Theory and Practice in Child Development

https://tpicd.org
E-ISSN: 2791-9943
Volume: 5 Issue: 2 2025
pp. 1-24

The Effect of Developmental Sensorimotor Play Programs on Children with Special Needs

Özlem Kiriş*[a] & Belma Tuğrul[a]

***** Corresponding author
E-mail: ozlemkiris@stu.aydin.edu.tr

a. Istanbul Aydın University, Institute of Educational Sciences, Department of Preschool Education, Florya Campus

Article Info
Received: April 20, 2025
Accepted: August 30, 2025
Published: December 17, 2025

10.46303/tpicd.2025.8

How to cite
Kiriş, Ö., & Tuğrul, B. (2025). The Effect of Developmental Sensorimotor Play Programs on Children with Special Needs. *Theory and Practice in Child Development*, 5(2), 1-24. https://doi.org/10.46303/tpicd.2025.8

ABSTRACT
This study aimed to examine the effects of the neuroplasticity-based Developmental Sensory-Motor Play Program (GEDOP) on children with special needs from various diagnoses. The program was applied to 5-10-year-old children with autism spectrum disorder (ASD), language delay, and orthopedic disabilities through their mothers. A quasi-experimental design and qualitative methods were used in the control group study. A semi-structured interview form was created for data collection, and the questions were directed to the mothers in the study groups through pre- and post-interviews. Anecdotal recording forms were provided to mothers to track the children's developmental levels and evaluate notable situations in the experimental group. Research data were supported by information from these forms. The responses to the interview questions and the data in the anecdotal records were analyzed using descriptive content analysis. Based on the findings, the Developmental Sensory-Motor Play Program (GEDOP) was found to have positive effects on the developmental skills of children with special needs. The program not only supported the children's development but also improved family quality of life, particularly enhancing the psychological well-being of mothers. These results highlight the importance of expanding the use of home-based, neuroplasticity-based intervention programs.

KEYWORDS
Family engagement studies; home-centered education; Developmental; children with special needs.

INTRODUCTION

Play is a critical mechanism for learning, influencing a child's life and supporting multiple developmental domains. It fosters cognitive, academic, physical, linguistic, social, emotional, and creative growth (VVOB, 2019). Play enhances skills such as observation, comparison, exploration, strategy development, decision-making, problem-solving, and both abstract and concrete thinking. It also enriches communication-based vocabulary, which forms the foundation of language development and supports socio-emotional growth (UNICEF, 2018).

Play is a fundamental element in the development of typically developing children, but its importance is even greater for children with special needs. These children, identified by professionals based on different developmental trajectories, use play to overcome challenges in social, emotional, cognitive, linguistic, and physical development (Special Education Services Regulation, 2018). With its therapeutic and educational dimensions, play offers adaptable interventions and individualized support. This flexibility highlights the critical role of play in inclusive therapeutic programs, promoting participation, revealing potential, and considering individual capacities throughout the learning process.

The concept of special needs, defined as conditions that hinder individuals from participating in social activities (Yalçın et al., 2024), fundamentally affects their lives. Individuals with special needs require interventions that differ significantly from those of their peers, including continuous care, healthcare services, education, rehabilitation, assistive devices and environmental adaptations (Feurer et al., 2016). The challenges arising from developmental differences necessitate targeted interventions to support the individual's active participation in social life and coordination of daily living skills.

Play fosters emotional, social, linguistic, and physical well-being for both typically developing children and those with special needs, serving as a gateway to complex developmental aspects (Yılmaz, 2019). It enhances self-development, social and emotional regulation, and self-efficacy in individuals with special needs, promoting their overall well-being (Sterman et al., 2018). Play also supports brain development by aiding the formation of neurons and synapses, which are crucial for learning and brain function (Watamura et al., 2003). Since individuals with special needs often require more time to acquire developmental skills, early support and intervention are vital. These interventions not only optimize the use of existing potential but also enhance independence and social integration, improving overall quality of life. Early intervention goes beyond identifying needs; it encompasses educational and instructional strategies aimed at addressing developmental challenges in children (Şahin et al., 2024).

To assess and support the developmental levels of both typically developing children and those with atypical development or special needs, various programs and assessment tools are required. Developmental inventories and support programs, designed by specialists with individualized strategies, address these needs. For these solutions to be effective, they must be sustained and delivered through play—the child's natural language—and within the family environment, which provides security (Aytekin & Bayhan, 2016; Selimoğlu & Özdemir, 2018). Early intervention should be home-centered, with active family participation and parental awareness about the implementation process. Educating parents about their children's developmental needs positively impacts engagement and maximizes the child's potential (Elbir, 2023). Comprehensive parent training programs support both the child's development and the family's ability to provide appropriate guidance (Karadağ, 2021). Support programs are critical for families of children with special needs, as these families face unique physical and psychological challenges (İlhan, 2017). Therefore, intervention programs must also provide emotional support to parents, alongside addressing the child’s sensory, emotional, and developmental needs.

A multidimensional approach that integrates individualized assessment tools with family-centered intervention programs is essential for evaluating and supporting the developmental processes of both typically developing children and children with special needs. Research shows that early intervention, particularly when implemented in home environments with active family participation, results in significant improvements in developmental outcomes (Guralnick, 2017; Phillips & Shonkoff, 2000). In this context, play-based interventions are recognized as one of the most natural and effective methods for supporting children’s cognitive, social, and emotional skills within a safe and motivating environment (Gray, 2010; Yogman et al., 2018). In addition, empowering parents through structured parent training programs enhances their self-confidence, reduces stress levels, and improves adherence to intervention strategies, thereby maximizing the child’s developmental potential (Gökçe, 2017; Kızılkaya, 2021). Globally, families of children with special needs often face complex challenges such as psychological distress, social isolation, and emotional exhaustion. This underscores the necessity of interventions that also target parental well-being (Nahar et al., 2022; Durmaz, 2023; Kayacan, 2024; Kancınar et al., 2024; Şahin et al., 2025; Fu et al., 2025). At this point, educational programs for families of children with special needs play a critical role in enabling parents to take an active and informed role in their child’s development. McLean and colleagues (2002) emphasized that family participation in early intervention and early childhood special education programs is a key determinant of both the social validity and the overall effectiveness of these programs. Similarly, the study by Uysal and Yiğit (2025) demonstrated that web-based, family-centered empowerment programs enhance parental knowledge and skills, allowing parents to provide more effective support for their children. Likewise, Abdelgawad et al. (2025) revealed that the family-centered empowerment model reduces caregiver burden and strengthens psychological resilience, particularly among parents of children with chronic illnesses. These findings clearly highlight the need for comprehensive and holistic intervention models that not only support children’s developmental gains but also help families cope with the multifaceted challenges they face. Therefore, approaches that center both child development and family psychosocial well-being are now regarded as the gold standard in early childhood special education on a global scale (McLean et al., 2002; World Health Organization, 2018).

Problem Statement

There is a need for home-based programs that address the individual needs of children with special needs, enhance developmental processes through sensory abilities, and support family communication. Family members, educators, and policymakers should focus on these children's current capacities, considering their individuality. Research shows that children with special needs, without proper support, risk social disconnection. Therefore, developing home-based, game-based support programs that promote neuroplasticity is essential, as they enable parents to actively participate in interventions. The research question is: "Does GEDOP impact the developmental processes of children with special needs?"

Aim and Significance of the Study

The increasing number of individuals with special needs underscores the need for continuous resources to improve their independent living quality. Comprehensive, individualized solutions are essential to meet their health, education, and employment needs. Early childhood intervention programs should focus on equality and promote social integration. Additionally, these resources must be reviewed and updated by parents, educators, and policymakers in line with global changes. This study aims to examine the impact of the neuroplasticity-based GEDOP on the developmental levels of children aged 5-10 with various special needs diagnoses and assess their mothers' opinions. The study will address the following research questions:

- Does GEDOP impact the developmental levels of children with different special needs diagnoses in an experimental and control group study? What are the pre- and post-assessment results for both groups?
- Do the mothers' opinions differ about their children's developmental processes before and after the research process in the experimental and control groups?

