American Psychiatric Association, 2013). These limitations may manifest as difficulties with social skills, uncoordinated communication, atypical speech and language development, inadequate gestures and poor imitation

skills (Biggs & Meadan, 2018). Teaching social skills to children with ASD at an early age is crucial for their performance in other skills later in life (Vivanti et al., 2022). Children with ASD require systematic teaching processes to appropriately demonstrate their skills (Sandbank et al., 2023). Research shows that children with ASD can develop social skills through individualized early intervention programs (Early Childhood Division, 2014).

Naturalistic instruction focuses on learning objectives that facilitate interaction with the environment by incorporating learning opportunities into daily routines and following the child's interests and leadership (Dubin & Lieberman-Betz, 2020). In natural teaching, learning opportunities occur in developmentally appropriate natural contexts (Schreibman et al., 2015). Recent studies suggest supporting the social skills of young children with ASD through natural teaching approaches during daily routines (Dufek et al., 2024).

Parent-mediated intervention is an evidence-based practice used to teach social skills to children with developmental delays in early childhood (Wong et al., 2015). Recent meta-analyses and comprehensive synthesis reports (Hamilton et al., 2020; NCAEP, 2020; Nevill et al., 2018) also show that parent-mediated approaches are among the effective evidence-based practices for children with ASD. These interventions, which support parents in interacting with their children and collaborating with professionals, have been increasingly preferred in recent years to achieve positive developmental outcomes for both parents and children (Orum-Çattık et al., 2020). Furthermore, parent-mediated interventions have been shown to enhance both academic and non-academic learning in young children with ASD in subsequent years (Siller & Morgan, 2018). Research indicates that such interventions are particularly effective when integrated into daily routines and implemented in natural teaching environments (Nevill et al., 2018). However, parents need systematic support to learn how to use effective practices and apply them consistently with their children (Lee & Meadan, 2021). Parents can learn evidence-based practices in a time- and cost-efficient manner through coaching processes that provide effective feedback.

Parent coaching involves providing immediate or delayed performance feedback while teaching parents the practice, thereby creating effective learning environments (Tsiplova et al., 2022). In parental coaching, the coach provides information to the parent before the practice and teaches the practice by acting as a role model or using different techniques. During this process, the parent learns how to respond to every reaction from the child. It is essential to establish mutual agreement and positive interaction between the coach and the parent during this process (Brown & Woods, 2016).

The mand model has been extensively studied in the literature for approximately forty years and is recognized as an effective intervention method for teaching social communication skills to children with various developmental disabilities (e.g., Peterson, 2004). Early studies on this method were conducted with children experiencing delays in language development, and the findings showed that children who initially produced only simple words significantly expanded their vocabulary by using more

complex expressions by the end of the intervention (Warren et al., 1984). Therefore, it remains an important, evidence-based and teachable strategy that parents can easily implement in natural interaction settings.

The mand model is a naturalistic language teaching approach designed to boost a child's communication efforts by creating opportunities for social interaction in everyday settings (Warren et al., 1984). The teaching cycle involves two main steps: (a) the teacher initiating an activity that establishes and sustains a mutual interest with the child and waiting for the child to start communication (mand), and (b) demonstrating the correct response and reinforcing the child's attempt when they make an appropriate or near-appropriate communication effort (model). This process systematically increases cues if the child does not initiate communication and immediately provides natural reinforcement when communication is successfully initiated. This structured yet naturally flowing cycle has proven effective in helping children develop skills in starting social interactions, asking for help and using verbal expressions functionally (Nigam et al., 2006).

The critical role that parents play in the development of social skills in children with ASD cannot be denied. Social skills deficits significantly impair the ability of children with ASD to communicate, participate in inclusive environments and achieve long-term adaptive functioning (Bellini et al., 2007). While professional interventions are valuable, they are often limited by time, accessibility and cost. This makes parent-implemented interventions a practical alternative (Brookman-Frazee et al., 2006). Parent coaching—mainly based on behavioural principles such as modelling, prompting and feedback—can empower caregivers to encourage their children to learn in natural environments (Koegel et al., 1996). Empowering parents through coaching to implement evidence-based strategies, such as the mand model, creates sustainable opportunities for skills development in natural contexts. However, research examining the effects of interventions implemented by parents, particularly within the framework of parent coaching, remains limited. Therefore, the present study addressed a critical gap by investigating how effectively parents can be trained to implement this method and how their participation affects their children's everyday social functioning. In this context, the following questions were addressed:

- 1 Is the instruction provided for parents efficient for their acquisition of the mand-model approach, sustaining it two, four and six weeks after instruction, and generalising it?
- 2 What are the parents' views before and after the study?
- 3 Is the mand model instruction delivered through parents effective in helping children with ASD acquire targeted social skills, maintain them two, four and six weeks after instruction, and generalise them?
4. Is the mand-model approach delivered through parents effective in helping children with ASD reach the social skills level of typically developing peers at the end of the teaching programme, according to social comparison data collected before and after the study?

Is parent-mediated mand-model instruction effective in increasing social interaction between children with ASD and their parents and, inversely, in decreasing the Autism Interaction Score (AIS)?

Methodology

Research model

In the study, the multiple-probe design, one of the single-subject research methods, was used twice simultaneously. The purpose of single-subject designs is to establish experimental control through repeated measurements within and between participants, rather than making statistical generalizations based on large samples. In this regard, including four parent-child pairs in the study was considered sufficient to demonstrate the functional relationship required by the design, as it allowed the intervention effects to be independently replicated across participants. The consistent intervention effects observed across the four participants strengthened the internal validity of the study and enabled the interpretation of the findings through analytical generalization. To evaluate the effectiveness of the parent coaching programme on their ability to implement the mand model correctly, a cross-sectional multiple probe design was used among the participants. The behaviour-based multiple-probe design was repeated with the participants to evaluate the effectiveness of the mand-model teaching provided by parents on the acquisition of the targeted social skills by their children with ASD. Experimental control was implemented during the experimental process with parents; the parents' performance level in correctly using the mand-model teaching method in the pre-intervention group increased significantly after the researcher provided parental coaching. At the same time, in the control group, where parent coaching support was not provided, no increase was observed in the parents' correct use of the mand-model teaching method. This result was confirmed by the fact that there was no increase in the level of correct use of mand-model teaching among participants who did not receive instruction, and that this effect was repeated among different participants who joined the study later. In the experimental process with children with ASD, the first target was the group's performance level on social skills in the assessment sessions conducted before teaching. The implementation of mand-model teaching by parents showed no increase in levels of other social skills where mand-model teaching was not applied, and this effect was replicated across other behaviours targeted in the study.

Participants

Children with ASD and their parents participated in the study. The children with ASD were four preschool-aged children whose education was enforced within a department at a university in Turkey. The prerequisites for the children with ASD to participate in the study were: (a) being in the preschool period, (b) being between the ages of four and six, (c) having an ASD diagnosis, (d) maintaining eye contact with another person for at least ten seconds, (e) directing attention to an activity for one to two minutes,

(f) understanding and following instructions that require at least one action and (g) expressing desires using two or more words. The assessment of these prerequisite skills was conducted through interviews with the children's parents and observations. One of the assessment tools used in this study, the Gilliam Autism Rating Scale-2 (GARS-2), evaluates children's autism symptoms in three subdomains—repetitive behaviours, communication and social interaction. Scale items were scored on a scale of 0 to 3, and the raw scores obtained were converted into a standard score called the Autism Index (AI). The GOBDÖ-2 Autism Index is interpreted in three categories to classify the likelihood of autism: scores of 69 and below are considered "autism unlikely," scores between 70 and 100 are considered "autism possible," and scores of 101 and above are considered "autism very likely". This structure allows the scale to be reliably used both diagnostically and in research to determine the level of autism symptoms. The researcher used the Gilliam Autistic Disorder Rating Scale-Turkish Version (GARS-2-TV; Diken et al., 2011) to assess the children's current autism levels. The language and social communication skills of the children participating in the study were assessed through systematic observations conducted in natural interaction settings at the beginning of the study. A standard language test was not administered to determine the participating children's language levels; instead, direct observation data that reflected the children's daily communication behaviours more accurately were used. These observations formed the basis for determining the participants' readiness levels for the mand-model instruction and defining the target behaviours.

C1 (chronological age: 56 months). As a result of the GARS-2-TV assessment, this child received a total of 96 autism disorder index points. C1 received 12 hours of small-group education and eight hours of individual education per week. C1 expressed his requests to his peers and adults using at least two-word sentences. He could focus his attention on an activity for at least two minutes. C1 had no physical impairments and was able to follow instructions that required two or more actions. He demonstrated performance similar to his peers in gross motor skills. He could dress, eat, wash his hands and face, and use the toilet independently; however, he required partial physical assistance from an adult for post-toilet cleaning.

C2 (chronological age: 66 months). As a result of the GARS-2-TV assessment, she scored 78 points on the autism disorder index. She received 12 hours of small-group education and four hours of individual education per week. C2 was able to follow instructions that required two or more actions. She could express her requests using two or more words. She was able to focus on an activity for more than three minutes. She could name numbers and distinguish and name primary colours and geometric shapes. C2 independently performed dressing, eating and hand-washing skills. She had no physical impairments, and her gross motor skills were at the same level as those of her peers. She required verbal support from the parents to develop toilet-cleaning skills.

C3 (chronological age: 67 months). As a result of the GARS-2-TV assessment, she scored 86 on the autism spectrum index. She received 12 hours of small-group education and eight hours of individual education per week. She could express her

requests using three- to four-word sentences. She was able to follow instructions that required two or more actions. She was independent in eating, dressing, washing her hands and face, using the toilet and other skills.

C4 (chronological age: 61 months). His GARS-2-TV autism spectrum disorder index score was 72. He received four hours of individual education per week. He could follow instructions that required two or more actions and expressed his needs using three- to four-word sentences. He could focus his attention on an activity for at least 5 minutes. His speech was fluent and understandable. He had no physical disabilities. He moved independently of adults in skills such as walking, running, jumping, hopping and climbing stairs. He independently distinguished and named the numbers, colours and geometric shapes. He independently performed dressing, eating, toileting and post-toilet cleaning skills.

Four parents participated in the study. The prerequisites for parents to participate in the study were: a) voluntary participation, (b) no systematic, education-oriented training in the past based on a mand model, (c) availability of at least one hour per day for three days a week to participate in the study. Whether parents met the above prerequisite criteria was determined through individual interviews. Prior to the commencement of the study, an ethical approval certificate was obtained from the Ethics Committee of the Faculty of Social and Human Sciences at Anadolu University, stating that there were no ethical objections to conducting the study (Protocol No: 106875). All parents were requested to sign a voluntary participation form for themselves and a guardian consent form for their children. Demographic information about the participants is presented in Table 1.

Table 1
Demographic information about the participants

Children			Parents			
Code Name	Chronological Age	Gender	Code Name	Age	Gender	Level of education
C1	66 M	Male	P1	28	Female	Undergraduate
C2	56 M	Female	P2	44	Female	Undergraduate
C3	67 M	Female	P3	33	Male	Undergraduate
C4	61 M	Male	P4	39	Male	Undergraduate

Abbreviations: C: Children, P: Parent, M: Months

Dependent and independent variables

The study had two separate dependent variables for parent and child participants. For the parents, the dependent variable was the correct implementation of the teaching steps for social skills to their children through mand modelling; for children with ASD, the dependent variable was the acquisition level of targeted social skills. The study included two independent variables. These were the observation-based coaching process provided to parents by the researcher and the teaching through the mand model

provided by parents to their children. Observation-based coaching involved observing the methods, techniques or strategies learned during training (Hu & van Veen, 2020).

Settings and materials

The study was conducted in an individual research laboratory within the Developmental Research Unit of a university in Turkey. The laboratory is a standard educational environment equipped with a desk-chair arrangement, a smart board and basic teaching materials. Parent education sessions were conducted in a separate laboratory with similar features within the same unit. Video cameras, tripods and recording forms prepared by the researcher were used to collect data during all sessions. The teaching materials used in the intervention were selected to suit the children's interests and developmental needs. They consisted of various structured and natural objects that would support the target social communication behaviours. The materials were not listed in detail but were only classified under categories appropriate to the teaching objectives.

Data collection and analysis

Data on the social skills of children with ASD were collected using a controlled event recording method. When the child was allowed to demonstrate the skill, the target behaviour was considered present if they exhibited the specified social skill. A (+) sign was placed in the corresponding box on the controlled event recording form. When the child did not respond to the opportunity provided or responded incorrectly, the targeted social skill criterion was not met, and the behaviour was considered absent, and a (-) mark was placed in the corresponding box of the controlled event record form. The skills analysis record collected data on parents' ability to apply teaching through requesting and modelling correctly.

The correct behaviours exhibited by the parent while applying the mand-model teaching method were marked with a (+) symbol in the relevant section of the record form. In contrast, incorrect behaviours were marked with a (-) symbol. The percentages of correct responses were calculated. The effectiveness data obtained were analysed graphically.

In the study, generalization data were obtained for both parents and children with ASD in the form of person and environment generalization. Generalization data were collected following the same process as the group assessment sessions, and the obtained data were analysed using skill analysis records and presented on a pre-test/post-test graph.

The Interaction Assessment Record Form-Turkish Version (EDKF-TV) was used to determine how parent coaching and the mand-modelling approach used in teaching their children affected the interactions between parents and children with ASD. The EDKF-TV is a measurement tool used to assess the social interaction skills of children diagnosed with ASD or at risk of ASD in semi-structured play environments with systematically implemented stimuli, and it measures both spontaneous and

adult-predetermined responses. (Aksoy ve Diken, 2016; Krug et al., 2008). EDKF-TV is a measurement tool included in the Autism Screening Instrument for Educational Planning-3 (ASIEP-3) developed by Krug and colleagues (2008). The validity and reliability studies of the Turkish version of the EDKF were conducted by Aksoy and Diken (2016). The KR-21 value for the reliability coefficient of the measurement tool was .83. A t-test was used to assess the scale's construct validity. The results of the analysis were as follows: interaction ($t = 4.76(88)$, $p < .01$), constructive independent play ($t = 1.65(88)$, $p > .01$), indifference ($t = 4.05(88)$, $p > .01$), and negative aggression ($t = 1.80(88)$, $p < .01$).

EDKF-TV consists of three separate four-minute sections and is conducted in a semi-structured play environment within a 12-minute uninterrupted period. When using EDKF-TV, an adult and a child had to be present in the environment. In the first section, the adult modelled for the child. In the second section, the adult waited without responding, and in the final section, the adult provided instructions to the child. The child's responses during this process were recorded in the appropriate category: interaction, constructive/independent play, passivity and hostile/aggressive. A total of 48 observations were made during the 12-minute session, with four observations per minute. At the end of the test, behaviour scores were generated from the categories mentioned above, and an Autism Interaction Score (AIS) was calculated from these scores (Krug et al., 2008).

Social validity data were collected to determine the extent to which parent coaching and parent-led demand-modelling instruction were effective in helping children acquire the targeted skills and in improving parents' correct implementation of demand-modelling instruction. To collect social validity data for this study, subjective assessments were used with parents, and a social comparison approach was used with children with ASD.

Subjective assessment data were collected through semi-structured interviews with parents participating in the study before and after the study ended. To determine parents' views on the extent to which the social skills (planned to be) taught to children with ASD were functional and meaningful, a pre- and post-study parent social validity interview form was used. The researcher prepared the aforementioned interview forms and obtained expert opinions from five doctoral-degree specialists in special education via email to establish the content validity of the interview questions. The final form of the interview was determined based on the experts' suggestions. The data obtained from the interviews were analysed descriptively.

Performance data on the social skills taught to participants were collected using a social comparison form from 12 children of the same age as those with ASD who showed average development. While collecting the data, the researcher organised sessions to measure all three skills for each child and created opportunities for the children to respond during these sessions. The aforementioned process was conducted as a pre-test and a post-test at the beginning and end of the study. The data obtained from 12 typically-developing peers were quantitatively evaluated and analysed graphically.