METHOD

Research Design

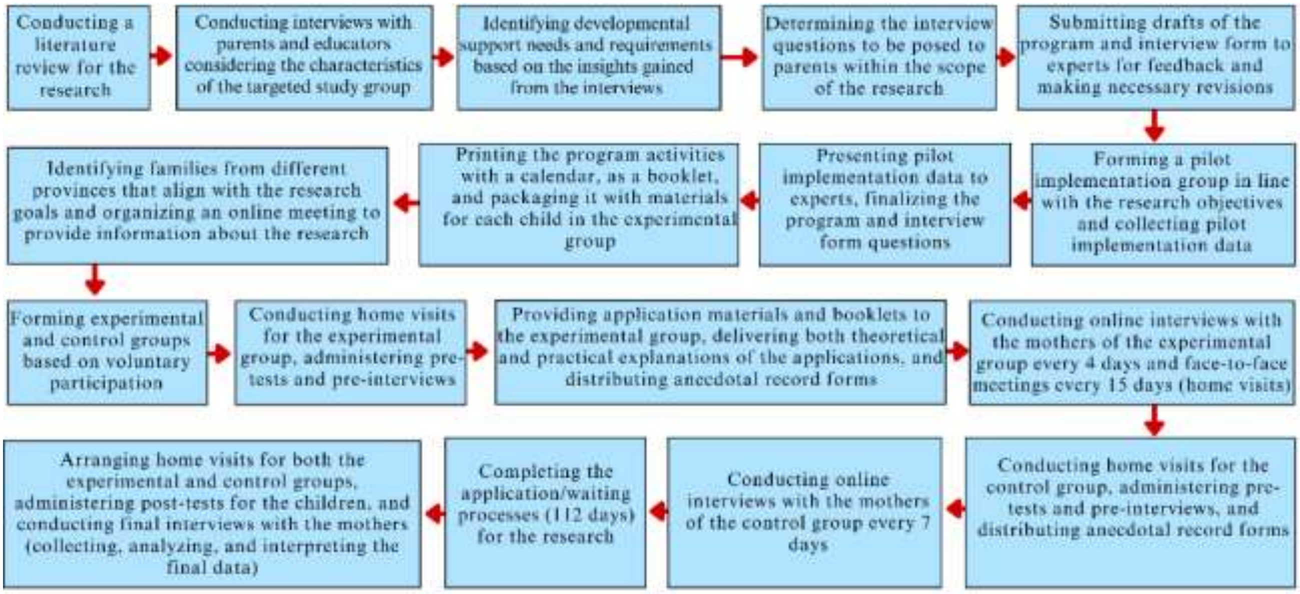
This study used a qualitative approach for in-depth data analysis, supported by document analysis (Şimşek & Yıldırım, 2011). Data were collected using a semi-structured interview form and anecdotal record forms developed by the researchers. A pilot application was conducted with similar groups to assess the tools' suitability for the target population. Face-to-face interviews were held with mothers in both the experimental and control groups, and the audio-recorded data were transcribed and analyzed through content analysis.

Developmental Sensorimotor Play Program and Its Implementation

The Developmental Sensorimotor Play Program, based on neuroplasticity, was developed as part of a master's thesis. Aligned with the Ministry of National Education's criteria for children aged 0-6 and the Portage Developmental Inventory's benchmarks, the program supports children's developmental levels while promoting parent-child participation. It aims to enhance problem-solving, attention span, pronunciation, and sensory development through neuroplasticity (Kiriş, 2024). Developed over eight months with expert input and pilot trials, the program includes sixteen games using twenty-nine materials. This study examines the program's effects on children with various special needs diagnoses and explores mothers' perceptions of their children's developmental levels.

Figure 1.

GEDOP Implementation Flowchart



The parents in the experimental group implemented GEDOP for 112 days, without participating in any external intervention or support programs. The control group parents also did not engage in any such programs. Researchers maintained communication with both groups, observing parent-child interactions and ensuring adherence to the non-participation criterion. After the implementation phase, an online meeting was held where experimental group mothers shared their experiences with the control group mothers. Following the meeting, both groups were re-interviewed to evaluate the program and reflect on their experiences.

Study Group

The research was conducted with children diagnosed with various special needs and their mothers, from different cities in Turkey. Tables with the codes and demographic information of participants in both the experimental and control groups are provided below.

The study group was selected based on the criterion that children in both the experimental and control groups did not receive private therapy or home-based support, except for education at Ministry of National Education schools (special education and mainstream classes) and support at state-funded rehabilitation centers. Adherence to this non-participation criterion was monitored during the play program implementation.

Table 1.

Demographic Information Table of the Study Groups

DEMOGRAPHİC INFORMATİON TABLE

EXPERİMENTAL GROUP CHİLDREN

Code	Age	Diagnosis	Educational Institutions	City of Residence
DÇ1	117 months and 24 day	ASD	Special Education School – Rehabilitation Center	Samsun
DÇ2	64 a months and 13 day	ASD	Special Education School – Rehabilitation Center	Sivas
DÇ3	63 months and 20 day	Delayed Language	Mainstreaming	Sivas
DÇ4	66 months and 9 day	Orthopedic Disability	Mainstreaming – Rehabilitation Center	Manisa

CONTROL GROUP CHİLDREN

Code	Age	Diagnosis	Educational Institutions	City of Residence
KÇ1	86 months and 11 day	ASD	Special Education School – Rehabilitation Center	Muğla
KÇ2	74 months and 8 day	ASD	Special Education School – Rehabilitation Center	Sivas
KÇ3	73 months and 16 day	Delayed Language	Mainstreaming	Sivas
KÇ4	71 months and 3 daty	Orthopedic Disability	Mainstreaming – Rehabilitation Center	Manisa

EXPERİMENTAL GROUP MOTHERS

Code	Age	Number of Children	Education Level	City of Residence
DA1	34	2	Bachelor's Degree	Samsun
DA2	39	4	Middle School	Sivas
DA3	30	1	Bachelor's Degree	Sivas
DA4	40	1	Elementary School	Manisa

CONTROL GROUP MOTHERS

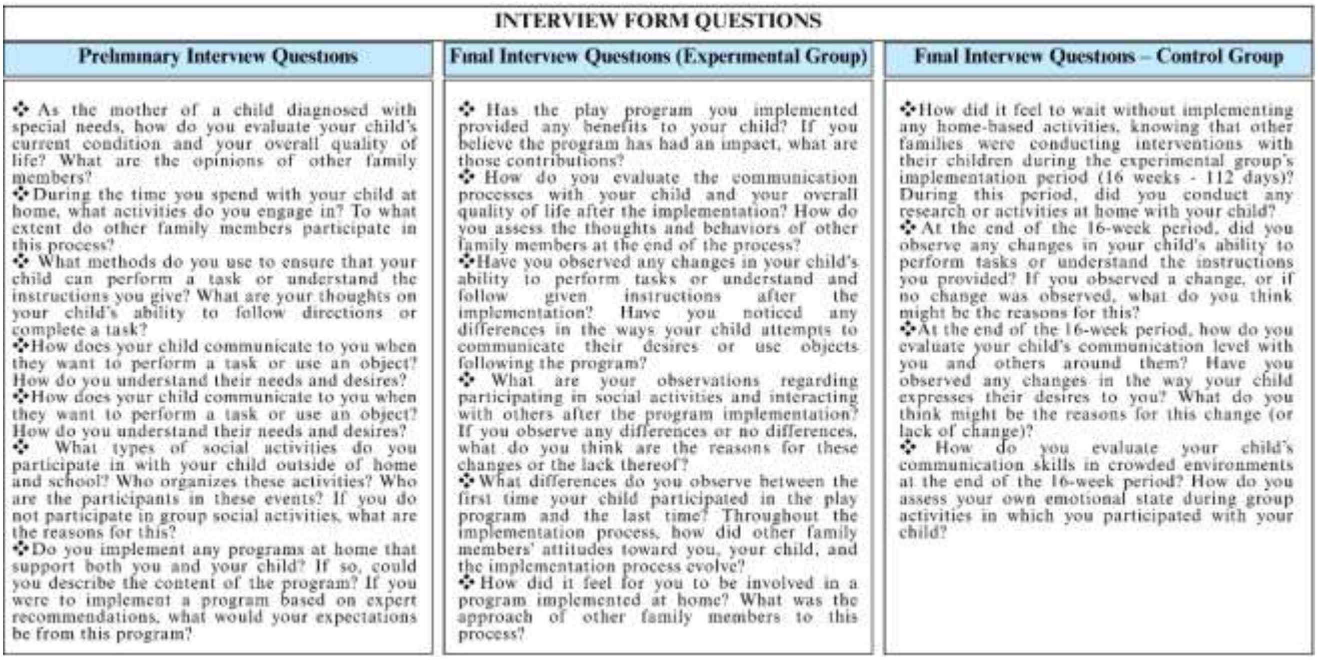
Code	Age	Number of Children	Education Level	City of Residence
KA1	30	1	Bachelor's Degree	Muğla
KA2	28	2	Associate Degree	Sivas
KA3	26	1	High School	Sivas
KA4	29	2	High School Dropout	Manisa