Two types of reliability data were collected in this study. These data are divided into (a) inter-observer agreement (IOA) data and (b) implementation fidelity data. IOA data were collected by recording all study sessions with a video camera. IOA calculations were performed on 30 % of the study sample. To analyse IOA data in the study, the formula 'agreement/agreement + disagreement \times 100' was used (Gast & Ledford, 2014). The IOA data collected during the study showed high and consistent reliability levels across all sessions. For three of the four children, the reliability rate was calculated as 100 % across all assessment, intervention, follow-up and generalization sessions. For the other child, reliability rates ranged from 80 % to 100 %. Overall, the high IOA values support the reliability of the measurement procedures used in the study.

IOA data were collected for 30 % of each phase in all sessions conducted with children with ASD. The lowest IOA coefficient obtained in the study was 80 %, and the highest implementation fidelity coefficient was 100 %. IOA data for parent coaching sessions showed high consistency throughout the research process. For three out of four parents, reliability rates were calculated as 100 % for the assessment, intervention, follow-up and generalization sessions. Although the reliability rates for one parent in the intervention and follow-up sessions were 80 % and 85.7 %, respectively, the overall average was above 96 %.

The lowest IOA coefficient obtained in the study was 85.7 %, and the highest implementation fidelity coefficient was 100 %. The calculated highest implementation fidelity coefficients for P1, P2, P3 and P4 were 96.42 %, 100 %, 100 % and 96.42 %, respectively.

The observer collected implementation reliability data by observing 30 % of the mand-model free teaching implemented by the parents in each phase of the study. The parents' highest implementation fidelity percentage was calculated from the checklist containing the mand-model free teaching implementation criteria determined prior to the start of the study. The highest implementation fidelity data were analysed using the formula 'observed practitioner behaviour/planned practitioner behaviour \times 100' (Erbaş, 2012). IOA data for parent-coaching sessions conducted by the researcher were calculated as 100 % across all session types. The fact that complete agreement was achieved among observers in all check-in, intervention, follow-up and generalization sessions demonstrates that the measurement and evaluation procedures used in the coaching process have extremely high reliability. The average implementation reliability coefficient obtained from the researcher's parent coaching implementation was 100 %. The lowest implementation reliability coefficient obtained from the parents' interventions was 85.7 %, and the highest was 100 %. The calculated implementation reliability coefficients of the parents were 100 %, 100 %, 96.42 % and 100 %, respectively.

Implementation

The pilot implementation was carried out with a child diagnosed with ASD who received training from the Developmental Support Unit and the child's mother. During the pilot implementation, the researcher evaluated whether the parents understood the

sample videos prepared by the researcher on the implementation of the mand-model instruction and identified the problems they might encounter when using mand-model instruction tools and materials. Moreover, adjustments were made as necessary. In the mand-based teaching implementation, it is recommended that activities that attract the common interests of participants with ASD be included. Therefore, before the study's experimental process began, the children's common interests were identified by observing them and obtaining the opinions of their parents and teachers, and a preference assessment was conducted.

The researcher provided training to parents of children with ASD to enable them to teach targeted social skills using mand-model instruction. This educational process was defined as the parent-coaching process, which would continue throughout the study. Parental coaching was implemented in the following stages: (a) parent training process, (b) live feedback after the trial and (c) post-session evaluation. The first stage, the parent education process, was conducted after the initial-level sessions, during which the researcher explained to the parents how they could teach the targeted social skills using the mand-model teaching method.

Parent education sessions were conducted individually. The first stage of the parent training process involved the coach showing the parents two or three video examples of how they had taught the target social skills to a child with ASD using the mand-model. The researcher presented a brochure to the parents outlining their expectations during the social skill teaching phase using the mand-model teaching method, reviewed the brochure with them and explained the importance and necessity of the selected social skills for their children's lives. At the end of this process, the researcher asked the parents if they had any questions about the implementation of the mand-model, and the researcher answered them, thus concluding the parent education process. The second stage of parent coaching was a live feedback process after the trial. In these sessions, the training coach asked the parents to apply the teaching of the targeted behaviour to their children using the mand-model approach. The parents conducted a trial of teaching social skills using the mand-model approach. After this trial, the training coach verbally reinforced the parents' appropriate behaviours. Before moving on to the second trial, the coach asked the parents whether they could do it. If the parents requested help, the teacher intervened and applied the mand-model teaching method by acting as a live model for the parents. If the parents stated that they could perform the implementation in other trials, the education coach did not intervene.

The final stage of the parent coaching process was the post-session evaluation process. This stage was carried out immediately after each mand-model teaching session, with feedback provided by the coach. In this process, the coach first answered the parent's questions. Then, a video of the parent applying the mand-model teaching was watched together with the coach. While watching the video, the steps the parent did correctly were pointed out and verbally reinforced; explanations were provided for how to correctly perform the steps the parent did incorrectly, along with examples.

The pilot intervention was carried out with a child diagnosed with ASD who received training from the Developmental Support Unit and the child's mother. During the pilot intervention, the researcher evaluated whether the parents understood the sample videos prepared for the intervention on mand-model teaching, identified any problems they might encounter with the teaching tools related to mand-model teaching, and made necessary adjustments. In the mand-model intervention, it is recommended that activities that appeal to the common interests of the participants be included. Therefore, before the experimental phase of the study began, a preference assessment had been conducted by observing the children and consulting their parents and teachers to identify the activities they had been interested in.

Experimental process

Five trials were conducted in which parents could use mand-model teaching during group probe sessions, and their levels of correct implementation were evaluated. Thus, the levels of parents' ability to correctly apply mand-model teaching before and after the coaching were determined. The researcher did not provide any hints or feedback to the parents during the group probe sessions, wherein each parent used pre-determined tools to conduct five trials for each of the three targeted skills for their children, and the children's responses during these trials were evaluated. Thus, children's performance levels regarding the social skills of 'asking for objects,' 'asking for help,' and 'saying thank you' were assessed before and after the implementation of teaching via the mand model. During group observation sessions, parents did not provide any cues or feedback to their children.

Parents and children sat together in an environment equipped with tools that allowed parents to teach by making requests without modelling, and they began to apply the steps of this kind of teaching as they learned the skills with their children. The parent attracted the child's attention by using activities and tools that interested the child. If the child showed interest in the activity or tool, the parent asked questions such as 'What is this?' or 'What do you want?' and waited for the child's response. The child's correct response in this process was reinforced, and he/she was allowed to reach the activity or tool. If the child responded incorrectly or did not respond at all, the parent modelled the correct response and waited for the child to imitate them. After modelling, the parent reinforced the child's correct response. While the parent applied teaching through requesting and modelling, the researcher observed their behaviour and recorded the steps that were performed correctly on the data recording form (+); steps that were performed incorrectly or incompletely were marked (-).

During the group assessment sessions for targeted skills, the parent drew the child's attention to the activity or game. After observing whether the child was ready to begin, the parent verbally reinforced any response indicating readiness. The parent placed the object related to the skill so the child could see it and gave instructions. The parent allowed the child to interact with the object and waited for five seconds

for the child to respond to the instructions. After the child gave the correct responses during the sessions, verbal reinforcers were provided, and a '+' sign was placed on the data collection form. The child's incorrect responses and lack of response during the trials were recorded on the data collection form with a '-' sign. No error correction was made for incorrect or missing responses, and the trial was continued. At the end of the trials, the parent reinforced the child.

The skill of using the mand model was taught to parents through individual teaching sessions. In these sessions, the parent was first shown two or three video examples of the coach teaching the targeted social skills to a child with ASD using mand-model instruction. Then, the researcher presented a brochure outlining what was expected of parents when teaching social skills via the mand-model approach and reviewed it with the parents. Parents were informed why the selected social skills were important and necessary for their children's lives. At the end of this process, the researcher asked the parents whether they had any questions about implementing the teaching process using the mand-model approach, and answered them. After this process, the researcher asked the parent who had taken on the role of the student to teach them skills using the mand-model teaching method. At the end of the process, the researcher discussed the correct and incorrect behaviours with the parent and then ended the session.

During the teaching sessions for the targeted skills, the parent attracted the child's attention with activities or games. Then, after observing whether the child was ready to work, the parent verbally reinforced any response indicating that the child was ready. The parent placed the object related to the skill in a place where the child could see it and gave the child instructions. They allowed the child to interact with the object and waited five seconds for the child to respond to the instructions. When the child responded appropriately to the skill (e.g., a verbal or gestural response indicating that they wanted paint), the parent initiated communication related to the skill (e.g., 'What do you want?') and waited for the child to attempt to communicate. If the child showed the expected communication attempt (e.g., 'Can you give me the paint?'), the parent confirmed the child's response and allowed the child to use the desired object. If the child did not show the expected communication initiative (e.g., 'Can you give me the paint?') on their own, the parent modelled the correct behaviour (e.g., 'Can you give me the paint?') and, when necessary, provided additional cues by pointing to the object with their finger. All cues were gradually faded over time. Verbal reinforcers were provided for the child's correct responses, and a '+' sign was placed on the data collection form. The child's incorrect responses and lack of response during the trials were recorded on the data collection form with a '-' sign. Until acquisition was achieved, continuous reinforcement was used for each correct response the child gave. Then, reinforcement fading was applied. Following this process, five trials were conducted in one teaching session. The teaching sessions were continued until stable data were obtained.

Generalisation sessions were conducted across different environments, and generalisation regarding persons was assessed after the criteria for learning the

relevant dependent variable were met for both children with ASD and their parents. In environment generalisation, it was evaluated whether the skill acquired outside the classroom where the study was conducted could be demonstrated; in generalization regarding persons, parents were evaluated on their ability to apply the learned mand-model teaching method with a child other than their own.

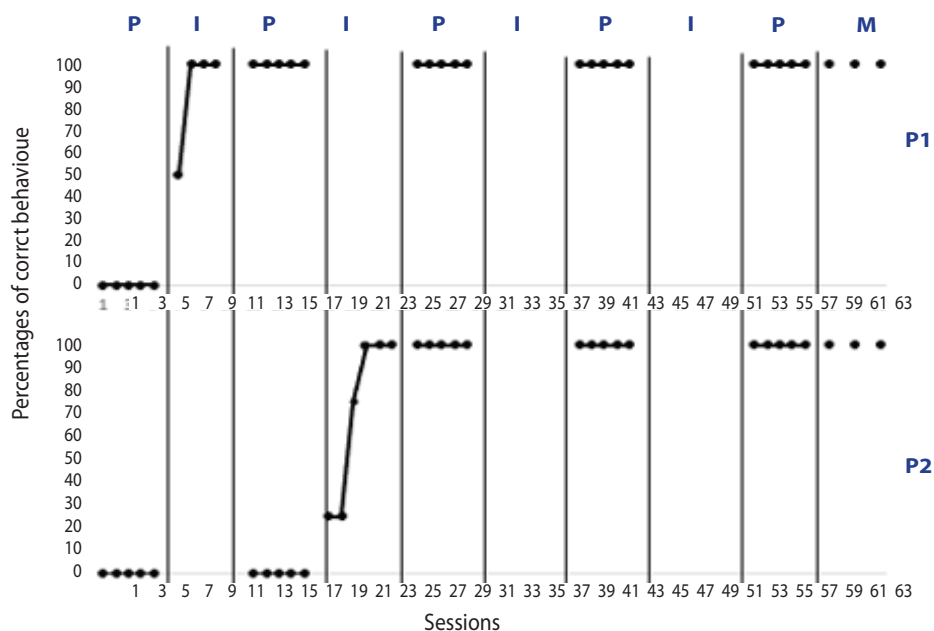
Follow-up sessions were conducted in the second, fourth and sixth week after the parents used the mand-model teaching method. The children met the specified criteria for the targeted social skills, and the teaching was completed. The exact process, as in the group assessment sessions, was followed in the monitoring sessions.

Results

Results regarding the parents

Results regarding the effectiveness of parent coaching

Results on the effectiveness of parent coaching showed that all four parents applied the mand-model teaching method with high accuracy throughout the intervention process. Initially, all parents performed at 0 % accuracy, but significant progress was evident as the intervention progressed. P1 and P3 reached an average accuracy of 100 % in the teaching sessions and maintained this level during follow-up. P2 and P4 achieved an average accuracy of 95 % during intervention, and both sustained 100 % accuracy for three weeks in follow-up sessions. These results suggest that the instructional support provided in the parent coaching program consistently enhanced parents' skills in applying the mand-model method. Findings on the influence of parent coaching on their use of the mand-model teaching method are shown in Figure 1.



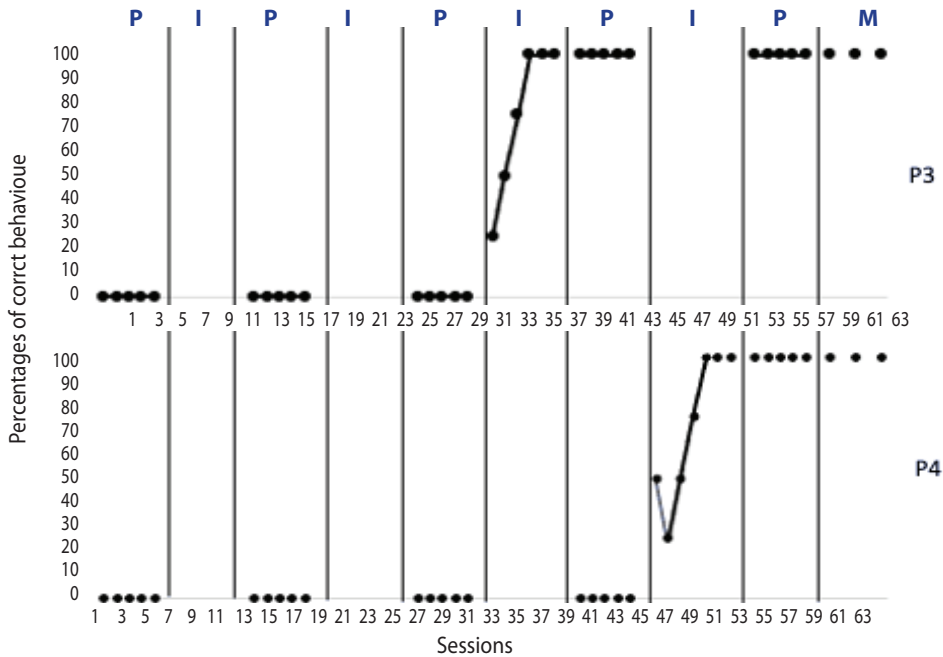


Figure 1. Findings on the effectiveness of parent coaching on parents' use of the mand-model

Results on generalization regarding the parents

Generalization results revealed that all parents made significant progress in both generalization regarding persons and environment. P1, P2 and P4 performed at 0 % in the persons generalization pre-tests but achieved 100 % success in the post-test; P3 performed at 25 % in the pre-test and reached 100 % in the post-test. Similarly, when examining the environmental generalization data, P1, P3 and P4's performance levels of 0 % in the pre-test rose to 100 % in the post-test; P2's performance level of 25 % in the pre-test rose to 100 % in the post-test. These findings show that parents can sustain the skills they have learned not only in the other teaching environments but also with different people and in new contexts. The findings on generalization regarding the parents are shown in Figure 2.