Data Collection Tools and Data Collection Process

Research data were collected using a semi-structured interview form and an anecdotal record form developed by the researchers. The interview questions, based on studies about the educational processes of children with special needs and interviews with special education educators and parents, were revised after expert feedback. The form included questions on demographic information and the implementation process. It was used to assess the diagnoses, ages, routine education, sensory sensitivity, word pronunciation, eye contact duration, and social participation of children with special needs. Mothers' responses were recorded, and the data were supported by the anecdotal record forms. The questions posed to the mothers are provided below.

Table 2.

Parent Interview Form Questions



INTERVIEW FORM QUESTIONS		
Preliminary Interview Questions	**Final Interview Questions (Experimental Group)**	**Final Interview Questions – Control Group**
❖ As the mother of a child diagnosed with special needs, how do you evaluate your child's current condition and your overall quality of life? What are the opinions of other family members? ❖ During the time you spend with your child at home, what activities do you engage in? To what extent do other family members participate in this process? ❖ What methods do you use to ensure that your child can perform a task or understand the instructions you give? What are your thoughts on your child's ability to follow directions or complete a task? ❖ How does your child communicate to you when they want to perform a task or use an object? How do you understand their needs and desires? ❖ How does your child communicate to you when they want to perform a task or use an object? How do you understand their needs and desires? ❖ What types of social activities do you participate in with your child outside of home and school? Who organizes these activities? Who are the participants in these events? If you do not participate in group social activities, what are the reasons for this? ❖ Do you implement any programs at home that support both you and your child? If so, could you describe the content of the program? If you were to implement a program based on expert recommendations, what would your expectations be from this program?	❖ Has the play program you implemented provided any benefits to your child? If you believe the program has had an impact, what are those contributions? ❖ How do you evaluate the communication processes with your child and your overall quality of life after the implementation? How do you assess the thoughts and behaviors of other family members at the end of the process? ❖ Have you observed any changes in your child's ability to perform tasks or understand and follow given instructions after the implementation? Have you noticed any differences in the ways your child attempts to communicate their desires or use objects following the program? ❖ What are your observations regarding participating in social activities and interacting with others after the program implementation? If you observe any differences or no differences, what do you think are the reasons for these changes or the lack thereof? ❖ What differences do you observe between the first time your child participated in the play program and the last time? Throughout the implementation process, how did other family members' attitudes toward you, your child, and the implementation process evolve? ❖ How did it feel for you to be involved in a program implemented at home? What was the approach of other family members to this process?	❖ How did it feel to wait without implementing any home-based activities, knowing that other families were conducting interventions with their children during the experimental group's implementation period (16 weeks - 112 days)? During this period, did you conduct any research or activities at home with your child? ❖ At the end of the 16-week period, did you observe any changes in your child's ability to perform tasks or understand the instructions you provided? If you observed a change, or if no change was observed, what do you think might be the reasons for this? ❖ At the end of the 16-week period, how do you evaluate your child's communication level with you and others around them? Have you observed any changes in the way your child expresses their desires to you? What do you think might be the reasons for this change (or lack of change)? ❖ How do you evaluate your child's communication skills in crowded environments at the end of the 16-week period? How do you assess your own emotional state during group activities in which you participated with your child?

Data Analysis

The responses of the parents to the interview questions were audio-recorded and subsequently transcribed verbatim. The data were then analyzed using descriptive content analysis. This method allowed for the systematic coding of the collected data, the identification of themes, and the determination of the frequency with which these themes occurred (Robson, 2017). In addition, the findings were supported by the analysis of anecdotal record forms completed by the mothers, enabling data triangulation through the comparison of information from different sources.

The analysis process revealed the perspectives of mothers of children with special needs regarding their children's development, their quality of life, the time spent with their children, the attitudes of other family members, their children's behaviors in social settings, communication skills, abilities to comprehend and follow instructions, and their opinions about the GEDOP program. Furthermore, the comparison of pre- and post-interview data and the development of recommendations based on these findings were significantly informed by the content analysis.

To ensure the reliability of the analysis, a detailed coding guide was developed, and coding was carried out independently by two researchers. Inter-coder reliability was assessed using Cohen's Kappa coefficient, resulting in a high agreement value of 0.84 (Altaş, Kaspar & Ergüt, 2012). Discrepancies between coders were regularly reviewed and resolved through structured consensus meetings. This rigorous qualitative analysis process enabled the in-depth exploration of the research findings and significantly enhanced the scientific credibility and trustworthiness of the study.

The study group was selected based on the criterion that children in both the experimental and control groups did not receive private therapy or home-based support, except for education at Ministry of National Education schools (special education and mainstream classes) and support at state-funded rehabilitation centers. Adherence to this non-participation criterion was monitored during the play program implementation.

FINDINGS

Opinions Regarding the First Research Question

To examine the effects of GEDOP on the developmental levels of children with special needs, the following questions were formulated: "Does GEDOP impact the developmental levels of children with different special needs diagnoses in an experimental and control group study? What are the pre- and post-assessment results of children in both groups?" Data were collected during pre- and post-interviews with mothers regarding sensory sensitivity, word pronunciation, eye contact duration, attention span, and social participation. The data were then tabulated (Table 3, see appendix).

In the preliminary interviews, the children's sensory responses to stimuli and their reactions to the information they received through their senses were examined. Upon analyzing the mothers' responses during the interviews, it was found that the children had difficulties touching different surfaces and tasting/eating various foods. Among the children in the study groups, five children exhibited intense sensitivity to both touch and taste, one child showed mild sensitivity to touch but intense sensitivity to taste, one child demonstrated high sensitivity to touch, and one child showed no signs of sensory sensitivity. (Table 3).

In the follow-up interviews, two children with ASD from the experimental group, who had shown sensitivity to both touch and taste in the preliminary interviews, were observed to continue showing intense sensitivity to taste, but their sensitivity to touch had decreased following the implementation of the GEDOP program. A decrease in touch sensitivity was observed in the child with orthopedic disabilities in the experimental group, while no changes were detected in the child diagnosed with delayed language. The mothers of the children in the experimental group associated the positive changes in touch sensitivity with the materials in the game program that activated the sense of touch, while they attributed the lack of change in taste sensitivity to the absence of any activities targeting taste in the program. After the 112-day waiting period, the follow-up interviews with the mothers of the control group revealed that three mothers (KA1, KA2, KA4) reported that their children's sensitivity to both touch and taste persisted, while the mother of the child diagnosed with delayed language observed an increase in mild touch sensitivity.

In the preliminary interviews, it was found that DÇ1 from the experimental group, diagnosed with ASD, was able to pronounce 4-5 words, DÇ2 could pronounce 1 word. In the control group, KÇ1, diagnosed with ASD, was able to pronounce 1-2 words, while KÇ2 did not pronounce any words. It was observed that children with ASD, across different developmental levels, generally tried to communicate their emotions and needs to their mothers using voices of varying tones. DÇ3, diagnosed with delayed language, was able to pronounce 150-200 words, while KÇ3 pronounced 100-150 words. Both children were able to form 2-3 word sentences, but these sentences were only understood by their mothers. DÇ4 and KÇ4, who had orthopedic disabilities (mobility impairments), were able to speak according to their chronological age, but they only formed 2-3 word sentences with their family members related to their needs or circumstances.

In the follow-up interviews, it was observed that DÇ1, diagnosed with ASD, was able to pronounce 10-12 words, and DÇ2 could pronounce 7 words. However, neither child had developed the ability to form sentences. DÇ3, diagnosed with delayed language, increased the number of words they could pronounce to 300-350, and their sentence formation capacity increased to 3-4 words. It was observed that 60-70 of these words were clearly understood by individuals other than their mother. DÇ4, who demonstrated appropriate word pronunciation for their chronological age, showed improvement in their vocabulary and the ability to construct longer sentences. The mothers of DÇ3 and DÇ4 reported that their children's communication skills had strengthened, that they were now able to communicate with others, and that they were making efforts to express their emotions. On the other hand, the mothers in the control group reported that there was no positive development in their children's word pronunciation or communication skills, and the situation from the preliminary interviews remained unchanged (Table 3).

During the preliminary interviews, data were collected regarding the children's ability to establish and maintain eye contact and their ability to focus on events or objects. Based on these data, it was found that DÇ1 and KÇ1, diagnosed with ASD, established immediate eye contact when their names were called, with DÇ1 briefly focusing on events and objects, while DÇ2 did not show any such focus. It was recorded that DÇ2 and KÇ2, both diagnosed with ASD, did not exhibit the ability to establish eye contact or focus on events/objects. DÇ3, diagnosed with delayed language, was able to establish eye contact and could focus on events/objects for 1-2 minutes. Similarly, KÇ3 was able to maintain focus on events/objects for 2-3 minutes. DÇ4, diagnosed with orthopedic disability, was able to maintain eye contact for 1 minute and focus on events/objects for 1-2 minutes. In contrast, KÇ4 was able to maintain eye contact for 2-3 minutes and focus on events/objects for the same duration (Table 3).

In the follow-up interviews, positive progress in the ability to establish eye contact and focus on events/objects was observed in the children from the experimental group, while no significant change was recorded in the control group compared to their initial status. In the experimental group, DÇ1 was able to focus for 1 minute, DÇ2 for 10-15 seconds, DÇ3 for 10-13 minutes, and DÇ4 was able to maintain eye contact for 4-5 minutes and focus on events/objects for 15-17 minutes (Table 3). Randomly selected parental feedback regarding the developmental levels of the children is as follows:

*“**KA1: (Pre-Interview)** When he wants something, he says 'Mom' or 'Give me.' Since the others at home don't understand him, he comes to me. He can't touch everything, he can't sleep on every pillow, he can't wear everything. His teachers say, 'No matter what we do, we can't make him look at something.' As long as he doesn't hurt himself, I'm fine with everything.”*

The findings indicate that GEDOP has positively affected the developmental levels of the children in the experimental group.

Views Regarding the Second Research Question

In order to determine whether GEDOP had an impact on the mothers' views regarding their children's developmental levels, the following question was posed: "Is there a difference between the views of mothers in the experimental and control groups regarding their children's developmental processes before and after the research process?" In this context, preliminary and final interviews were conducted with the mothers in the study groups, and the questions presented in Table 2 were asked. The responses provided by the mothers during the interviews were transcribed from the audio recordings and subjected to descriptive content analysis, resulting in the identification of themes. As a result of the analysis, five themes were created: "Quality of Life and Family Involvement, Time Spent at Home, Communication and Compliance with Instructions, Level of Participation in Social Activities, and Program and Process Evaluation." The responses given by the mothers were examined in detail under each theme.

Comparing the preliminary and final interview responses revealed positive changes in the experimental group mothers' views on their children's development, family environments, and time spent with their children. In contrast, no positive changes were observed in the control group. Two control group mothers' responses remained consistent, while two others showed negative changes. In the final interviews, three experimental group mothers expressed a desire to continue the program, and two control group mothers showed interest in implementing GEDOP. The mothers' responses were analyzed by theme.

a. Parental Views on the Theme of "Quality of Life and Family Involvement"

Mothers in the study groups, during preliminary interviews, shared the challenges of raising a child with special needs and the psychological pressure these challenges caused. They described emotional distress related to their children's diagnoses, negative comments from others, tension from their children's uncontrollable behaviors, social isolation, reduced personal well-being due to sole responsibility, and the financial burden of rehabilitation/healthcare expenses.Six mothers reported that they did not receive support from their husbands during their children's education and rehabilitation processes, while two mothers (DA1, KA3) mentioned sharing responsibilities with their husbands. One mother (DA2) stated that her older child supported her in every way. Five mothers indicated that they tried to solve their emotional and financial problems on their own, while two mothers (DA1, KA3) received support from their spouses. Additionally, six mothers (DA2, DA3, DA4, KA1, KA2, KA3) stated that their husbands held them responsible for the issues at home. A randomly selected response from the mothers in the study groups is presented below.

*“**DA1:** When my child was diagnosed with ASD, I had to quit my job. It was very difficult to cope with not finding a place to leave my child, the comments made by people without understanding, the arguments caused by my child breaking and destroying things, and many other things. In the end, I resigned. Sometimes, I don't even have time to comb my hair. My husband is very supportive in everything. When I don't know what to do for my child, I feel desperate. Is there anyone who doesn't feel that way? I don't think so.”*

In the final interviews, it was observed that the mothers in the experimental group had developed better time management skills, and that their children exhibited calmer behaviors as a result of the implemented activities. This, in turn, provided the mothers with the opportunity to allocate time for themselves. The mothers reported that fathers, who initially reacted negatively, began to support them after noticing the changes in their children and started to assist with general responsibilities during the implementation process. Additionally, the mothers in the experimental group stated that they felt psychologically relieved due to the reduction in their children’s stress and physical aggression. While the opinions of the two mothers in the control group remained unchanged, two mothers expressed that they had observed an increase in the difficulties related to their children's conditions. The mothers in the control group reported that their quality of life was decreasing with each passing day and that their opportunities to dedicate time to themselves had diminished. A sample response from the final interview is presented below.

*“**KA4:** It seems like my child is becoming more withdrawn with each passing day. He is becoming more aggressive. This also reflects in the house. I am struggling. The younger child also mimics everything he sees from the older one. Actually, it feels like I have two children with disabilities. And then there’s my husband. In doing things for them, I often forget about myself."*

b. Parent Views on the Theme of "Time Spent at Home"

In the initial interviews, mothers stated that they did not engage in activities with their children and that they were primarily focused on meeting their children's physical needs, such as eating, drinking, sleeping, and cleaning. They also mentioned that they tried to anticipate any potential discomfort arising from their children's reactive behaviors. Mothers of children diagnosed with ASD indicated that they kept their children under constant supervision due to the possibility of them harming both themselves and others. Additionally, three mothers (DA1, KA1, KA3) mentioned that, to prevent unrest at home, they gave their children digital devices such as phones or tablets. Below are randomly selected responses from the mothers during the initial interviews:

*“**DA2**: I can't predict what will make him angry. I just try to make sure he eats, drinks, and sits quietly. Otherwise, the whole house gets turned upside down. I no longer worry about things getting broken. My only concern is that he doesn't harm himself. After a while, I stop paying attention to the complaints of the other people in the house."*