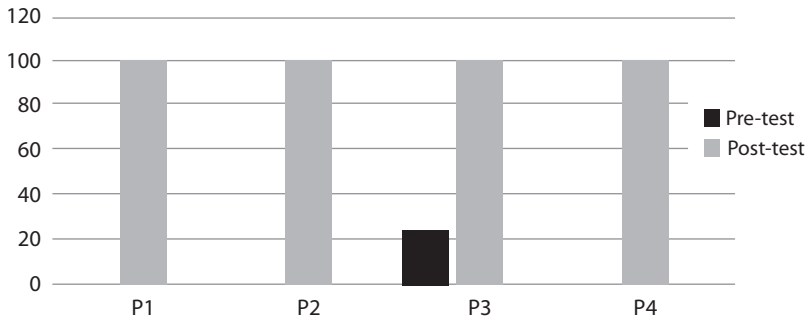


Figure 2. Generalization data regarding the parents

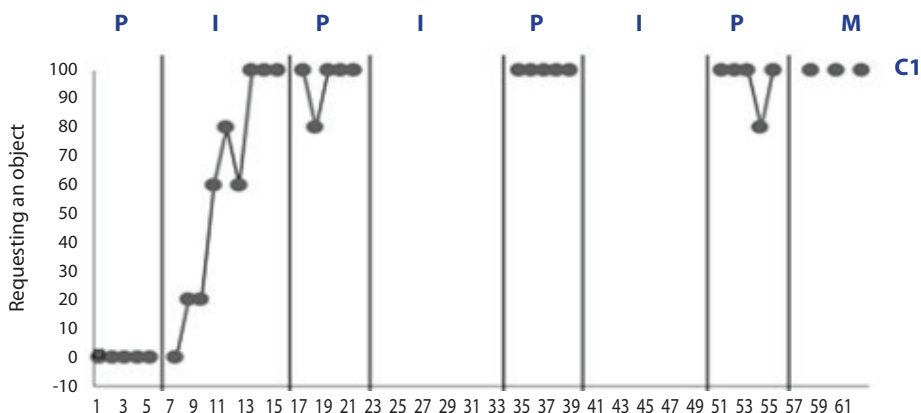
Social validity results regarding the parents

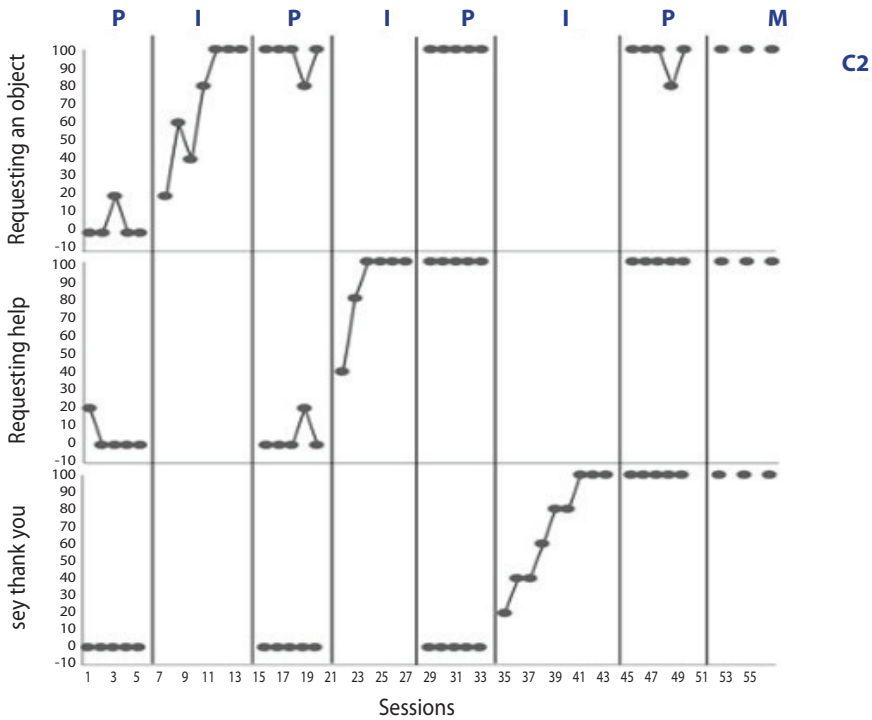
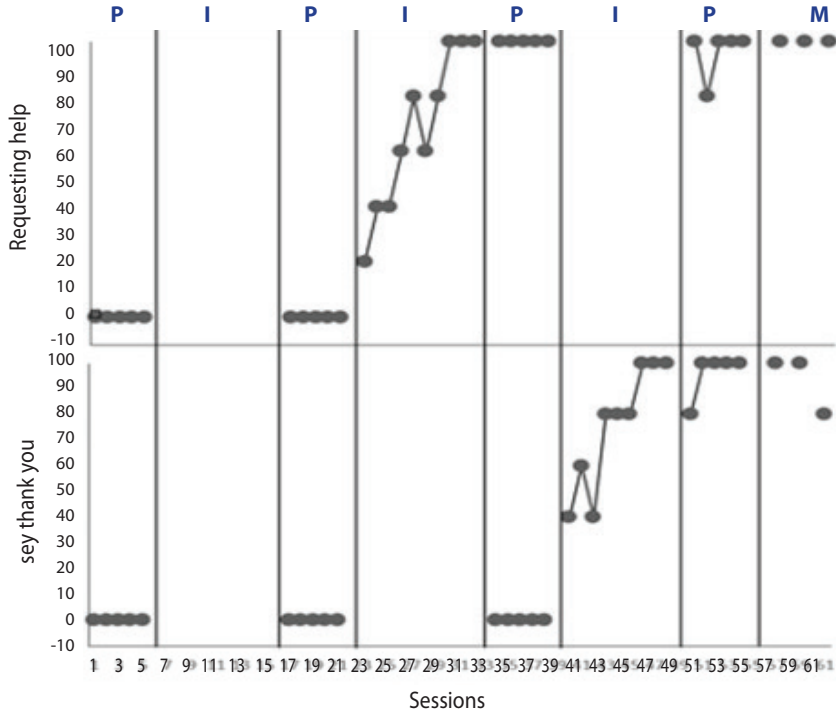
Data obtained from semi-structured interviews show that parents developed positive perceptions of the implementation. Parents stated that learning the mand-model teaching improved their children's communication skills, strengthened family communication and enhanced their capacity to support their children in daily life. They also indicated that their children's social skill acquisition would support peer relationships, increase their self-confidence and raise their level of social acceptance. Parents stated that they did not find the teaching process uncomfortable or challenging; on the contrary, they stated it had a positive influence on their communication with their children. These results show that the intervention had a strong social validity profile.

Results regarding children with ASD

Results on the effectiveness of the targeted social skills

Results regarding children show that the mand-model teaching method is highly effective in developing three targeted social skills (requesting an object, asking for help and expressing gratitude). C1, C2 and C3 showed 0 % or 5 % performance at the initial level in all skills, but quickly reached high accuracy levels with the start of the intervention process. C1 showed an average performance of 96 % in requesting an object, 100 % in asking for help and 96 % in saying thank you after the intervention. C2 showed an average accuracy of 96 % for requesting objects, 100 % for requesting help and 100 % for expressing gratitude. C3 achieved an average accuracy of 96 % for requesting objects and expressing gratitude, and 100 % for requesting help. C4's performance was also significantly higher than before the intervention, ranging from 96 % to 100 % across all skills. During the follow-up sessions, all children maintained their performance in the targeted skills and largely achieved 100 % accuracy. These findings indicate that mand-model teaching produces great and lasting behavioural changes in a short period of time. The targeted social skills of children with ASD are presented in Figure 3.





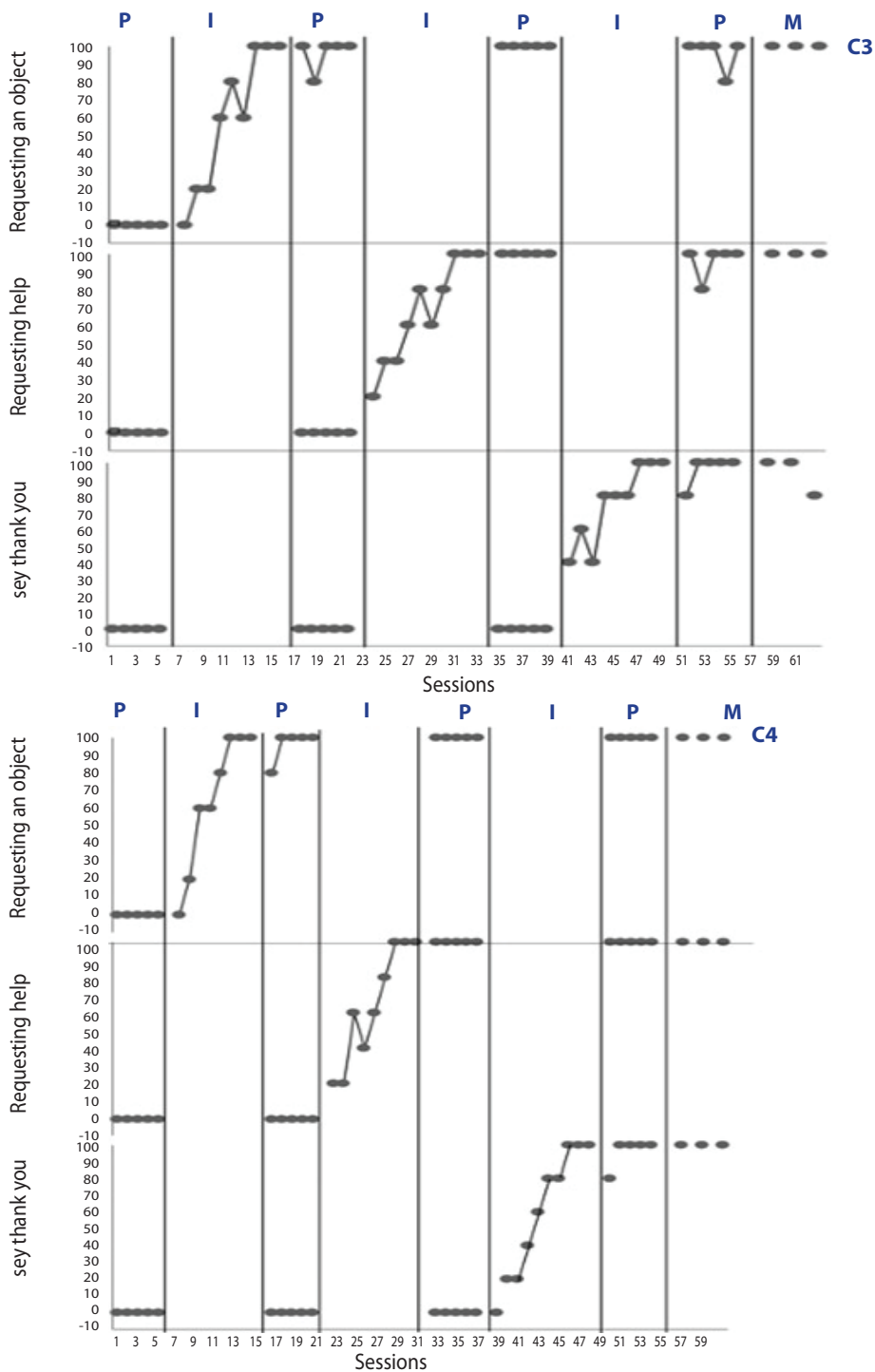


Figure 3. Findings on the effectiveness of mand-model instruction provided by parents on the targeted social skills of children with ASD

Results on generalization regarding the children

When the generalization data were examined, it was observed that all children performed significantly above their initial levels in both generalization regarding persons and environment. C1, C2 and C3 reached 100 % in the post-test for generalization regarding persons, compared to 0 % in the pre-test; C4 increased from 20 % to 100 % in generalization regarding persons. In context generalization, C1 increased from 20 % to 100 %, while the other three children (C2, C3, C4) increased from 0 % to 100 %. These results show that children can continue to use the skills they have learned with new people outside the teaching environment and in different contexts. Figure 4 shows the generalization results.

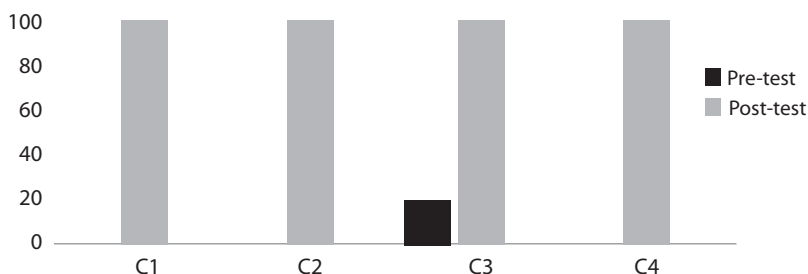


Figure 4. Results on generalization regarding the children with ASD

Social comparison results

Social comparisons with typically developing peers revealed that children with ASD demonstrated significantly lower performance than their peers in three social skills prior to the intervention. Post-intervention measurements showed that the performance of children with ASD in requesting objects, asking for help and expressing gratitude reached peer level. These findings indicate that the program created a socially meaningful and functional change. Figure 5 presents the social comparison findings.

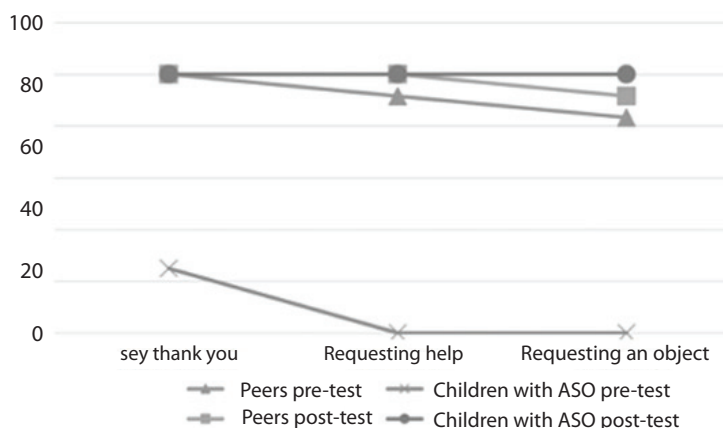


Figure 5. Social comparison data of children with ASD

Results related to the parent-child interaction

Results related to the parent-child interaction revealed that interaction quality increased and unresponsiveness decreased in all couples. The Autistic Interaction Score decreased from 69 to 33 in the P1–C1 pair, from 57 to 32 in the P2–C2 pair, from 66 to 55 in the P3–C3 pair, and from 64 to 49 in the P4–C4 pair. This decrease indicates an increase in the child's active participation and level of reciprocal interaction during parent–child interactions. Figure 6 shows the parent–child interaction scores.

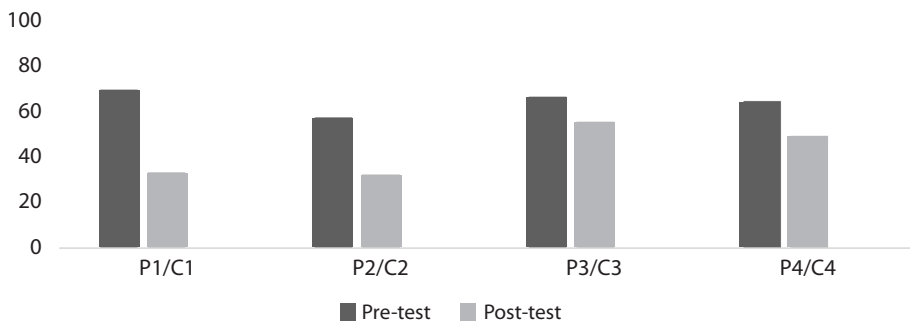


Figure 6. Findings on the effectiveness of the implemented mand-model in the parent-child interaction

Discussion

The results of this study provide strong evidence that parent coaching using the mand model can effectively improve the teaching behaviours of parents of young children with ASD and the social skills development of young children with ASD. Consistent with previous research emphasising the importance of parent-mediated interventions (Oono et al., 2013; Patterson et al., 2012), the findings indicate that parents can reliably learn and generalise evidence-based teaching strategies and continue to use them over time, even after structured support ends. Furthermore, findings regarding parents' use of teaching through the mand model are consistent with findings from studies in the literature indicating that parents provide skills and behaviour instruction to their children with ASD when they receive parental coaching support (e.g., Barnett et al., 2015; Benson et al., 2018; Rogers et al., 2019; Siller et al., 2018).

One of the most important findings of the study is that all parent participants not only acquired mand-model teaching but also generalised it to different contexts. This finding suggests that the parent coaching programme is effective in promoting the flexible, situationally adaptable instruction necessary to support children with ASD in real-life settings (Ingersoll & Wainer, 2013). Additionally, the sustainability of skills after the instruction reaffirms the positive effects of the parent coaching programme (Stahmer & Pellecchia, 2015).

Results regarding children with ASD indicate that the acquisition, sustainability and generalisation of the targeted social skills (requesting objects, asking for help and expressing gratitude) indicate that the intervention has a meaningful impact on

children's development. These findings are consistent with previous studies showing that the mand-model strategy implemented by parents can lead to significant gains in social skills in children with ASD (Schreibman et al., 2015). Furthermore, improvements in parent-child interactions before and after the intervention support the idea that enhancing parents' teaching skills may have broader relational benefits and that targeted skills development may influence general social interaction.

The social validity findings from this study are thought to strengthen the study's results further. Parents reported high levels of satisfaction with the intervention process and outcomes. This indicates that the parent coaching programme is not only practical but also acceptable and feasible for families in their daily lives. In addition, findings showing that children with ASD exhibit social behaviours similar to those of typically developing peers indicate the potential of parent-mediated interventions provided in early childhood to address social skill deficits, which is one of the primary goals of autism intervention research (National Research Council, 2001).

In the literature, two main types of coaching support have been identified in studies conducted with parent coaching: side-by-side coaching and observation-based coaching (Goodman et al., 2008). In this study, parents received observation-based coaching support. During the research process, adopting this type of coaching helped maintain the flow of the implementation, prevented the parent or child from losing focus, reduced anxiety and pressure for parents who were not present during the implementation and contributed to a clearer understanding of the implementation steps. It is believed that this enabled parents to learn how to teach the target skills with fewer teaching sessions (Rodgers et al., 2019). In addition, the practitioner was able to observe the parent without interrupting them during the teaching session and had the opportunity to engage in more extended discussions with the parents after the session. This is consistent with the findings of studies that used observation-based coaching (Meadan et al., 2023).

In the study, the environment in which parents taught their children skills was structured/clinical. There are several reasons for using a clinical/structured environment in this process. The first is that parents' preferences regarding the teaching environment were to carry out the teaching process immediately after the days and hours when their children were already receiving education, and they stated that they were not ready to teach in natural teaching environments. Other reasons include the difficulty of controlling environmental variables likely to occur in natural settings, the need to obtain official or private permission for video and audio recording, the risks involved in transporting individuals to settings where skills will be performed and the time and financial losses that may arise. Finally, children with ASD can acquire the social skills targeted for them through adaptations made in structured environments as part of a natural process. (For example, expecting them to demonstrate the skill of saying thank you by creating natural opportunities.) From this perspective, conducting the research in a clinical/structured environment can be seen as an advantage.

To determine whether the teaching processes parents provided to their children predicted their level of social interaction, 12-minute social interaction sessions were conducted before and after implementation, and these sessions were observed and scored using EDKF-TV. The results of the evaluations revealed a positive and significant relationship between the levels of reciprocal social interaction of all ASD child-parent participant pairs and the implementation. In parallel, it was determined that the autistic interaction scores of all children decreased significantly compared to before the study. Based on these findings, although the study was conducted in a clinical setting, it was determined that the results of the study were reflected in activities carried out in a natural play environment and that there was a positive contribution to social interaction skills, one of the most decisive diagnostic criteria for children with ASD (Mundy et al., 2010). A review of the literature revealed no studies examining the level of reciprocal social interaction between parents and their children when parents taught their children skills or behaviours.

The results of this study were interpreted using an analytical generalization approach, appropriate for single-subject experimental designs. In single-subject research, reliable results are achieved by repeatedly replicating the intervention effect across different participants. The findings in this study show patterns similar to those in previous studies that demonstrate the effectiveness of mand-model and parent-mediated naturalistic teaching interventions (e.g., Warren et al., 1984; Peterson, 2004; Meadan et al., 2013). Therefore, although the findings do not aim for statistical generalization, they support both theoretical and practical validity by aligning with existing literature.

Limitations

The study is limited to the characteristics of the coach (researcher), four parents (two mothers and two fathers) and four children with ASD (two boys and two girls). The effectiveness of the research was only demonstrated in terms of the levels of mand-model teaching approach used by the parents, the social skills levels of children with ASD in requesting objects, asking for help and expressing gratitude, and the levels of parent-child interaction. The parent coaching implementation used in the study was limited to observation-based coaching.

Future research

Based on the researcher's observations during implementation, some recommendations and implications for future research are given. The single-subject multiple-probe design was used in this study to evaluate the effectiveness of the implementation process on the skills acquisition of four parents and four children with ASD. Single-subject research methods are semi-experimental approaches that aim to establish experimental control while taking precautions. However, because there was no separate experimental and control group during implementation, it is not possible to speak of a complete experimental relationship in these methods. Therefore, the effectiveness of the implementation could be more strongly proven with a more comprehensive, entirely experimental study in the future. In this study, the sessions were recorded with a video

camera and a tripod in the classroom where the parents and children were present. In this case, the children sometimes directed their attention to the camera, eventually becoming indifferent to it. To prevent this, future research could be conducted in an environment using a fixed-camera recording system. In this study, the parent coaching implementation showed parents example videos on a smart board and taught them only one teaching method. To promote parents' assumption of an instructional role, future studies could develop a parent coaching module that includes a variety of tools and a software programme that teaches multiple techniques. This module could be shared with parents of children with deficiencies to reach a wider audience.

The following suggestions may be considered in future research. This study evaluated the effectiveness of the parent coaching implementation on parents' use of the mand-model teaching method. It is known that there is a wide variety of methods and techniques that parents of children with disabilities, including ASD, can easily apply in their children's education. In future research, the effectiveness of the parent coaching programme on parents' use of different teaching methods, techniques and strategies can be examined to help parents become more effective educators. In this study, children were taught social skills such as requesting objects, asking for help and expressing gratitude. These skills were determined to be functional and priority skills for children with ASD based on pre-research interviews with parents and observations of children. However, another issue that parents considered important in the lives of children with ASD was behavioural problems. Parents do not know how to apply methods and techniques that would help them deal with their children's behavioural problems or find it challenging to apply them. In future studies, it may be possible to reduce behavioural problems in children with ASD by teaching parents behavioural modification methods and techniques with the support of parent coaching. In this study, parents were the primary focus. However, the immediate environment of children with disabilities is not limited to their parents. Considering that every moment spent with people in the child's immediate environment is a teaching opportunity, future studies could involve other family members (siblings, grandparents, etc.) or caregivers/teachers to enable them to take on an educational role in the lives of children with disabilities. In this study, parent coaching was used to teach parents how to use the mand-model in teaching. However, adult teaching methods are not limited to coaching. In future studies, a different adult education model could be used to teach parents, and the results could be compared with parent coaching in terms of effectiveness and efficiency. In this study, the parent coaching implementation used observation-based coaching. The limitation of this method is that both the parent and the practitioner must be in the same environment during the coaching process. In other words, in a school-based implementation, the parent and child must go from home to school; in a home-based implementation, the parent coach must go to the child's home. This process poses challenges in terms of transportation costs and time losses. With the advancement of technology, various technological software and devices have become available for use in the coaching process. Future studies may include coaching conducted remotely with

the support of technology. This study was conducted in a clinical setting in order to facilitate the control of the experimental process and coordinate the study schedule more easily, given the presence of children with ASD who were at the time continuing their education at the university unit. In addition to the advantages of the clinical environment, working in natural environments is also important because it makes it easier to generalise the acquired skills/behaviours. Therefore, in future research, it may be possible to conduct a study in natural environments such as children's homes or outdoor settings.

Conclusion

The study aimed to examine the effects of the researcher-provided parent coaching programme on parents' ability to learn, sustain and generalise teaching using the mand-model approach. Furthermore, the study investigated the effects of the parents' use of the mand-model approach on the targeted social skills (requesting objects, asking for help and expressing gratitude) of children with ASD in the early childhood period. Additionally, this study examined whether the interaction between parents and children with ASD differed significantly from the pre-study level at the end of the experimental process. Finally, the study sought to establish the research's social validity by assessing the parents' views before and after implementation and by comparing children with ASD with their typically developing peers on social measures.

The study's results showed that all parent participants learned to use mand-model teaching, used the teaching method reliably after a specific period of time following the end of the study and generalised it to different conditions. When the research results were examined in terms of children with ASD, it was observed that all child participants acquired the skills of requesting the object targeted for themselves, made partial requests, expressed gratitude, and that they were able to perform these skills after a specific period of time following the end of the research and generalise them to different conditions. Parent-child interaction measurements conducted before and after the study showed significant positive differences. The study's findings regarding social validity indicate that the intervention was satisfactory for parents and that children with ASD exhibited social skills characteristics similar to those of typically developing peers.

Acknowledgments

Ethics Committee Approval Information: This research was conducted with the approval of the X University Scientific Research and Publication Ethics Committee for Social and Human Sciences, dated 28/11/2018, protocol number 106875.

Conflict of Interest: The authors have no conflict of interest to declare.

Author Contribution: Both authors were involved in the planning and reporting of the research; the first author was responsible for data collection, analysis, and writing of the findings.

References

- Biggs, E. E., & Meadan, H. (2018). Early communication interventions for young children with intellectual and developmental disabilities: The roles of natural communication partners. In *International Review of Research in Developmental Disabilities*, 55, 1–37. <https://doi.org/10.1016/bs.irrdd.2018.08.005>
- Brookman-Frazee, L., Stahmer, A., Baker-Ericzén, M. J., & Tsai, K. (2006). Parenting interventions for children with autism spectrum and disruptive behavior disorders: Opportunities for cross-fertilization. *Clinical Child and Family Psychology Review*, 9(3), 181–200. <https://doi.org/10.1007/s10567-006-0010-4>
- Brown, J. A., & Woods, J. J. (2016). Parent-implemented communication intervention: Sequential analysis of triadic relationships. *Topics in Early Childhood Special Education*, 36(2), 115–124. <https://doi.org/10.1177/0271121416628200>
- Dubin, A. H., & Lieberman-Betz, R. G. (2020). Naturalistic interventions to improve prelinguistic communication for children with autism spectrum disorder: A systematic review. *Review Journal of Autism and Developmental Disability*, 7, 151–167. <https://doi.org/10.1007/s40489-019-00184-9>
- Dufek, S., Vejnoska, S., & Schreibman, L. (2024). *Naturalistic Intervention*. In *Handbook of Early Intervention for Autism Spectrum Disorders: Research, Policy, and Practice* (pp. 255–271). Springer Nature Switzerland.
- Goodman, J. I., Brady, M. P., Duffy, M. L., Scott, J., & Pollard, N. E. (2008). The effects of “bug-in-ear” supervision on special education teachers’ learning unit delivery. *Focus on Autism and Other Developmental Disabilities*, 23(4), 207–216. <https://doi.org/10.1177/1088357608324713>
- Hamilton, K., van Dongen, A., & Hagger, M. S. (2020). An extended theory of planned behavior for parent-for-child health behaviors: A meta-analysis. *Health Psychology*, 39(10), 863. <https://psycnet.apa.org/doi/10.1037/hea0000940>
- Hu, Y., & van Veen, K. (2020). Decomposing the observation-based coaching process: The role of coaches in supporting teacher learning. *Teachers and Teaching*, 26(3-4), 280–294. <https://doi.org/10.1080/13540602.2020.1823828>
- Ingersoll, B., & Wainer, A. (2013). *Teaching social communication to children with autism: A practitioner’s guide to parent training and a manual for parents*. Guilford Press.
- Koegel, R. L., Bimbela, A., & Schreibman, L. (1996). Collateral effects of parent training on family interactions. *Journal of Autism and Developmental Disorders*, 26(3), 347–359. <https://doi.org/10.1007/BF02172479>
- Lee, J. D., & Meadan, H. (2021). Parent-mediated interventions for children with ASD in low-resource settings: A scoping review. *Review Journal of Autism and Developmental Disorders*, 8(3), 285–298. <https://doi.org/10.1007/s40489-020-00218-7>
- Meadan, H., Lee, J. D., Sands, M. M., Chung, M. Y., & García-Grau, P. (2023). The coaching fidelity scale (CFS): Development and evaluation of an observational measure of coaching fidelity. *Infants & Young Children*, 36(1), 37–52.
- Mundy, P., Gwaltney, M., & Henderson, H. (2010). Self-referenced processing, neurodevelopment and joint attention in autism. *Autism*, 14(5), 408–429. <https://doi.org/10.1177/1362361310366315>
- National Research Council. (2001). *Educating cchildren with autism*. National Academy Press.

- Nevill, R. E., Lecavalier, L., & Stratis, E. A. (2018). Meta-analysis of parent-mediated interventions for young children with autism spectrum disorder. *Autism*, 22(2), 84–98. <https://doi.org/10.1177/1362361316677838>
- Nevill, R. E., Lecavalier, L., & Stratis, E. A. (2018). Meta-analysis of parent-mediated interventions for young children with autism spectrum disorder. *Autism*, 22(2), 84–98. <https://doi.org/10.1177/1362361316677838>
- Nigam, R., Schlosser, R. W., & Lloyd, L. L. (2006). Concomitant use of the matrix strategy and the mand-model procedure in teaching graphic symbol combinations. *Augmentative and Alternative Communication*, 22(3), 160–177. <https://doi.org/10.1080/07434610600650052>
- Oono, I. P., Honey, E. J., & McConachie, H. (2013). Parent-mediated early intervention for young children with autism spectrum disorders (ASD). *Cochrane Database of Systematic Reviews*, 8(6), 2380–2400. <https://doi.org/10.1002/ebch.1952>
- Orum-Çattık, E., Yetkin, A. İ., & Diken, İ. H. (2020). Parent-implemented interventions in autism spectrum disorder in early childhood. *Ankara University Education Sciences Faculty Special Education Journal*, 21(3), 589–610. <https://doi.org/10.21565/ozelegitimdergisi.543446>
- Patterson, S. Y., Smith, V., & Mirenda, P. (2012). A systematic review of training programs for parents of children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 6(2), 878–892. <https://doi.org/10.1177/1362361311413398>
- Peterson, P. (2004). Naturalistic language teaching procedures for children at risk for language delays. *The Behavior Analyst Today*, 5(4), 404. <https://doi.org/10.1037/h0100047>
- Rodgers, W. J., Kennedy, M. J., VanUitert, V. J., & Myers, A. M. (2019). Delivering performance feedback to teachers using technology-based observation and coaching tools. *Intervention in School and Clinic*, 55(2), 103–112. <https://doi.org/10.1177/1053451219837640>
- Sandbank, M., Bottema-Beutel, K., LaPoint, S. C., Feldman, J. I., Barrett, D. J., Caldwell, N., Dunham, K., Crank, J., Albarran, S., & Woynaroski, T. (2023). *Autism intervention meta-analysis of early childhood studies* (Project AIM): updated systematic review and secondary analysis. *Bmj*, 383.
- Schreibman, L., Dawson, G., Stahmer, A. C., Landa, R., Rogers, S. J., McGee, G. G., Casari, C., Ingersoll, B., Kaiser, A. P., Bruinsma, Y., McNerney, E., Wetherby, A., & Halladay, A. (2015). Naturalistic developmental behavioral interventions: Empirically validated treatments for autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 45(8), 2411–2428. <https://doi.org/10.1007/s10803-015-2407-8>
- Siller, M., & Morgan, L. (Eds.). (2018). *Handbook of parent-implemented interventions for very young children with autism*. Springer International Publishing.
- Stahmer, A. C., & Pellecchia, M. (2015). Moving toward a more ecologically valid model of parent-implemented interventions in autism. *Autism*, 19(3), 259–261. <https://doi.org/10.1177/1362361314566739>
- Tsiplova, K., Jegathisawaran, J., Mirenda, P., Kalynchuk, K., Colozzo, P., Smith, V., & Ungar, W. J. (2022). Parent coaching intervention for children with suspected autism spectrum disorder: Cost analysis. *Research in Autism Spectrum Disorders*, 93, <https://doi.org/10.1016/j.rasd.2022.101949>
- Vivanti, G., Bent, C., Capes, K., Upson, S., Hudry, K., Dissanayake, C., & Victorian ASELCC Team. (2022). Characteristics of children on the autism spectrum who benefit the most

- from receiving intervention in inclusive versus specialised early childhood education settings. *Autism Research*, 15(11), 2200–2209. <https://doi.org/10.1002/aur.2815>
- Warren, S. F., McQuarter, R. J., & Rogers-Warren, A. K. (1984). The effects of mands and models on the speech of unresponsive language-delayed preschool children. *Journal of Speech and Hearing Disorders*, 49(1), 43–52. <https://doi.org/10.1044/jshd.4901.43>
- Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, J. B., Fleury, V. P., & Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *Journal of Autism and Developmental Disorders*, 45, 1951-1966. <https://doi.org/10.1007/s10803-014-2351-z>

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Učinak poučavanja roditelja primjenom mand-modela na socijalne vještine djece s poremećajem iz spektra autizma

Sažetak

Potreba za obiteljski usmjerenim i na dokazima utemeljenim intervencijama za poticanje komunikacijskih i socijalnih vještina kod djece s poremećajem iz spektra autizma (PSA) sve je veća. U ovoj je studiji istraživač je ispitivao i učinak poučavanja roditelja na njihovu sposobnost da ispravno i učinkovito provode mand-model. Osim toga, procijenjene su implikacije poučavanja roditelja mand-modelom na socijalne vještine djece s PSA-om. Nadalje, društvena valjanost intervencije procijenjena je putem individualnih intervju s roditeljima i putem društvenih usporedbi s vršnjacima tipičnoga razvoja. U studiji je sudjelovalo četiri para roditelj-dijete, a korišten je nacrt s višestrukim početnim stanjima ispitivanjem u skladu s metodama istraživanja s jednim subjektom. Istraživački nalazi pokazuju da su roditelji naučili roditeljsko poučavanje mand-modelom uz mentorstvo istraživača, zadržali te vještine nakon intervencije i generalizirali ih na nove situacije. Podatci o djeci otkrili su da je roditeljsko poučavanje mand-modelom koje su provodili roditelji pozitivno utjecalo na njihove socijalne vještine. Djeca su nastavila koristiti vještine koje su stekla nakon završetka studije i bila su ih u stanju primijeniti na različite situacije.