In the final interviews, the mothers in the experimental group reported that after participating in the activities, they were able to predict when their children would play and that the activities helped calm their children. The mothers of children diagnosed with delayed language and orthopedic disabilities noted that when their children wanted to play games from the program, they would bring the materials to them, and that their children would initiate and play the games with their mothers. It was observed that children with delayed language and orthopedic disabilities, who had previously not interacted with their peers, began to teach the games they had learned to their peers after starting the game program. The mother of the child with an ASD (DÇ1) mentioned that her child directed himself towards the material box, while the mother of the other child with ASD (DÇ2) stated that her child calmly sat on the floor and waited when he saw the materials. However, the mothers in the control group reported no positive changes in their children's condition during the final interview, and mentioned that the tension at home had increased. A randomly selected parental response is as follows:

"KA1*: There's no change at all. I just want peace at home. I want both my child and my husband to be quiet, that's all. Feeding him is often a torment. There's always chaos, and the noise reaches the neighbors. Sometimes the upstairs neighbor knocks on the radiator to get us to be quiet... I can't do anything, so I give him the phone. That's the only way he stays quiet."*

c. Parent Feedback Regarding the Theme of "Communication and Compliance with Instructions"

During the initial interviews:

- The mother of a child diagnosed with ASD (DÇ1) reported that her child used 4-5 words but could not form sentences, only pronouncing words such as "give," "take," and "mom" to express needs. The child had difficulty understanding and following instructions, but when their name was called, they made brief eye contact.
- The mother of a child diagnosed with ASD (DÇ2) indicated that her child rarely used the word "give," did not make eye contact, and could not focus on events/objects, therefore could not independently follow instructions. However, when their shoulder was touched or their hand held, they were able to follow instructions with adult assistance.
- The mother of a child diagnosed with ASD (KÇ1) reported that her child could speak 2-3 words but used them infrequently. The child's eye contact and focus on events/objects were momentary, which meant they were unable to follow instructions.
- The mother of a child diagnosed with ASD (KÇ2) mentioned that her child had no word pronunciation, did not make eye contact, did not focus on events/objects, and could not independently follow instructions, but was able to follow instructions with adult support.
- The mother of a child diagnosed with delayed language (DÇ3) noted that her child could pronounce 150-200 words, while KÇ3 could pronounce 100-150 words. Both children formed 2-word sentences, but these sentences were only understood by their mothers.
- The mother of a child with orthopedic disabilities (DÇ4) and the mother of another child with orthopedic disabilities (KÇ4) mentioned that their children could speak according to their chronological age, but due to their social-emotional development being below their age, they

only engaged in speech for needs with their mothers or teachers. They understood instructions but sometimes refused to follow them.

In the final interviews, it was observed that the children in the experimental group had increased their word pronunciation, and the duration of their eye contact and focus on events/objects had increased. In the initial interviews, it was noted that children diagnosed with ASD made various sounds to express their needs, while children with delayed language and orthopedic disabilities only communicated based on their needs. It was also noted that the words pronounced by children with delayed language were understood only by their mothers, while children with orthopedic disabilities made no attempts to communicate with individuals other than their mothers and teachers.

In the final interviews, the mothers in the experimental group reported that their children were more willing to follow instructions after recognizing the mothers giving them, and were more eager to follow instructions. The child diagnosed with delayed language (DÇ3) was observed to begin pronouncing more words, with people other than the mother starting to understand them. This child was also observed to be more willing to communicate with peers and adults. The child diagnosed with orthopedic disabilities (DÇ4) was found to be more willing to communicate with others as their vocabulary expanded.

During the initial interviews, eight mothers in the study groups expressed feeling inadequate in communicating with their children, mentioning that when they tried to communicate, they were mainly focused on instructing their children to perform tasks. As a result, their children were unwilling to understand and follow instructions. In the final interviews, the mothers in the experimental group stated that the rhymes/songs in the program helped them in communicating with their children, and that they had started using rhymes and songs to get their children to do tasks outside of the research activities. These rhymes/songs were reported to have a calming effect on the children diagnosed with ASD (DÇ1, DÇ2). A randomly selected parent response is as follows:

"KA2: (Initial Interview) *I can understand what he wants by the sounds he makes. He makes different sounds when he's hungry, and different sounds when he needs to go to the bathroom. When I say 'Do this,' he doesn't understand me. I don't know what to do."*

d. Parental Feedback Regarding the "Social Participation" Theme

During the initial interviews, six mothers in the study groups stated that they did not participate in activities with their children, other than those organized by schools. They expressed discomfort with the stares directed at their children and their concern that relatives and friends might be disturbed by their children’s behavior, which led them to avoid visiting family or friends. Furthermore, they refrained from receiving guests, fearing that their children would cause discomfort. The mothers indicated that they only visited parks and recreational centers as part of school activities and mentioned that due to psychological pressure, they did not wish to spend time in environments outside their homes or those specifically suited for families with children with special needs. The mothers of children in the experimental group with delayed language (DÇ3) and in the control group with orthopedic disabilities (KÇ4) reported that they tried to choose appropriate environments for their children, taking into account their emotional states. They mentioned selecting places for family or friend visits where their children's special needs would be understood. Additionally, mothers (DA3, KA4) emphasized that rather than focusing on the negative glances and criticisms they received in these environments, they focused on their children's reactions to these behaviors and what they could do to address them.

In the final interviews, one mother from the experimental group (DA2), whose child had a diagnosis of ASD, explained that although her child felt uncomfortable in unfamiliar environments, after implementing the GEDOP program, her child calmed down with the songs and rhymes included in the program. When they had to go to places such as hospitals, they took the game materials with them and continued applying the program. She mentioned that people around them watched them in astonishment, later asking about the content and purpose of the program. Some individuals asked whether those with special needs children could also apply the program, while others showed positive attitudes toward their actions. Mothers (DA1, DA3, DA4) in the experimental group reported that after applying the program, their children had more stable social interactions with different people and in various environments, and their levels of negative responses had decreased. Mothers DA3 and DA4 mentioned that their children's communication skills had improved, and they began to make efforts to communicate with both adults and peers. They also reported that their children gained confidence and no longer felt uncomfortable in crowded environments. In the control group, three mothers (KA1, KA2, KA3) stated that their children remained uneasy in social environments and did not wish to be in crowded places due to environmental factors. As a result, they increasingly limited the time spent outdoors. KA4, on the other hand, mentioned that when her child felt uncomfortable in a situation, she would change environments and preferred places with less human traffic, as her child did not want to enter crowded spaces. At the end of the intervention, mothers in the experimental group reported that the amount of time spent outdoors with their children had increased and their participation in social activities had risen. In contrast, mothers in the control group noted that they spent more time at home and had withdrawn from social interactions. A randomly selected parent's response regarding the theme of "Social Participation" is as follows: ***"DA2: (Final Interview)*** Before, leaving the house was a torment. Now, I take him outside with the song from your program. I bring the flower-shaped toys you gave us to every place we go. He plays with them and doesn't shout at others. Normally, I couldn't sit him anywhere other than his chair at home. He used to get uneasy. Now, he only reacts when someone he doesn't know touches him."

e. Parental Feedback on the "Program and Process Evaluation" Theme

As part of the study, online meetings were conducted with mothers of children with special needs, and their feedback regarding the feasibility of the program was collected to form the experimental and control groups. Mothers who expressed concerns about their ability to implement the program and manage the process were placed in the control group (KA1, KA2, KA3, KA4). In contrast, mothers in the experimental group (DA1, DA2, DA3, DA4) mentioned that they did not view the program from an expert perspective, and while they were unsure of the exact outcomes for their children, they were willing to try any method that could potentially support their children’s development. Three mothers in the experimental group (DA1, DA2, DA4) indicated that they expected the intervention program to support their children's motor skills, while one mother (DA3) hoped the program would enhance her child’s language skills. Additionally, the mothers in the experimental group noted that seeing positive outcomes for their children would provide them with psychosocial support. In the initial interviews, the mothers in the study groups reported that they had not previously participated in any home-based programs that were directed by experts. They shared that they had difficulty implementing activities sent from schools and rehabilitation centers and often failed to complete them successfully.