Ključne riječi: Mand-model; naturalistička nastava; roditeljsko poučavanje; intervencija posredovana od strane roditelja

Uvod

Djeca s poremećajem iz spektra autizma (PSA) doživljavaju ograničenja u socijalnoj komunikaciji i interakciji (Američko psihijatrijsko udruženje, 2013). Ta se ograničenja mogu očitovati kao poteškoće sa socijalnim vještinama, neusklađena komunikacija, atipičan razvoj govora i jezika, neadekvatne geste i slabe vještine imitacije (Biggs i Meadan, 2018). Roditeljsko poučavanje socijalnih vještina djeci s poremećajem iz spektra autizma (PSA) u ranoj dobi ključno je za njihov kasniji uspjeh u drugim vještinama (Vivanti i sur., 2022). Djeca s PSA-om zahtijevaju sustavne nastavne procese kako bi

na odgovarajući način pokazala svoje vještine (Sandbank i sur., 2023). Istraživanja pokazuju da djeca s PSA-om mogu razviti socijalne vještine pomoću individualiziranih programa rane intervencije (Odjel za rano djetinjstvo, 2014).

Prirodna nastava usredotočuje se na ciljeve učenja koji olakšavaju interakciju s okolinom, uključivanjem prilika za učenje u svakodnevne rutine i praćenjem interesa te vodstva djeteta (Dubin i Lieberman-Betz, 2020). U prirodnoj nastavi prilike za učenje događaju se u prirodnim kontekstima primjerenima razvoju (Schreibman i sur., 2015). Nedavne studije ukazuju na podršku socijalnim vještinama male djece s PSA-om putem prirodnih pristupa poučavanju tijekom svakodnevnih rutina (Dufek i sur., 2024). Intervencija koju provode roditelji jest praksa utemeljena na dokazima koja se primjenjuje u roditeljskom poučavanju socijalnih vještina djece s razvojnim kašnjenjima u ranoj dječjoj dobi (Wong i sur., 2015).

Nedavne metaanalize i sveobuhvatna sintetička izvješća (Hamilton i sur., 2020; NCAEP, 2020; Nevill i sur., 2018.) također pokazuju da su pristupi kojima posreduju roditelji među učinkovitim praksama utemeljenim na dokazima za djecu s PSA-om. Te intervencije, koje podržavaju roditelje u interakciji s djecom i suradnji s profesionalcima, posljednjih su godina sve češće preferirane za postizanje pozitivnih razvojnih ishoda i za roditelje, i za djecu (Orum-Çattik i sur., 2020). Nadalje, pokazalo se da intervencije kojima posreduju roditelji poboljšavaju i akademsko i neakademsko učenje male djece s PSA-om u daljnjem razvoju (Siller i Morgan, 2018). Istraživanja pokazuju da su takve intervencije posebno učinkovite kada se integriraju u svakodnevne rutine i provode u prirodnim okružjima za učenje (Nevill i sur., 2018). Međutim, roditeljima je potrebna sustavna podrška kako bi naučili kako primijeniti učinkovite prakse i primjenjivati ih dosljedno sa svojom djecom (Lee i Meadan, 2021). Roditelji mogu naučiti prakse utemeljene na dokazima na učinkovit i isplativ način putem procesa poučavanja koji pružaju učinkovitu povratnu informaciju.

Tijekom poučavanja roditelja, odnosno ih poučava dobrim praksama, uključeno je pružanje trenutačne ili odgođene povratne informacije o izvedbi, čime se stvaraju učinkovita okruženja za učenje (Tsiplova i sur., 2022). U poučavanju roditelja, trener im daje informacije prije vježbe i poučava praksu tako da djeluje kao uzor ili koristi različite tehnike. Tijekom toga procesa, roditelj uči kako odgovoriti na svaku djetetovu reakciju. Ključno je uspostaviti obostrani dogovor i pozitivnu interakciju između trenera i roditelja tijekom toga procesa (Brown i Woods, 2016).

Mand-model je opsežno proučavan u literaturi tijekom otprilike četrdeset godina i prepoznaje se kao učinkovita metoda intervencije za roditeljsko poučavanje socijalnih komunikacijskih vještina djece s različitim razvojnim teškoćama (npr. Peterson, 2004). Rane studije o ovoj metodi provedene su s djecom s kašnjenjem u jezičnome razvoju, a nalazi su pokazali da su djeca koja su u početku proizvodila samo jednostavne riječi do kraja intervencije značajno su proširila svoj vokabular koristeći složenije izraze (Warren i sur., 1984). Stoga ona ostaje važna, na dokazima utemeljena i primjenjiva strategija poučavanja koju roditelji mogu lako provoditi u prirodnim situacijama interakcije.

Mand-model je naturalistički pristup poučavanju jezika osmišljen tako da potakne djetetove komunikacijske napore stvaranjem prilika za socijalnu interakciju u svakodnevnim situacijama (Warren i sur., 1984.). Ciklus poučavanja uključuje dva glavna koraka: (a) odrasla osoba pokreće aktivnost koja održava obostrani interes s djetetom i čeka da dijete započne komunikaciju (mand) i (b) demonstracija ispravnog odgovora i ojačavanje djetetova pokušaja kada ono napravi odgovarajući ili gotovo odgovarajući komunikacijski pokušaj (model). Ovaj proces sustavno povećava poticaje ako dijete ne pokrene komunikaciju i odmah pruža prirodno ojačanje kada je komunikacija uspješno pokrenuta. Ovaj strukturirani, ali prirodno tečni ciklus pokazao se učinkovitim u pomaganju djeci da razviju vještine započinjanja socijalnih interakcija, traženja pomoći i funkcionalnoga korištenja verbalnih izraza (Nigam i sur., 2006).

Ne može se zanijekati ključna uloga koju roditelji imaju u razvoju socijalnih vještina djece s PSA-om. Pomanjkanje socijalnih vještina značajno narušava sposobnost djece s PSA-om da komuniciraju, sudjeluju u inkluzivnim okružjima i postignu dugoročno adaptivno funkcioniranje (Bellini i sur., 2007). Iako su profesionalne intervencije vrijedne, često su ograničene vremenom, dostupnošću i troškovima. Zbog toga su intervencije koje provode roditelji praktična alternativa (Brookman-Fraze i sur., 2006). Roditeljsko poučavanje – koje se uglavnom temelji na bihevioralnim načelima kao što su modeliranje, poticanje i povratne informacije – može osnažiti skrbnike da potiču svoju djecu na učenje u prirodnim okružjima (Koegel i sur., 1996). Osnaživanje roditelja putem poučavanja za primjenu strategija utemeljenih na dokazima, kao što je mand-model, stvara održive mogućnosti za razvoj vještina u prirodnim kontekstima. Međutim, istraživanja koja ispituju učinke intervencija koje provode roditelji, posebice u okviru roditeljskoga poučavanja, i dalje su ograničena. Stoga se ovom studijom ispunjava važna praznina istraživanjem koliko se učinkovito roditelje može obučiti za primjenu ove metode i kako njihovo sudjelovanje utječe na socijalno sudjelovanje njihove djece u svakodnevnom životu. U tom kontekstu za roditelje i njihovu djecu postavljena su sljedeća pitanja:

1. Je li primjena poučavanja roditelja praktična u pomaganju roditeljima da usvoje korake poučavanja putem mand-model, da ih održe 2, 4 i 6 tjedana nakon završetka poučavanja te da ih generaliziraju?
2. Koja su mišljenja roditelja prije i nakon studije?
3. Je li roditeljsko poučavanje koje provode putem mand-modela učinkovito u pomaganju djeci s PSA-om da steknu ciljne socijalne vještine, da ih održe 2, 4 i 6 tjedana nakon poučavanja te da ih generaliziraju?
4. Je li pristup pomoću mand-modela koji provode roditelji učinkovit u pomaganju djeci s PSA-om da na kraju programa poučavanja dosegnu razine socijalnih vještina svojih vršnjaka s tipičnim razvojem, prema podacima o socijalnoj usporedbi prikupljenima prije i nakon studije?
5. Je li roditeljsko poučavanje mand-modelom učinkovito u povećanju socijalne interakcije između djece s PSA-om i njihovih roditelja i, obrnuto, u smanjenju autističkoga indeksa interakcije (AII)?

Metodologija

Istraživački model

U studiji je dvostruko istovremeno korišten nacrt s višestrukim početnim stanjima, jedna od istraživačkih metoda s jednim subjektom. Svrha nacrta s višestrukim početnim stanjima jest uspostavljanje eksperimentalne kontrole ponovljenim mjerenjima unutar i između sudionika, umjesto izvođenja statističkih generalizacija na temelju velikih uzoraka. U tom pogledu, uključivanje četiriju parova roditelj–dijete u studiju smatra se dovoljnim za demonstraciju funkcionalnoga odnosa potrebnoga za dizajn, jer to omogućuje neovisno repliciranje učinaka intervencije među sudionicima. Dosljedni učinci intervencije opaženi kod svih četiriju sudionika ojačali su internu valjanost studije i omogućili tumačenje nalaza putem analitičke generalizacije. Kako bi se procijenila učinkovitost programa poučavanja roditelja na njihovu sposobnost da ispravno provode mand-model, sa sudionicima je korištena prospektivna studija s višestrukim mjernim točkama. Ponašajni nacrt s višestrukim početnim stanjima ponovljen je sa sudionicima kako bi se procijenila učinkovitost poučavanja mand-modelom koje su roditelji pružali svojoj djeci s PSA-om na stjecanje ciljnih socijalnih vještina. Eksperimentalna kontrola provedena je tijekom eksperimentalnoga procesa s roditeljima; razina uspješnosti roditelja u ispravnoj primjeni metode poučavanja mand-modelom u skupini prije intervencije značajno se povećala nakon što je istraživač poučio roditelje. Istovremeno, u kontrolnoj skupini, u kojoj se nije primjenjivalo poučavanje roditelja, nije zabilježen porast razine uspješnosti roditelja u ispravnoj primjeni metode poučavanja mand-modelom. To je utvrđeno nedostatkom bilo kakvog porasta u razini ispravne primjene poučavanja mand-modelom među ostalim sudionicima koji nisu bili izloženi roditeljskom poučavanju, kao i činjenicom da je taj učinak naknadno repliciran među različitim sudionicima u studiji. U eksperimentalnom procesu s djecom s PSA-om, prvi cilj bio je razina vještina grupe u području socijalnih vještina na procjenama provedenima prije početka poučavanja. Primjena poučavanja po mand-modelu od strane roditelja nije pokazala porast razina drugih socijalnih vještina kod kojih se roditeljsko poučavanje po mand-modelu nije primjenjivalo, a taj je učinak repliciran i na druga ponašanja ciljana u studiji.

Sudionici

Djeca s PSA-om i njihovi roditelji sudjelovali su u studiji. Djeca s PSA-om bila su predškolske dobi koja su nastavila svoje obrazovanje u implementacijskoj jedinici unutar sveučilišta u Turskoj. Preduvjeti za sudjelovanje djece s PSA-om u studiji bili su (a) biti u predškolskom razdoblju, (b) biti u dobi između 4 i 6 godina, (c) imati dijagnozu PSA, (d) održavati kontakt očima s drugom osobom najmanje 10 sekundi, (e) usmjeravati pažnju na aktivnost 1–2 minute, (f) razumjeti i slijediti upute koje zahtijevaju barem jednu radnju te (g) izražavati želje koristeći dvije ili više riječi. Procjena predznanja provedena je putem intervjua s roditeljima djece i promatranja. Jedan od alata za procjenu korištenih u ovoj studiji je Gilliamova skala za procjenu autizma – 2. izdanje (GARS-2), kojom se procjenjuju simptomi autizma kod djece u tri područja –

ponavljajuća ponašanja, komunikacija i socijalna interakciju. Stavke ljestvice buduju se na ljestvici od 0 do 3, a početni rezultati pretvaraju se u standardni rezultat nazvan indeks autizma (IA). GARS-2 indeks autizma tumači se u tri kategorije za klasifikaciju vjerojatnosti autizma: rezultati od 69 i niže smatraju se „malo vjerojatnim autizmom”, rezultati između 70 i 100 smatraju se „mogućim autizmom”, a rezultati od 101 i više smatraju se „vrlo vjerojatnim autizmom”. Ta struktura omogućuje pouzdanu upotrebu skale i u dijagnostičke i u istraživačke svrhe za utvrđivanje razine simptoma autizma. Istraživač je koristio Gilliamovu skalu za procjenu autističnoga poremećaja, tursku verziju (GARS-2-TV; Diken i sur., 2011.) za procjenu trenutačne razine autizma kod djece. Jezične i socijalno-komunikacijske vještine djece koja su sudjelovala u studiji procijenjene su putem sustavnih opažanja provedenih u prirodnim interakcijskim okružjima na početku studije.

Nije proveden standardni jezični test za utvrđivanje jezične razine djece koja sudjeluju u istraživanju; umjesto toga, korišteni su podatci izravnoga promatranja koji su točnije odražavali svakodnevna komunikacijska ponašanja djece. Ta su promatranja tvorila osnovu za utvrđivanje razina spremnosti sudionika za poduku prema mand-modelu i definiranje ciljanih ponašanja.

D1 (kronološka dob: 56 mjeseci). Kao rezultat procjene pomoću GARS-2-TV, dobio je ukupno 96 bodova na indeksu poremećaja autizma. Dobiva 12 sati obrazovanja u maloj grupi i osam sati individualnoga obrazovanja tjedno. D1 izražava svoje zahtjeve vršnjacima i odraslima oko sebe koristeći rečenice od najmanje dvije riječi. Može usmjeriti pažnju na aktivnost najmanje dvije minute. D1 nema fizičkih oštećenja i može slijediti upute koje zahtijevaju dvije ili više radnji. Pokazuje postignuća slična vršnjacima u grubim motoričkim vještinama. Može se samostalno obući, hraniti, oprati ruke i lice te koristiti toalet; međutim, za čišćenje nakon toaleta potrebna mu je djelomična fizička pomoć odrasle osobe.

D2 (kronološka dob: 66 mjeseci). Kao rezultat procjene GARS-2-TV, postigao je 78 bodova na indeksu poremećaja autizma. Prima 12 sati obrazovanja u maloj grupi i 4 sata individualnoga obrazovanja tjedno. D2 može slijediti upute koje zahtijevaju dvije ili više radnji. Može izraziti svoje zahtjeve koristeći dvije ili više riječi. Može se usredotočiti na aktivnost duže od 3 minute. Može imenovati brojeve. Može razlikovati i imenovati osnovne boje i geometrijske oblike. D2 samostalno oblači odjeću, jede i pere ruke. Nema fizičkih oštećenja. Grube motoričke vještine na istoj su razini kao i kod vršnjaka. Potreban mu je verbalni poticaj roditelja za razvoj vještina čišćenja toaleta.

D3 (kronološka dob: 67 mjeseci). Prema procjeni GARS-2-TV, postigao je rezultat od 86 na indeksu autističnoga spektra. Pohađa 12 sati nastave u maloj skupini i 8 sati individualne nastave tjedno. Može izraziti svoje zahtjeve rečenicama od tri do četiri riječi. Može slijediti upute koje zahtijevaju dvije ili više radnji. Neovisno je u prehrani, odijevanju, pranju ruku i lica, korištenju toaleta i drugih vještina.

D4 (kronološka dob: 61 mjesec). Njegov rezultat na indeksu poremećaja iz autističnoga spektra GARS-2-TV je 72. Prima četiri sata individualne nastave tjedno. Može slijediti

upute koje zahtijevaju dvije ili više radnji i izražavati svoje potrebe rečenicama od tri do četiri riječi.

Može usmjeriti svoju pažnju na aktivnost najmanje 5 minuta. Njegov govor je tečan i razumljiv. Nema tjelesnih invaliditeta. Samostalno se kreće u vještinama poput hodanja, trčanja, skakanja, poskakivanja i penjanja po stepenicama. Samostalno prepoznaje i imenuje brojeve, boje i geometrijske oblike. EYLÜL neovisno oblači odjeću, jede, koristi toalet i čisti se nakon toaleta.

U istraživanju su sudjelovala četiri roditelja. Preduvjeti za sudjelovanje roditelja u istraživanju bili su: a) dobrovoljno sudjelovanje, b) nedostatak sustavne, na obrazovanje usmjerene obuke u prošlosti temeljen na modelu mand, c) dostupnost od najmanje jednog sata dnevno, tri dana u tjednu za sudjelovanje u istraživanju. Utvrđeno je putem individualnih intervjuova s njima je li roditelj ispunio gore navedene kriterije preduvjeta. Prije početka studije dobiven je certifikat o etičkom odobrenju od Etičkog povjerenstva Fakulteta društvenih i humanističkih znanosti Sveučilišta Anadolu, kojim se potvrđuje da ne postoje etički prigovori za provođenje studije (Protokolski broj: 106875). Od svih roditelja zatraženo je da potpišu obrazac o dobrovoljnom sudjelovanju za sebe i obrazac pristanka skrbnika za svoju djecu. Demografske informacije o sudionicima prikazane su u Tablica 1.

Tablica 1.

Demografske informacije o sudionicima

Djeca			Roditelji			
Šifra	Kronološka dob	Rod	Šifra	Dob	Rod	Razina obrazovanja
D1	66 M	Muški	R1	28	Žensko	Preddiplomski
D2	56 M	Žensko	R2	44	Žensko	Preddiplomski
D3	67 M	Žensko	R3	33	Muški	Preddiplomski
D4	61 M	Muški	R4	39	Muški	Preddiplomski

Skraćenice: D: Djeca, R: Roditelji

Zavisne i nezavisne varijable

Studija ima dvije odvojene ovisne varijable za roditelje i dječje sudionike. Za roditeljske sudionike, ovisna varijabla je ispravna primjena koraka podučavanja društvenih vještina svojoj djeci putem modeliranja; za djecu s PSA, ovisna varijabla je razina usvajanja ciljanih društvenih vještina. Studija uključuje dvije neovisne varijable: proces podučavanja temeljen na promatranju koji roditeljima pruža roditeljsko poučavanje, i roditeljsko poučavanje putem modeliranja koje roditelji pružaju svojoj djeci. Roditeljsko poučavanje temeljen na promatranju uključuje promatranje metoda, tehnika ili strategija naučenih tijekom obuke (Hu i van Veen, 2020).

Postavke i materijali

Provedba studije realizirana je u pojedinačnom istraživačkom laboratoriju unutar Jedinice za razvojna istraživanja na sveučilištu u Turskoj. Laboratorij je standardno

obrazovno okružje opremljeno stolom i stolicom, pametnom pločom i osnovnim nastavnim materijalima. Radionice za roditelje održane su u zasebnoj laboratoriji sa sličnim obilježjima unutar iste jedinice. Videokamere, stativi i obrasci za snimanje koje je pripremio istraživač korišteni su za prikupljanje podataka tijekom svih sesija. Nastavni materijali korišteni u intervenciji odabrani su tako da odgovaraju interesima i razvojnim potrebama djece. Sastojali su se od raznih strukturiranih i prirodnih predmeta koji bi podržali ciljana ponašanja socijalne komunikacije. Materijali nisu bili detaljno popisani, već su bili samo klasificirani u kategorije primjerene nastavnim ciljevima.

Prikupljanje i analiza podataka

Podatci o socijalnim vještinama djece s PSA-om prikupljali su se metodom kontroliranoga bilježenja događaja. Kada je djetetu bilo dopušteno pokazati vještinu, ciljano ponašanje smatralo se prisutnim ako bi pokazalo navedenu socijalnu vještinu. U odgovarajući okvir obrasca za kontrolirano bilježenje događaja stavljen je znak (+). Kada dijete nije reagiralo na pruženu priliku ili je reagiralo pogrešno, kriterij ciljane socijalne vještine nije bio ispunjen, ponašanje se smatralo odsutnim i u odgovarajući okvir obrasca za kontrolirano bilježenje događaja stavljena je oznaka (-). U zapisnik analize vještina prikupljali su se podatci o sposobnosti roditelja da ispravno primijene poučavanje putem traženja i modeliranja.

Ispravna ponašanja koja je roditelj pokazivao tijekom primjene metode poučavanja mand-modelom označena su simbolom (+) u odgovarajućem odjeljku obrasca za bilježenje. Suprotno tome, neispravna ponašanja označena su simbolom (-). Izračunati su postotci ispravnih odgovora. Dobiveni podatci o učinkovitosti analizirani su grafički.

U studiji su dobiveni podatci o generalizaciji i za roditelje i za djecu s PSA-om u obliku generalizacije na osobe i okružje. Podatci o generalizaciji prikupljeni su istim postupkom kao i tijekom grupnih sesija procjene, a dobiveni su podatci analizirani pomoću zapisa o analizi vještina i predstavljeni na grafikonu pretest/posttest.

Obrazac za zapis procjene interakcije – turska verzija (EDKF-TV) korišten je kako bi se utvrdilo na koji su način poučavanje roditelja i pristup modelu koji se koristi u poučavanju djece utjecali na interakcije između roditelja i djece s PSA-om. EDKF-TV je mjerni alat koji se koristi za procjenu vještina socijalne interakcije djece s dijagnozom PSA ili djece s rizikom od PSA-a u polustrukturiranim okružjima za igru sa sustavno primijenjenim podražajima te mjeri i spontane i unaprijed određene odgovore odrasle osobe (Aksoy i Diken, 2016; Krug i sur., 2008). EDKF-TV je mjerni alat uključen u Instrument za probir autizma za obrazovno planiranje-3, koji su razvili Krug i suradnici (2008). Valjanost i pouzdanost turske verzije EDKF-a proučavali su Aksoy i Diken (2016). Koeficijent pouzdanosti KR-21 iznosi 0,83. Za procjenu konstrukcijske valjanosti skale korišten je t-test. Rezultati analize su sljedeći: Interakcija ($t = 4,76$, $df = 88$, $p < .01$), konstruktivna samostalna igra ($t = 1,65$, $df = 88$, $p > .01$), indiferentnost ($t = 4,05$, $df = 88$, $p > .01$) i negativna agresija ($t = 1,80$, $df = 88$, $p < .01$).

EDKF-TV se sastoji od tri odvojena četverominutna dijela i provodi se u polustrukturiranom okružju za igru tijekom 12-minutnoga neprekidnog razdoblja.

Prilikom korištenja EDKF-TV-a u okruženju moraju biti prisutni odrasla osoba i dijete. U prvoj sekciji odrasla osoba imitira dijete. U drugoj sekciji odrasla osoba čeka bez reagiranja, a u završnoj sekciji odrasla osoba daje upute djetetu. Dječji odgovori tijekom toga procesa bilježe se u odgovarajućoj kategoriji: interakcija, konstruktivna/neovisna igra, pasivnost i neprijateljski/agresivno. Tijekom 12-minutne sesije provodi se ukupno 48 opažanja, pri čemu se četiri opažanja bilježe svake minute. Na kraju testa, iz gore navedenih kategorija generiraju se bodovi za ponašanje, a iz tih se bodova izračunava Indeks interakcije kod autizma (AII) (Krug i sur., 2008.).

Podatci o socijalnoj valjanosti prikupljeni su kako bi se utvrdilo u kojoj su mjeri poučavanje roditelja i roditeljski vođena instrukcija u zahtjevnom modeliranju bili učinkoviti u pomaganju djeci da steknu ciljne vještine te u poboljšanju ispravne primjene instrukcija zahtjevnoga modeliranja od strane roditelja. Za prikupljanje podataka o socijalnoj valjanosti za ovu studiju korištene su subjektivne procjene s roditeljima, a s djecom s PSA-om korišten je pristup socijalnoga uspoređivanja.

Podatci iz subjektivnih procjena prikupljeni su putem polustrukturiranih intervjua s roditeljima koji su sudjelovali u studiji, prije i nakon njezinoga završetka. Kako bi se utvrdila mišljenja roditelja o tome u kojoj su mjeri društvene vještine planirane za poučavanje roditelja ili podučenoj djeci s PSA-om bile funkcionalne i značajne, korišten je upitnik za roditelje o društvenoj valjanosti prije i nakon studije. Istraživač je pripremio prethodno navedene obrasce za intervju i putem e-pošte pribavio stručna mišljenja pet stručnjaka s doktoratom iz područja posebne pedagogije kako bi utvrdio sadržajnu valjanost pitanja u intervjuu. Konačni oblik intervjua određen je na temelju prijedloga stručnjaka. Podatci dobiveni iz intervjua analizirani su deskriptivnom metodom.

Podatci o socijalnoj usporedbi, odnosno podatci o učinku vezani za socijalne vještine kojima su sudionici trebali biti poučeni, prikupljeni su od 12 djece iz iste dobne skupine kao i djeca s PSA-om, koja su pokazala normalan razvoj, korištenjem obrasca za socijalnu usporedbu. Podatci su prikupljeni od 12 djece tipičnoga razvoja u dobi od 4 do 6 godina. Prilikom prikupljanja podataka, istraživač je organizirao sesije za mjerenje svih triju vještina za svako dijete i stvorio prilike da djeca odgovore tijekom tih sesija.

Navedeni je postupak proveden kao pretest i posttest na početku i na kraju studije. Podatci dobiveni od 12 vršnjaka tipičnoga razvoja kvantitativno su ocijenjeni i grafički analizirani. U ovoj su studiji prikupljene dvije vrste podataka o pouzdanosti. Ti se podatci dijele na (a) međuocjenjivačko slaganje (MJS) i (b) podatke o vjernosti provedbe.

Podatci o MJS prikupljeni su snimanjem svih sesija studije videokamerom. Izračuni IOA provedeni su na 30 % uzorka studije. Za analizu MJS podataka u studiji je korištena formula „slaganje/slaganje + neslaganje \times 100” (Gast i Ledford, 2014). Prikupljeni podatci o MJS tijekom studije pokazali su visoke i dosljedne razine pouzdanosti u svim sesijama. Za troje od četvero djece, stopa pouzdanosti iznosila je 100 % u

svim sesijama procjene, intervencije, praćenja i generalizacije. Za drugo dijete, stope pouzdanosti kretale su se od 80 % do 100 %. Sveukupno, visoke vrijednosti MJS podupiru pouzdanost postupaka mjerenja korištenih u studiji.

Podatci o MJS prikupljeni su za 30 % svakoga uzorka u svim sesijama provedenima s djecom s PSA-om. Najniži koeficijent MJS postignut u studiji bio je 80 %, a najviši koeficijent vjernosti provedbe bio je 100 %. Podatci o MJS za sesije poučavanje roditelja pokazali su visoku dosljednost tijekom cijeloga istraživanja. Za troje od četvero roditelja, stope pouzdanosti izračunate su kao 100 % za sesije procjene, intervencije, praćenja i generalizacije. Iako su stope pouzdanosti za jednoga roditelja u intervencijskim i naknadnim sesijama iznosile 80 % odnosno 85,7 %, ukupni prosjek bio je iznad 96 %. Ovi rezultati pokazuju pouzdanost mjerenja i opažanja.

Najniži MJS koeficijent dobiven u studiji iznosi 85,7 %, a najviši koeficijent vjernosti provedbe 100 %. Izračunati najviši koeficijenti vjernosti provedbe za P1, P2, P3 i P4 iznose 96,42 %, 100 %, 100 % i 96,42 %, redom. Promatrač je prikupljao podatke o pouzdanosti provedbe promatrajući 30 % poučavanja bez mand-modela koje su roditelji provodili u svakoj fazi studije. Najveći postotak vjernosti provedbe roditelja izračunat je na temelju kontrolne liste koja sadrži kriterije provedbe poučavanja bez mand-modela, utvrđene prije početka studije. Podatci o najvećoj vjernosti provedbe analizirani su pomoću formule „uočeno ponašanje izvođača / planirano ponašanje izvođača $\times 100$ ” (Erbaş, 2012). MJS podatci za sesije roditeljsko poučavanje koje je proveo istraživač, izračunati su kao 100 % za sve vrste sesija. Činjenica da je postignuta potpuna suglasnost među promatračima u svim sesijama provjere, intervencije, praćenja i generalizacije, pokazuje da postupci mjerenja i evaluacije korišteni u procesu poučavanja imaju iznimno visoku pouzdanost. Prosječan koeficijent pouzdanosti provedbe, dobiven iz provedbe roditeljsko poučavanje, iznosio je 100 %. Najniži koeficijent pouzdanosti provedbe dobiven iz intervencija roditelja, iznosi 85,7 %, a najviši 100 %. Izračunati koeficijenti pouzdanosti provedbe roditelja su 100 %, 100 %, 96,42 %, i 100 %, redom.

Implementacija

Pokusna implementacija provedena je s djetetom s dijagnozom poremećaja iz spektra autizma (PSA) koje je primalo obuku u Jedinici za razvojnu podršku i čija je majka također sudjelovala u obuci. Tijekom pokusne implementacije istraživač je procjenjivao razumiju li roditelji primjere videozapisa koje je pripremio o primjeni mand-modela poučavanja te su identificirali probleme na koje bi mogli naići pri korištenju alata i materijala mand-modela poučavanja. Nadalje, po potrebi su vršili prilagodbe. U provedbi poučavanja temeljenoga na mandu preporučuje se uključivanje aktivnosti koje privlače zajedničke interese sudionika s PSA-om. Stoga su, prije početka eksperimentalnoga procesa studije, zajednički interesi djece utvrđeni promatranjem i prikupljanjem mišljenja njihovih roditelja i učitelja te je provedena procjena preferencija.

Istraživač je pružio obuku roditeljima djece s PSA-om kako bi im omogućio da poučavaju ciljne socijalne vještine koristeći roditeljsko poučavanje temeljeno na mandu.

Ovaj se obrazovni proces definira kao proces poučavanja roditelja, koji će se nastaviti tijekom cijeloga istraživanja. Poučavanje roditelja provedeno je u sljedećim fazama: (a) proces poučavanje roditelja, (b) povratne informacije uživo nakon pokušaja, (c) evaluacija nakon sesije. Prva faza, proces obrazovanja roditelja, provedena je nakon početnih sesija, tijekom kojih je istraživač roditeljima objasnio kako mogu poučavati ciljne socijalne vještine koristeći metodu poučavanja mand-modela.