In the final interviews, mothers in the experimental group reported that the intervention program supported their children holistically, particularly in areas of language and motor skills. They mentioned that the program helped develop their children's communication and social adaptation skills while reducing negative reactive behaviors. Furthermore, these changes were not only noticed by the mothers themselves but also by those around them. Fathers, who were initially skeptical about the program, showed increased supportive behavior as they observed changes in their children. Mothers in the control group, on the other hand, expressed feelings of guilt for not implementing the program and showed curiosity about the progress of mothers in the experimental group. Two mothers in the control group (KA2, KA4) mentioned that they had started seeking programs they could apply at home. After the online evaluation meeting, three mothers in the experimental group (DA1, DA2, DA3) requested an extension of the program to ensure the persistence of the developmental changes, while two mothers in the control group (KA2, KA4) expressed interest in implementing the GEDOP program. However, one mother in the experimental group (DA4) and two mothers in the control group (KA1, KA3) indicated that they did not wish to continue or implement the program, stating that they felt they could not manage the process. Randomly selected parental feedback regarding the program and process evaluation is as follows:

“DA3: (Final Interview) *Both my husband and I, as well as others around us, notice the changes in my child. Being able to do something with him and for him has been beneficial for me as well. It doesn’t seem reasonable to step aside when I can say, 'I’m doing my best.' This must continue, you must explain to us. If you explain, I will apply it no matter what."*

DISCUSSION

This study comprehensively examined the effects of the neuroplasticity-based Developmental Sensory-Motor Play Program (GEDOP) on the developmental levels of children with various special needs diagnoses. The findings revealed significant improvements in the experimental group, including reductions in sensory sensitivity, prolonged eye contact duration, increased attention span, and enhanced social interaction skills. These improvements are directly linked to the neuroplasticity theory, which posits that the brain can structurally and functionally change in response to environmental stimuli and experiences, strengthening synaptic connections through repeated activation (Kolb & Gibb, 2011). Thus, GEDOP can be considered an effective structured intervention that supports both the neurological and socio-emotional development of children.

The observed developmental progress extended beyond individual skills to positively impact family dynamics. Mothers reported that improvements in their children were recognized by their social circles, strengthening support networks and enhancing psychological well-being. Furthermore, increased paternal involvement in child care indicated a positive shift in gender roles, fostering more equitable responsibility sharing and collaboration within the family system. These findings align with previous research highlighting the positive psychosocial effects of family-centered interventions on both child development and parental well-being (Peker et al., 2015; Gökçe, 2017; Mitra et al., 2018).

Conversely, no significant developmental progress was observed in the control group; in some cases, negative trends such as increased stress, sensory sensitivity, and aggressive behaviors emerged. Mothers in the control group reported feelings of guilt, helplessness, and social isolation due to the lack of structured intervention, which contributed to heightened family conflict and decreased psychological resilience. These results are consistent with literature indicating that absence of intervention can lead to developmental regressions in children with special needs and adverse psychological effects on families (Topal, 2021; Wahap & Ramli, 2022).

Recent international studies further corroborate the efficacy of play-based interventions. For example, Karbasi Amel et al. (2023) demonstrated that play therapy combined with storytelling significantly improved social skills such as self-confidence, self-regulation, and cooperation in children diagnosed with ADHD. These outcomes closely parallel the social development observed in the GEDOP experimental group. Moreover, Francis et al. (2022) conducted a systematic review and meta-analysis revealing that play-based interventions for children with Autism Spectrum Disorder (ASD) and Developmental Language Disorder (DLD) significantly enhanced emotional processing and positive affect (Cohen's d ≈ 1.60). This supports the notion that GEDOP contributes not only to cognitive and behavioral development but also to emotional well-being.

A randomized controlled trial by Yana, Kavlak, and Güneş (2022) involving children with Down syndrome found that combining sensory integration therapy with neurodevelopmental therapy was more effective in improving attention and motor skills than neurodevelopmental therapy alone. GEDOP's sensory-motor focus likely produces similar benefits in motor coordination and sensory regulation. Additionally, "My Child's Play," a validated scale developed by Cho et al. (2021), provides a reliable tool for assessing play behaviors in children with special needs, facilitating individualized intervention planning and systematic monitoring within programs like GEDOP.

Overall, the findings demonstrate that neuroplasticity-based, play-centered interventions not only enhance developmental gains in children with special needs but also improve parental psychological resilience and quality of life. These results underscore the critical importance of disseminating structured, evidence-based, home-centered intervention programs. The challenges mothers face in independently implementing such programs highlight the necessity for educational and material support.

Furthermore, despite the diverse diagnoses within the experimental group, similar developmental gains were achieved, illustrating the program's flexibility and adaptability. This provides strong evidence that neuroplasticity-based interventions can be individualized across a range of developmental needs, regardless of diagnosis. The participants' requests for continuation of the program suggest that GEDOP offers sustainable long-term developmental benefits rather than merely short-term effects.

In conclusion, this study provides robust evidence that the neuroplasticity-based GEDOP significantly enhances the developmental potential of children with special needs while positively impacting parental psychological well-being. These results emphasize the critical need for holistic, scientifically grounded approaches in early intervention that focus not only on the child but also on the family. The widespread implementation of innovative interventions like GEDOP should be regarded as an indispensable cornerstone in future health and education policies aimed at improving the quality of life and social inclusion of individuals with special needs.

CONCLUSION

This study has clearly demonstrated that the neuroplasticity-based Developmental Sensory-Motor Play Program (GEDOP) leads to significant and lasting improvements across developmental domains in children with various special needs. The reductions in sensory sensitivity, increased attention span, enhanced eye contact, and notable progress in social interaction skills observed in the experimental group indicate that the program effectively activates brain plasticity (Wen & Wu, 2025). These gains provide compelling evidence that the children are undergoing a holistic developmental process—neurologically, cognitively, and socio-emotionally.

In particular, the role of sensory-motor-focused activities in improving motor coordination and social skills contributes to both individual and social functionality. These findings also support the efficacy of structured, play-based interventions (Stewart et al., 2023). Additionally, technology-supported and play-integrated contemporary practices offer effective tools for enhancing attention and focus, triggering positive neurological changes in children (Yang et al., 2021). This neuroscience-informed approach provides an innovative and evidence-based direction for early intervention practices. Moreover, creative techniques such as storytelling and play therapy have been shown to enhance subdomains of social skills—such as self-confidence, self-regulation, and cooperation—in children with attention deficit hyperactivity disorder, aligning with the outcomes of GEDOP and highlighting the program's flexibility (Karbasi Amel, Rahnamaei & Hashemi, 2023).

These developmental gains extended beyond the children themselves, generating deep and positive transformations within family dynamics. Increases in maternal psychological resilience and overall well-being, balanced distribution of responsibilities within the household, and greater paternal involvement in caregiving have collectively contributed to a positive shift in gender roles. Strengthened social support networks and improved quality of life among families further underscore the program's multidimensional benefits (Romero-Ayuso et al., 2021).

Conversely, the control group, which did not receive any intervention, exhibited developmental stagnation and regression, accompanied by increased parental stress, helplessness, and social isolation. These outcomes powerfully underscore the critical importance of early intervention and accessible support mechanisms. One of the most striking aspects of the study is GEDOP's ability to produce similar developmental outcomes in children with diverse diagnoses. This suggests that the program's individualized structure allows it to be effective across a wide spectrum of needs, regardless of diagnosis, and that it can be adapted to meet each child's unique developmental profile. In conclusion, GEDOP represents an innovative, neuroplasticity-driven, play-centered, and family-supported intervention model that fosters not only short-term but also long-term and sustainable developmental gains. The dissemination of such programs is a crucial step toward unlocking the potential of children with special needs and enhancing the quality of life for their families. Scientifically grounded, structured, and accessible approaches like this must become an indispensable component of early intervention practices.