Sastanci za edukaciju roditelja održavani su pojedinačno. U prvoj fazi procesa poučavanja roditelja trener je pokazao dva ili tri videoprimjera kako su poučavali ciljne socijalne vještine djetetu s PSA-om koristeći se mand-modelom. Istraživač je roditeljima predstavio brošuru u kojoj su navedena njihova očekivanja tijekom faze poučavanja socijalnih vještina metodom mand-modela, pregledavao je s njima i objašnjavao važnost i nužnost odabranih socijalnih vještina za živote njihove djece. Na kraju toga procesa istraživač je pitao roditelje imaju li pitanja o provedbi mand-modela. Istraživač im je odgovorio na postavljena pitanja, čime je zaključen proces edukacije roditelja. Druga faza poučavanja roditelja je proces davanja povratnih informacija uživo nakon pokušaja. Na tim je sesijama trener za obuku tražio od roditelja da primijeni znanje stečeno u prethodnoj fazi o ciljanom ponašanju na svojem djetetu koristeći pristup mand-model. Roditelj je proveo pokušaj poučavanja socijalnih vještina koristeći pristup mand-model. Nakon ovoga pokušaja, trener je usmeno pohvalio roditelje za prikladno ponašanje. Prije nego što se prešlo na drugi pokušaj, edukacijski trener je pitao roditelja može li to samostalno izvesti. Ako je roditelj zatražio pomoć, edukacijski trener je intervenirao i primijenio metodu poučavanja mand-modelom tako što je roditelju poslužio kao živi model. Ako je roditelj izjavio da može provesti postupak u drugim pokušajima, edukacijski trener nije intervenirao.

Završna faza procesa poučavanja roditelja je postupak evaluacije nakon sesije. Ova se faza provodi odmah nakon svake sesije poučavanja prema mand-modelu, a povratne informacije daje edukacijski trener. U tom procesu trener za roditelje prvo odgovara na njihova pitanja. Zatim se zajedno s edukacijskim trenerom gleda video u kojem roditelj primjenjuje metodu poučavanja prema mand-modelu. Tijekom gledanja videa ističu se koraci koje je roditelj ispravno izveo i verbalno se ojačavaju; daju se objašnjenja kako ispravno izvesti korake koje je roditelj pogrešno izveo, uz primjere.

Pokusna intervencija provedena je s djetetom s dijagnozom PSA koje je pohađalo rad Jedinice za razvojnu podršku i majkom djeteta. Tijekom pokusne intervencije istraživač je procjenjivao razumiju li roditelji pripremljene primjere videozapisa za intervenciju o mand-modelu poučavanja, utvrđivao je probleme na koje bi mogli naići s alatima za poučavanje vezanim uz mand-model te je napravio potrebne prilagodbe. U intervenciji mand-modelom preporučuje se uključivanje aktivnosti koje odgovaraju zajedničkim interesima sudionika s PSA-om. Stoga je prije početka eksperimentalne faze studije provedena procjena preferencija promatranjem djece i konzultiranjem njihovih roditelja i učitelja kako bi se utvrdile aktivnosti koje ih zanimaju.

Eksperimentalni proces

Provedeno je pet ispitnih sesija u kojima su se roditelji mogli koristiti mand-modelom roditeljskoga poučavanja tijekom grupnih ispitnih sesija, a ocijenjene su razine njihove ispravne primjene. Tako su utvrđene razine roditeljske sposobnosti ispravne primjene mand-modela poučavanja prije i nakon roditeljske pouke. Istraživač nije davao nikakve naznake niti povratne informacije roditeljima tijekom grupnih ispitnih sesija. Tijekom grupnih probnih sesija, svaki roditelj djeteta s PSA-om koristio je unaprijed određene alate kako bi proveo pet pokušaja za svaku od triju ciljanih vještina za svoje dijete, a reakcije djece tijekom tih pokušaja bile su ocijenjene. Time su razine postignuća djece u društvenim vještinama „traženja predmeta”, „traženja pomoći” i „zahvaljivanja” procijenjene prije i nakon provedbe poučavanja primjenom mand-modela.

Tijekom grupnih promatračkih sesija roditelji nisu davali nikakve naznake niti povratne informacije svojoj djeci.

Roditelji i djeca sjedili su zajedno u okružju opremljenom alatima koji su roditeljima omogućavali roditeljsko poučavanje putem traženja bez modeliranja, a roditelji su počeli primjenjivati korake poučavanja putem traženja bez modeliranja dok su usvajali vještine sa svojom djecom. Roditelj privlači djetetovu pažnju primjenjujući aktivnosti i alate koji zanimaju dijete. Ako dijete pokaže interes za aktivnost ili alat, roditelj postavlja pitanja poput „Što je ovo?” ili „Što želiš?” i čeka djetetov odgovor. U tom procesu osnažava djetetov ispravan odgovor i dopušta mu da dohvati aktivnost ili alat. Ako je dijete odgovorilo pogrešno ili uopće nije odgovorilo, roditelj modelira ispravan odgovor i čeka da ga dijete oponaša. Nakon demonstracije, roditelj ojačava djetetov ispravan odgovor. Dok je roditelj primjenjivao roditeljsko poučavanje putem traženja i demonstracije, istraživač je promatrao njihovo ponašanje i bilježio korake koji su ispravno izvedeni na obrascu za bilježenje podataka (+); korake koji su izvedeni pogrešno ili nepotpuno označio je (-).

Tijekom grupnih sesija procjene ciljanih vještina, roditelj je skrenuo djetetovu pažnju na aktivnost ili igru. Nakon što je promatrao je li dijete spremno za početak, roditelj je verbalno ojačao svaki odgovor koji je ukazivao na spremnost. Roditelj je postavio predmet povezan s vještinom tako da ga je dijete moglo vidjeti i dao upute. Roditelj je dopustio djetetu da interagira s predmetom i čekao 5 sekundi da dijete odgovori na upute. Nakon što bi dijete dalo ispravne odgovore tijekom sesija, pružale su se verbalne pohvale, a na obrazac za prikupljanje podataka stavljala se oznaka „+”. Neispravni odgovori djeteta i izostanak odgovora tijekom pokušaja bilježili su se na obrascu za prikupljanje podataka oznakom „-“. Nisu se ispravljale pogrešaka za neispravne ili izostavljene odgovore, a pokušaj se nastavio. Na kraju pokušaja, roditelj je pohvalio dijete.

Vještini korištenja mand-modela roditelji su poučenni tijekom individualnih nastavnih sesija. U tim je sesijama roditelju prvo prikazano dva ili tri videoprimjera u kojima trener poučava ciljne socijalne vještine djeteta s PSA-om koristeći upute mand-modela.

Zatim istraživač roditeljima predstavlja brošuru u kojoj je navedeno što se od njih očekuje pri poučavanju socijalnih vještina primjenom mand-modela te je s njima zajedno analizira. Roditelji su informirani zašto su odabrane socijalne vještine važne i nužne za živote njihove djece. Na kraju ovoga procesa istraživač je pitao roditelje imaju li pitanja o provođenju procesa učenja koristeći pristup mand-modela te im je na postavljena pitanja odgovorio. Nakon ovoga procesa istraživač je zamolio roditelja koji je preuzeo ulogu učenika da mu demonstrira poučavanje vještine koristeći se metodom mand-modela. Na kraju procesa istraživač je s roditeljem razgovarao o ispravnom i neispravnom ponašanju te je zatim završio sesiju.

Tijekom sesija poučavanja ciljanih vještina, roditelj je privukao djetetovu pažnju aktivnostima ili igrama. Zatim je, nakon što je promatrao je li dijete spremno za rad, roditelj verbalno ojačao svaki odgovor koji je ukazivao na to da je dijete spremno. Roditelj je stavio predmet povezan s vještinom na mjesto gdje ga je dijete moglo vidjeti i dao djetetu upute. Roditelj je dopustio djetetu da se interagira s predmetom i pričekao 5 sekundi da dijete odgovori na upute. Kada je dijete odgovorilo na vještinu na odgovarajući način (npr. verbalnim ili gestikulacijskim odgovorom kojim je pokazalo da želi boju), roditelj je pokrenuo komunikaciju vezanu uz vještinu (npr. „Što želiš?“) i čekao da dijete pokuša komunicirati. Ako je dijete pokazalo očekivani pokušaj komunikacije (npr. „Možeš li mi dati bojicu?“), roditelj je potvrdio djetetov odgovor i dopustio djetetu da koristi željeni predmet. Ako dijete samo od sebe nije pokazalo očekivanu komunikacijsku inicijativu (npr. „Možeš li mi dati bojicu?“), roditelj je modelirao ispravno ponašanje (npr. „Možeš li mi dati bojicu?“) i, po potrebi, pružao dodatne poticaje pokazujući prstom na predmet. Svi su poticaji postupno ukidani tijekom vremena. Za djetetove točne odgovore davani su verbalni potkrepljivači, a na obrascu za prikupljanje podataka stavljan je znak „+“. Djetetovi netočni odgovori i neodgovaranje tijekom pokušaja bilježili su se na obrascu za prikupljanje podataka znakom „-“. Dok se ne postigne usvajanje, koristilo se kontinuirano potkrepljenje za svaki točan odgovor koji je dijete dalo. Zatim je primijenjeno postupno ukidanje potkrepljenja. Nakon toga procesa, u jednoj nastavnoj sesiji provedeno je pet pokušaja.

Nastavne su se sesije provodile sve dok se nisu dobili stabilni podatci.

Sesije generalizacije provodile su se u različitim okružjima, a generalizacija na osobe procjenjivala se nakon što su kriteriji za učenje relevantne ovisne varijable ispunjeni i za djecu s PSA-om i za njihove roditelje. U generalizaciji na okružje procjenjivalo se može li se vještina stečena izvan učionice u kojoj je provedeno istraživanje pokazati; u generalizaciji na osobe, roditelji su procjenjivani na temelju sposobnosti primjene naučenoga mand-modela poučavanja s djetetom koje nije njihovo.

Kontrolne su sesije provedene u drugom, četvrtom i šestom tjednu nakon što su roditelji koristili metodu mand-modela. Djeca su ispunila navedene kriterije za ciljne socijalne vještine i roditeljsko poučavanje je završeno. U nadzornim sesijama slijedio se točan postupak kao i u sesijama grupne procjene.

Rezultati

Rezultati za roditelje

Rezultati o učinkovitosti za roditelje

Rezultati o učinkovitosti roditeljskoga poučavanja pokazali su da su sva četiri roditelja primjenjivala metodu poučavanja mand-modelom s visokom točnošću tijekom cijeloga procesa intervencije. U početku su svi roditelji imali 0 % točnosti, ali je značajan napredak bio vidljiv kako je intervencija napredovala. R1 i R3 postigli su prosječnu točnost od 100 % na satima poučavanja i održali tu razinu tijekom praćenja. R2 i R4 postigli su prosječnu točnost od 95 % tijekom intervencije, a oboje su održavali 100 % točnosti tijekom tri tjedna u fazi praćenja. Ovi rezultati upućuju na to da je instruktivna podrška pružena u programu poučavanje roditelja dosljedno poboljšala njihove vještine u primjeni metode mand-modela. Nalazi o učinkovitosti roditeljskoga poučavanja primjenom metode mand-modela prikazani su na Slici 1.

Slika 1

Opći rezultati za roditelje

Rezultati generalizacije otkrili su da su svi roditelji postigli značajan napredak i u generalizaciji osobe i u generalizaciji okoline. R1, R2 i R4 su na pretestovima generalizacije osobe postigli 0 %, ali su na posttestu bili 100 % uspješni; R3 je na pretestu postigao 25 %, a na posttestu je dosegao 100 %. Slika tome, pri ispitivanju podataka o generalizaciji u okružju, razine uspješnosti R1, R3 i R4 od 0 % u pretestiranju, porasle su na 100 % u posttestiranju; razina uspješnosti R2 od 25 % u pretestiranju porasla je na 100 % u posttestiranju. Ovi rezultati pokazuju da roditelji mogu održati vještine koje su naučili, ne samo u nastavnom okružju, već i s različitim ljudima te u novim kontekstima. Rezultati generalizacije za roditelje prikazani su na Slici 2.

Slika 2

Rezultati socijalne valjanosti za roditelje

Podatci dobiveni iz polustrukturiranih intervjuja pokazuju da su roditelji razvili pozitivne percepcije o provedbi. Roditelji su naveli da je učenje o poučavanju prema mand-modelu poboljšalo komunikacijske vještine njihove djece, ojačalo obiteljsku komunikaciju i povećalo njihovu sposobnost podrške djeci u svakodnevnom životu. Također su naveli da bi stjecanje socijalnih vještina njihove djece podržalo odnose s vršnjacima, povećalo njihovo samopouzdanje i podiglo razinu društvenoga prihvaćanja. Roditelji su naveli da proces poučavanja nisu smatrali neugodnim ili izazovnim, naprotiv, ocijenili su ga kao nešto što pozitivno utječe na njihovu komunikaciju s djecom. Ovi rezultati pokazuju da intervencija ima snažan profil socijalne valjanosti.

Rezultati djece s PSA-om

Rezultati o učinkovitosti ciljanih socijalnih vještina

Nalazi u vezi s djecom pokazuju da je metoda poučavanja mand-modelom vrlo učinkovita u razvoju triju ciljanih socijalnih vještina (traženje predmeta, traženje pomoći i izražavanje zahvalnosti). D1, D2 i D3 su na početnoj razini pokazali 0 % ili 5 % uspješnosti u svim vještinama, ali su s početkom procesa intervencije brzo postigli visoke razine točnosti. D1 je nakon intervencije pokazao prosječnu uspješnost od 96 % u traženju predmeta, 100 % u traženju pomoći i 96 % u izražavanju zahvale. D2 je pokazao prosječnu točnost od 96 % u traženju predmeta, 100 % u traženju pomoći i 100 % u izražavanju zahvale. D3 je postigao prosječnu točnost od 96 % u traženju predmeta i izražavanju zahvale te 100 % u traženju pomoći. Performanse D4 također su bile značajno više nego prije intervencije, u rasponu od 96 % do 100 % u svim vještinama. Tijekom naknadnih sesija sva su djeca održala svoje performanse u ciljnim vještinama i uglavnom postigla 100 % točnosti. Ovi nalazi ukazuju na to da roditeljsko poučavanje MAND prema mand-modelu proizvodi velike i trajne promjene u ponašanju u kratkom razdoblju. Ciljne socijalne vještine za djecu s PSA-om prikazane su na Slici 3.

Slika 3

Rezultati generalizacije za djecu

Kada su ispitani podatci o generalizaciji, uočeno je da su sva djeca postigla značajan napredak u odnosu na svoje početne razine u generalizaciji osobe i okoline. D1, D2 i D3 postigli su 100 % na posttestu za generalizaciju osobe, u usporedbi s 0 % na pretestiranju; D4 je postigao napredak od 20 % do 100 % u generalizaciji osobe. U kontekstualnoj generalizaciji D1 je porastao s 20 % na 100 %, dok su ostala tri djeteta (D2, D3, D4) porasla s 0 % na 100 %. Ovi rezultati pokazuju da djeca mogu nastaviti koristiti vještine koje su naučila s novim ljudima izvan nastavnoga okruženja i u različitim kontekstima. Slika 4 prikazuje nalaze generalizacije.

Slika 4

Rezultati socijalnih usporedbi

Usporedba rezultata u postizanju društvenih vještina s vršnjacima tipičnoga razvoja otkrila je da su djeca s PSA-om prije intervencije pokazala značajno niže rezultate u tri društvene vještine. Mjerenja nakon intervencije pokazala su da je izvedba djece s PSA-om u traženju predmeta, traženju pomoći i izražavanju zahvalnosti dosegla razinu vršnjaka. Ovi nalazi ukazuju da je program stvorio društveno značajnu i funkcionalnu promjenu. Slika 5 prikazuje nalaze društvene usporedbe.