Recommendations

The findings of this study reveal that neuroplasticity-based play programs provide significant and multifaceted contributions to the development of children with special needs. However, in order to expand the reach and ensure the sustainability of these benefits, several strategic steps must be taken by policymakers, educators, families, and professionals working in the field. The following recommendations have been developed in this context:

- Neuroplasticity-based play programs should be diversified and tailored to meet the individual needs of children with different diagnoses in order to maximize their effectiveness.
- Comprehensive training programs should be organized to raise awareness of neuroplasticity among parents and educators, thereby fostering more active and informed participation in intervention processes.

- Continuous professional development programs—equipped with practical materials and application-based content—should be developed for specialists providing home-based support services.
- Home-based intervention models that are culturally and environmentally appropriate should be designed to improve accessibility for families living in socioeconomically disadvantaged areas.
- Public institutions, particularly with the support of Ministries of Education, should take strategic steps to expand the implementation of neuroplasticity-based individualized education programs.
- Holistic, family-centered support programs that promote the active involvement of fathers and other family members should be implemented.
- Play-based programs aimed at strengthening children's social skills should be designed for application in open and community-based settings.
- Practice-oriented training programs should be developed and implemented through interdisciplinary collaboration to raise awareness among teachers and caregivers.

REFERENCES

Abdelgawad, S. M. E., Radwan, S. A. E., & Elsayed, Z. E. S. H. (2025). The impact of nursing intervention on the care burden experienced by mothers of children with epilepsy: A family-centered empowerment model. *BMC Nursing, 24,* 894. https://doi.org/10.1186/s12912-025-03532-9

Akbaş, A. (2023). *Investigation of the effects of the neuroplay-based intervention program on the language-communication and social development of children with autism spectrum disorder* (Master's thesis, Ankara University, Institute of Health Sciences).

Aksoy, M., & Demirli, C. (2020). Investigation of the coping situations of mothers of children with mental disability: Implementation of a family support education program. *Education Sciences, 15*(3), 73–84.

Altaş, D., Kaspar, E. Ç., & Ergüt, Ö. (2012). Comparison of correlation coefficients: A simulation study. In *8th International Symposium of Statistics* (Vol. 2, pp. 1–9).

Amel, A. K., Rahnamaei, H., & Hashemi, Z. (2023). Play therapy and storytelling intervention on children's social skills with attention deficit-hyperactivity disorder. *Journal of Education and Health Promotion, 12*(1), 317. https://doi.org/10.4103/jehp.jehp_1104_22

Aytekin, Ç., & Bayhan, P. (2016). Early intervention steps. *Hacettepe University Faculty of Health Sciences Journal, 2*(2), 1–14.

Durmaz, Ö. (2023). Investigation of psychological resilience of parents with and without children with special needs. *Dokuz Eylül University Buca Faculty of Education Journal, 58,* 3236–3249. https://doi.org/10.53444/deubefd.1370178

Elbir, Ö. (2023). A case study investigating the contribution of a home-based play-based mother-infant education program to infant social development. *International Journal of*

Educational Progress Studies (IJOPSE), 1(1), 18–30. https://doi.org/10.5281/zenodo.7651429

Feurer, C., Hammen, C. L., & Gibb, B. E. (2016). Chronic and episodic stress in children of depressed mothers. *Journal of Clinical Child & Adolescent Psychology, 45*(3), 270–278. https://doi.org/10.1080/15374416.2014.963859

Francis, G., Deniz, E., Torgerson, C., & Toseeb, U. (2022). Play-based interventions for mental health: A systematic review and meta-analysis focused on children and adolescents with autism spectrum disorder and developmental language disorder. *Autism & Developmental Language Impairments, 7,* 23969415211073118. https://doi.org/10.1177/239694152110731

Fu, L., Mei, B., Wu, Y., Liu, G., & Ma, Z. (2025). Nonmedical barriers and needs of rural children with disabilities and their families in Asia: A scoping review. *Child & Family Social Work, 30*(2), 91–108. https://doi.org/10.1111/cfs.13046

Gıcı Vatansever, A. (2018). *The effects of coaching applications offered to mothers of children with autism spectrum disorder on mothers' teaching skills and children's ability to respond to joint attention* (Unpublished master's thesis). Trakya University, Institute of Social Sciences.

Gökçe, S. (2017). *Views on the life cycle after participating in a family education program by families of children with autism spectrum disorder* (Unpublished master's thesis). Anadolu University, Institute of Social Sciences.

Gray, C. (2010). *The new social story book.* Future Horizons.

Guralnick, M. J. (2017). Early intervention for children with intellectual disabilities: An update. *Journal of Applied Research in Intellectual Disabilities, 30*(2), 211–229. https://doi.org/10.1111/jar.12233

İlhan, T. (2017). The relationship between stress levels and roles of parents of children aged 3–6 with special needs. *Journal of Special Education, Faculty of Education, Ankara University, 18*(3), 383–400. https://doi.org/10.21565/ozelegitimdergisi.286786

Kancınar, F., Özok, H. İ., & Tayiz, V. (2024). Main stress sources of parents of children with special needs. *International Journal of Social and Humanities Sciences Research (JSHSR), 11*(114), 2846–2869. https://doi.org/10.5281/zenodo.14585165

Karadağ, Ş. Ö. (2021). *A comparative study on the relationships between family education programs and parenting skills* (Unpublished master's thesis). Hacettepe University, Ankara.

Karbasi Amel, A., Rahnamaei, H., & Hashemi, Z. (2023). Play therapy and storytelling intervention on children's social skills with attention deficit-hyperactivity disorder. *Journal of Education and Health Promotion, 12*(1), 317. https://doi.org/10.4103/jehp.jehp_1104_22

Kayacan, B. (2024). *Examining the psychological resilience, depression levels and attitudes of parents of children with special needs towards seeking psychological help* (Unpublished master’s thesis). İstanbul Gelişim University.

Kılıç, S., & Kılıçoğlu, E. A. (2021). A case study on the online home program and applications during the pandemic process. *Journal of Children and Development, 4*(8), 104–116. https://doi.org/10.36731/cg.1020581

Kızılkaya, A. E. (2021). *The effect of the reinforcement training program developed for parents of children with autism spectrum disorder on increasing positive behaviors* (Unpublished doctoral dissertation). Necmettin Erbakan University, Institute of Educational Sciences.

Kızılkaya, A. E. (2021). *The effect of the reinforcement training program developed for parents of children with autism spectrum disorder on increasing positive behaviors* (Doctoral dissertation). Necmettin Erbakan University, Turkey.

Kiriş, Ö. (2024). *The effect of a developmental sensory-motor play program on the language and cognitive development of 2–3-year-old children* (Published master’s thesis). İstanbul Aydın University, Graduate School of Education, Department of Primary Education, Preschool Education Program.

Johnson, M. A. (2023). Family-centered care: Its necessity in pediatric nursing care. *Journal of BioMed Research and Reports, 2*(6), 1–3. https://doi.org/10.59657/2837-4681.brs.23.039

McLean, M. E., Snyder, P., Smith, B. J., & Sandall, S. R. (2002). The DEC recommended practices in early intervention/early childhood special education: Social validation. *Journal of Early Intervention, 25*(2), 120–128. https://doi.org/10.1177/105381510202500209

Mitra, S., Posarac, A., & Vick, B. (2018). Disability and poverty in developing countries: A multidimensional study. *World Development, 41,* 1–18. https://doi.org/10.1016/j.worlddev.2012.05.024

Nahar, S., Zambelli, Z., & Halstead, E. J. (2022). Risk and protective factors associated with maternal mental health in mothers of children with autism spectrum disorder. *Research in Developmental Disabilities, 131,* 104362. https://doi.org/10.1016/j.ridd.2022.104362

Peker, A., Eroğlu, Y., & Özcan, N. (2015). Investigation of psychological resilience, well-being, and happiness levels of mothers of children with special needs and typically developing children. *Sakarya University Journal of Education, 5*(3), 142–150. https://doi.org/10.19126/suje.31984

Phillips, D. A., & Shonkoff, J. P. (Eds.). (2000). *From neurons to neighborhoods: The science of early childhood development.* National Academy Press.