Slika 5

Rezultati vezani uz interakciju roditelja i djeteta

Nalazi vezani uz interakciju roditelja i djeteta pokazali su da se kvaliteta interakcije povećala, a neadekvatnost odgovora smanjila kod svih parova. Autistični indeks

interakcije smanjio se sa 69 na 33 kod para R1–D1, s 57 na 32 kod para R2–D2, s 66 na 55 kod para R3–D3 i s 64 na 49 kod para R4–D4. Ovo smanjenje ukazuje na povećanje aktivnoga sudjelovanja djeteta i razine uzajamne interakcije tijekom interakcija roditelj–dijete. Slika 6 prikazuje rezultate interakcije roditelj–dijete.

Slika 6

Diskusija

Rezultati ove studije pružaju snažne dokaze da poučavanje roditelja primjenom mand-modela može učinkovito poboljšati poučavateljske vještine roditelja male djece s PSA-om i razvoj socijalnih vještina te djece. U skladu s prethodnim istraživanjima koja naglašavaju važnost intervencija posredovanih od strane roditelja (Oono i sur., 2013.; Patterson i sur., 2012.), nalazi ukazuju na to da roditelji mogu pouzdano naučiti i generalizirati strategije poučavanja utemeljene na dokazima te ih nastaviti koristiti tijekom vremena, čak i nakon završetka strukturirane podrške. Nadalje, nalazi o roditeljskoj primjeni mand-modela u poučavanju u skladu su s nalazima iz studija u literaturi koji ukazuju na to da roditelji pružaju poduku o vještinama i ponašanju svojoj djeci s PSA-om kada su i sami poučavani (npr. Barnett i sur., 2015.; Benson i sur., 2018.; Rogers i sur., 2019.; Siller i sur., 2018.).

Jedno od najvažnijih otkrića studije jest da su svi roditelji sudionici ne samo usvojili roditeljsko poučavanje prema mand-model, već su ga i generalizirali u različitim kontekstima. Ovaj nalaz sugerira da je program roditeljskoga poučavanja učinkovit u promicanju fleksibilnoga poučavanja prilagodljivoga situaciji, koje je potrebno za podršku djeci s PSA-om u stvarnim životnim situacijama (Ingersoll i Wainer, 2013). Dodatno, održavanje vještina nakon završetka poduke ističe održivost učinaka programa roditeljskoga poučavanja (Stahmer i Pellicchia, 2015).

Nalazi s djecom s PSA-om ukazuju na to da stjecanje, održavanje i generalizacija ciljanih socijalnih vještina (traženje predmeta, traženje pomoći i izražavanje zahvalnosti) pokazuju da intervencija ima značajan utjecaj na razvoj djece. Ovi su nalazi u skladu s prethodnim studijama koje pokazuju da strategija mand-modela koju provode roditelji može dovesti do značajnih poboljšanja u socijalnim vještinama djece s PSA-om (Schreibman i sur., 2015.). Nadalje, poboljšanja u interakcijama roditelj–dijete prije i nakon intervencije podupiru ideju da poboljšanje roditeljskih vještina poučavanja može imati šire relacijske koristi te da razvoj ciljnih vještina može utjecati na opću socijalnu interakciju.

Smatra se da nalazi o socijalnoj valjanosti iz ove studije dodatno jačaju njezine rezultate. Roditelji su izvijestili o visokoj razini zadovoljstva procesom i ishodom intervencije. To ukazuje na to da program poučavanja roditelja nije samo praktičan, već i prihvatljiv i izvediv za obitelji u njihovom svakodnevnom životu. Osim toga, nalazi koji pokazuju da djeca s PSA-om pokazuju socijalna ponašanja slična onima njihovih vršnjaka s tipičnim razvojem ukazuju na potencijal intervencija kojima posreduju roditelji, a koje se provode u ranoj dječjoj dobi kako bi se riješili nedostaci

u socijalnim vještinama, što je jedan od glavnih ciljeva istraživanja intervencija kod autizma (National Research Council, 2001).

U literaturi su u studijama provedenim s poučavanjem roditelja identificirane dvije glavne vrste podrške: poučavanje roditelja izravnim prenošenjem vještina i poučavanje roditelja temeljeno na promatranju (Goodman i sur., 2008). U ovoj su studiji roditelji primali podršku u obliku poučavanja roditelja temeljenog na promatranju. Tijekom istraživanja primjena ove vrste poučavanja roditelja pomogla je održati tijek provedbe, spriječila gubitak fokusa kod roditelja ili djeteta, smanjila tjeskobu i pritisak kod roditelja koji nisu bili prisutni tijekom provedbe te doprinijela jasnijem razumijevanju koraka provedbe. Smatra se da je to roditeljima omogućilo da nauče kako poučavati ciljne vještine uz manji broj nastavnih sati (Rodgers i sur., 2019). Osim toga, stručnjak je mogao promatrati roditelja bez prekidanja tijekom nastavne sesije te je imao priliku za dulje razgovore s roditeljima nakon sesije. To je u skladu s nalazima studija koje su koristile poučavanje roditelja koje je temeljeno na promatranju (Meadan i sur., 2023).

U studiji je okružje u kojem su roditelji poučavali svoju djecu vještinama bilo strukturirano/kliničko. Postoji nekoliko razloga za korištenje kliničkoga/strukturiranoga okružja u ovom procesu. Prvi je taj što su preferencije roditelja u vezi s okružjem za roditeljsko poučavanje bile da se proces poučavanja provodi odmah nakon dana i sati kada su njihova djeca već pohađala nastavu, te su naveli da nisu spremni poučavati u prirodnim okružjima. Drugi je razlog poteškoća u kontroli varijabli okoline koje se vjerojatno javljaju u prirodnim uvjetima, potreba za dobivanjem službene ili privatne dozvole za video i audiosnimanje, rizici povezani s prijevozom osoba na mjesta gdje će se vještine primjenjivati te mogući vremenski i financijski gubici. Konačno, djeca s PSA-om mogu steći ciljne socijalne vještine u prilagodabama napravljenim u strukturiranim okružjima kao dio prirodnoga procesa. (Na primjer, očekujući od njih da pokažu vještinu zahvaljivanja stvaranjem prirodnih prilika.) Iz te perspektive, provođenje istraživanja u kliničkom/strukturiranom okružju može se smatrati prednošću.

Kako bi se utvrdilo predviđaju li procesi poučavanja koje su roditelji pružili svojoj djeci njihovu razinu socijalne interakcije, prije i nakon provedbe provedene su 12-minutne sesije socijalne interakcije, a te su sesije promatrane i ocjenjivane pomoću EDKF-TV. Rezultati evaluacija otkrili su pozitivan i značajan odnos između razina recipročne socijalne interakcije svih parova djeteta s PSA-om i roditelja koji su sudjelovali u ovom istraživanju te provedbe. Istovremeno je utvrđeno da su se rezultati autistične interakcije sve djece značajno smanjili u usporedbi s razdobljem prije studije. Na temelju tih nalaza, iako je studija provedena u kliničkom okružju, utvrđeno je da se rezultati studije odrazili na aktivnosti provedenim u prirodnom okružju za igru te da su pozitivno pridonijeli vještinama socijalne interakcije, jednom od najvažnijih dijagnostičkih kriterija za djecu s PSA-om (Mundy i sur., 2010.). Pregledom literature nisu pronađene studije koje su ispitivale razinu uzajamne socijalne interakcije između roditelja i njihove djece dok su roditelji djecu poučavali vještinama ili ponašanju.

Rezultati ove studije interpretirani su primjenom analitičkoga pristupa generalizaciji, prikladnoga za eksperimentalne nacрте s višestrukim početnim stanjima. U istraživanjima

s jednim subjektom, pouzdani rezultati postižu se višestrukim repliciranjem učinka intervencije na različitim sudionicima. Rezultati ove studije pokazuju obrasce slične onima u prethodnim studijama koje dokazuju učinkovitost mand-modela i intervencija prirodnoga poučavanja kojima posreduju roditelji (npr. Warren i sur., 1984.; Peterson, 2004.; Meadan i sur., 2013.). Stoga, iako rezultati ne teže statističkoj generalizaciji, oni podupiru i teorijsku i praktičnu valjanost usklađivanjem s postojećom literaturom.

Ograničenja

Studija je ograničena na karakteristike poučavanje roditelja (istraživača), četvero roditelja (dvije majke i dva oca) i četvero djece s PSA-om (dvojica dječaka i dvije djevojčice). Učinkovitost istraživanja dokazana je samo u pogledu razina poučavanja koje su roditelji provodili koristeći pristup mand-model, razina socijalnih vještina djece s PSA-om u traženju predmeta, traženju pomoći i izražavanju zahvalnosti te razina interakcije roditelj–dijete. Implementacija poučavanje roditelja korištena u studiji bila je ograničena na poučavanje roditelja temeljeno na promatranju.

Buduća istraživanja

Na temelju promatranja istraživača tijekom implementacije mogu se dati sljedeće preporuke: U ovoj je studiji korišten nacrt s višestrukim početnim stanjima i višestrukim ispitivanjem za procjenu učinkovitosti procesa implementacije na stjecanje vještina kod četvero roditelja i četvero djece s PSA-om. Metode istraživanja s jednim subjektom polueksperimentalni su pristupi koji imaju za cilj uspostaviti eksperimentalnu kontrolu uz poduzimanje mjera opreza. Međutim, budući da tijekom implementacije ne postoji odvojena eksperimentalna i kontrolna skupina, nije moguće govoriti o potpunom eksperimentalnom odnosu u ovim metodama. Stoga se učinkovitost implementacije može jače dokazati sveobuhvatnijom, potpuno eksperimentalnom budućom studijom. U ovoj studiji sesijesu snimane videokamerom i stativom u učionici u kojoj su bili prisutni roditelji i djeca. U ovom slučaju djeca su ponekad usmjeravala pažnju na kameru, da bi na kraju postala ravnodušna prema njoj. Kako bi se to spriječilo, buduća istraživanja mogla bi se provoditi u okružju primjene koristeći sustav snimanja s fiksnom kamerom. U ovoj je studiji implementacija poučavanje roditelja prikazala roditeljima primjere videozapisa na pametnoj ploči i poučila ih samo jednom metodom poučavanja. Kako bi seroditelje potaknulo na preuzimanje uloge poučavatelja, buduće studije mogle bi razviti modul poučavanja roditelja koji uključuje razne alate i softverski program koji poučava više tehnika. Ovaj modul mogao bi se podijeliti s roditeljima djece s poteškoćama kako bi se dosegnula šira publika.

U budućim istraživanjima mogu se razmotriti sljedeći prijedlozi. U ovoj je studiji procijenjena učinkovitost provedbe programa poučavanja roditelja o korištenju metode poučavanja mand-modelom. Poznato je da postoji širok raspon metoda i tehnika koje roditelji djece s poteškoćama, uključujući PSA, mogu lako primijeniti u obrazovanju svoje djece. U budućim istraživanjima može se ispitati učinkovitost programa poučavanje roditelja o korištenju različitih metoda, tehnika i strategija

poučavanja kako bi im se pomoglo da postanu učinkovitiji odgajatelji. U ovom su istraživanju djeca učila socijalne vještine kao što su traženje predmeta, traženje pomoći i izražavanje zahvalnosti. Na temelju preliminarnih intervjua s roditeljima i promatranja djece, te su vještine utvrđene kao funkcionalne i prioritetne vještine za djecu s PSA-om. Međutim, još jedno pitanje koje su roditelji smatrali važnim u životu djece s PSA-om bili su problemi s ponašanjem. Roditelji ne znaju kako primijeniti metode i tehnike koje bi im pomogle u suočavanju s problemima ponašanja njihove djece ili ih smatraju izazovnim za primjenu. U budućim istraživanjima moguće bi bilo smanjiti probleme s ponašanjem kod djece s PSA-om počavanjem roditelja metodama i tehnikama modifikacije ponašanja uz podršku programa poduke za roditelje. U ovoj studiji roditelji su bili u središtu pozornosti. Međutim, neposredno okružje djece s poteškoćama nije ograničeno na njihove roditelje. S obzirom na to da je svaki trenutak proveden s osobama iz djetetova neposrednoga okružja prilika za učenje, buduće studije mogle bi uključiti i druge članove obitelji (braću i sestre, bake i djedove itd.) ili njegovatelje/nastavnike kako bi im se omogućilo da preuzmu obrazovnu ulogu u životima djece s poteškoćama. U ovoj je studiji poučavanje roditelja korišteno za roditeljsko poučavanje o primjeni mand-model u poučavanju. Međutim, metode poučavanja odraslih nisu ograničene na poučavanje roditelja. U budućim studijama mogao bi se koristiti drugačiji model obrazovanja odraslih za roditeljsko poučavanje, a rezultati bi se mogli usporediti s poučavanjem roditelja u pogledu učinkovitosti i djelotvornosti. U ovoj je studiji provedba poučavanje roditelja koristila poučavanje roditelja temeljeno na promatranju. Ograničenje ove metode je u tome što i roditelj i stručnjak moraju biti u istom okružju tijekom procesa poučavanja. Drugim riječima, kod provedbe u školi roditelj i dijete moraju ići od kuće do škole; kod provedbe u kući, roditelj-instruktor mora ići u djetetov dom. Taj proces predstavlja izazov u pogledu troškova prijevoza i gubitka vremena. S napretkom tehnologije, razni softveri i uređaji postali su dostupni za korištenje u procesu poučavanja. Buduća istraživanja mogu uključivati poučavanje roditelja koje se provodi na daljinu uz podršku tehnologije. Ovo istraživanje provedeno je u kliničkom okružju kako bi se olakšala kontrola eksperimentalnoga procesa i lakše koordinirao raspored istraživanja, s obzirom na prisutnost djece s PSA-om koja trenutačno nastavljaju svoje obrazovanje u jedinici. Osim prednosti kliničkoga okružja, rad u prirodnim okružjima također je važan jer olakšava generalizaciju stečenih vještina/ponašanja. Stoga bi u budućim istraživanjima bilo moguće provesti studiju u prirodnim okružjima, kao što su dječji domovi ili vanjski prostori.

Zaključak

Studija je imala za cilj ispitati učinke programa roditeljskoga poučavanja koji je osigurao istraživač na sposobnost roditelja da uče, održavaju i generaliziraju poučavanje koristeći pristup mand-modela. Također, ispituju se učinci mand-modela koji primjenjuju roditelji na ciljane socijalne vještine (traženje predmeta, traženje pomoći i izražavanje

zahvalnosti) djece s PSA-om u ranom dječjem razdoblju. Dodatno, u ovoj je studiji ispitivano je li interakcija između roditelja i djece s PSA-om značajno različita od razine prije studije na kraju eksperimentalnoga procesa. Konačno, studijom se nastojala utvrditi društvena valjanost istraživanja procjenom stavova roditelja sudionika prije i nakon provedbe te uspoređivanjem djece s PSA-om s njihovim vršnjacima s tipičnim razvojem na društvenim mjerilima.

Rezultati studije pokazali su da su svi roditelji sudionici naučili koristiti poučavanje prema mand-modelu, pouzdano su ga koristili nakon određenoga razdoblja od završetka studije i generalizirali su ga na različite uvjete. Kada su se rezultati istraživanja ispitivali u pogledu djece s PSA-om, uočeno je da su sva djeca, sudionici ovoga istraživanja, stekla vještine traženja željenoga predmeta za sebe, davanja djelomičnih zahtjeva i izražavanja zahvale te da su te vještine bila u stanju izvoditi nakon određenoga razdoblja nakon završetka istraživanja i generalizirati ih na različite uvjete. Mjerenja interakcije roditelj-dijete provedena prije i nakon studije pokazala su značajne pozitivne razlike. Nalazi studije o socijalnoj valjanosti ukazuju na to da je intervencija bila zadovoljavajuća za roditelje te da su djeca s PSA-om pokazala karakteristike socijalnih vještina slične onima koje imaju vršnjaci tipičnoga razvoja.

Napomena

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