Robson, C. (2017). Advanced data collection methods. In G. Arastaman, Ş. Çınkır, & N. Demirkasımoğlu (Eds.), *Scientific research methods* (2nd ed., pp. 395–443). Anı Publishing.

Romero-Ayuso, D., Ruiz-Salcedo, M., Barrios-Fernández, S., Triviño-Juárez, J. M., Maciver, D., Richmond, J., & Muñoz, M. A. (2021). Play in children with neurodevelopmental disorders: Psychometric properties of a parent report measure “My Child’s Play.” *Children, 8*(1), 25. https://doi.org/10.3390/children8010025

Selimoğlu, Ö. G., & Özdemir, S. (2018). The effectiveness of an interaction-based early childhood intervention program (Eteçom) on social interaction skills of children with autism spectrum disorder. *Journal of Early Childhood Studies, 2*(3), 514–555. https://doi.org/10.24130/eccd-jecs.196720182399

Republic of Turkey Ministry of National Education. (2018, July 7). *Special Education Services Regulation [Özel Eğitim Hizmetleri Yönetmeliği]*. Official Gazette of the Republic of Turkey (No. 30471). https://www.resmigazete.gov.tr/eskiler/2018/07/20180707-8.htm

Sterman, J., Naughton, G., Bundy, A. C., Froude, E., & Villeneuve, M. A. (2018). Planning for outdoor play: Government and family decision-making. *Scandinavian Journal of Occupational Therapy.* https://doi.org/10.1080/11038128.2018.1447010

Stewart, A. L., Field, T. A., & Echterling, L. G. (2016). Neuroscience and the magic of play therapy. *International Journal of Play Therapy, 25*(1), 4–15. https://doi.org/10.1037/pla0000016

Şahin, A., Kün, İ., Şebin, E., & Mutlu, H. (2024). The roles and responsibilities of teachers in special education. *International Journal of Social and Humanities Sciences Research (JSHSR), 11*(107), 996–1005. https://doi.org/10.5281/zenodo.11405828

Şahin, H., Çakmak, A., & Erdem, Y. (2025). Evaluation of social isolation status and family burden of mothers with children with special needs. *Journal of Special Education, 26*(1), 67–81. https://doi.org/10.21565/ozelegitimdergisi.1339610

Şimşek, H., & Yıldırım, A. (2011). *Qualitative research methods in social sciences.* Seçkin Publishing.

Topal, S. (2021). *Investigation of the relationship between burnout, anxiety, and quality of life in mothers of children with special needs* (Master’s thesis). Pamukkale University, Institute of Health Sciences.

Toy, A. B., & Kesici, İ. (2020). Educational needs of mothers of children with special needs. *Journal of Advanced Education Studies, 2*(1), 61–93.

UNICEF. (2018). *Learning through play: Strengthening learning through play in early childhood education programmes.*

Uysal, D. A., & Yigit, R. (2025). Assessment of the effectiveness of a web-based family-centered empowerment program for the parents of children with oncological problems: Randomized controlled trial. *Journal of Pediatric Nursing, 83,* 69–81. https://doi.org/10.1016/j.pedn.2025.04.018

VVOB. (2019). *Putting SDG 4 into practice: Learning through play.* https://www.vvob.org/sites/belgium/files/2018_vvob_technical-brief_learning-through-play_web.pdf

Wahab, R., & Ramli, F. F. A. (2022). Psychological distress among parents of children with special needs. *International Journal of Education, Psychology and Counseling, 7*(46), 498–511. https://doi.org/10.35631/IJEPC.746037

Watamura, S. E., Donzella, B., Alwin, J., & Gunnar, M. R. (2003). Morning-to-afternoon increases in cortisol concentrations for infants and toddlers at child care: Age differences and behavioral correlates. *Child Development, 74*(4), 1006–1020. https://doi.org/10.1111/1467-8624.00583

Wen, L., & Wu, Z. (2025). The impact of sensory integration-based sports training on motor and social skill development in children with autism spectrum disorder. *Scientific Reports, 15,* 19974. https://doi.org/10.1038/s41598-025-05393-3

World Health Organization. (2018). *Nurturing care for early childhood development: A framework for helping children survive and thrive to transform health and human potential.* WHO.

Yalçın, H., Çakır, A., & Öztüren, S. (2024). A review of research on depression among parents of children with special needs. *Journal of Higher Education and Science, 14*(1), 1–8. https://doi.org/10.5961/higheredusci.1222688

Yana, M., Kavlak, E., & Güneş, M. (2024). Combined sensory integration therapy plus neurodevelopmental therapy (NT) versus NT alone for motor and attention in children with Down syndrome: A randomized controlled trial. *International Journal of Developmental Disabilities, 70*(5), 849–856. https://doi.org/10.1080/20473869.2022.2152166

Yang, Z., et al. (2021). Designing mobile EEG neurofeedback games for children with autism: Implications from industry practice. *arXiv preprint arXiv:2107.10910.* https://arxiv.org/abs/2107.10910 https://doi.org/10.1145/3447527.3477522

Yılmaz, Z. (2019). *Investigation of the views of parents of children with special needs on outdoor play parks* (Published master's thesis). Pamukkale University, Institute of Educational Sciences, Department of Primary Education, Preschool Education Program.

Yogman, M., Garner, A., Hutchinson, J., Hirsh-Pasek, K., Golinkoff, R. M., Committee on Psychosocial Aspects of Child and Family Health, & Council on Communications and Media. (2018). The power of play: A pediatric role in enhancing development in young children. *Pediatrics, 142*(3), e20182058. https://doi.org/10.1542/peds.2018-2058

APPENDIX

Table 3.

Developmental Status Assessment Table for Children with Special Needs

DEVELOPMENTAL STATUS ASSESSMENT TABLE FOR CHİLDREN WİTH SPECİAL NEEDS									
		DÇ1	**DÇ2**	**DÇ3**	**DÇ4**	**KÇ1**	**KÇ2**	**KÇ3**	**KÇ4**
Sensory Sensitivity	Pre-Implementation	Touch-Taste (Both Intense)	Touch-Taste (Both Intense)	None	Touch (Intense)	Touch-Taste (Both Intense)	Touch -Taste (Both Intense)	Touch (Mild) | Taste (Intense)	Touch-Taste (Both Intense)
	Post-Implementation	Taste (Intense))	Taste (Intense) Touch (Mild)	None	Touch (Mild)	Touch-Taste (Both Intense)	Touch-Taste (Both Intense)	Touch-Taste (Both Intense)	Touch-Taste (Both Intense)
Word Pronunciation and Sentence Formation	Pre-Implementation	4-5 Words - No Sentences	1 Word - No Sentences	150-200 Words- 2-Word Sentences (Only Mother Understands)	2-3 Word Sentences (Speaking According to Needs)	2-3 Words - No Sentences	None	100-150 Words 2-Word Sentences (Only Mother Understands)	2-3 Word Speaking According to Needs
	Post-Implementation	10-12 Words - No Sentences	7 Word - No Sentences	300-350 Words (60-70 Everyone Understands) 3-4 Word Sentences	3-4 Word Sentences - Communication Level Speaking	2-3 Words - No Sentences	None	120-150 2-Word Sentences (Only Mother Understands)	2-3 Word Speaking According to Needs
Eye Contact	Pre-Implementation	Present (Instant)	None	Present (1-2 Min)	Present (1 Min)	Present (Instant)	None	Present (2-3 Min)	Present (2-3 Min)
	Post-Implementation	Present (1-2 Min)	Present (10-15 Sec)	Present (3-4 Min)	Present (4-5 Min)	Present (Instant)	None	Present (2-3 Min)	Present (2-3 Min)
Attention to Events or Objects	Pre-Implementation	Instant	None	Present (1-2 Min)	Present (1-2 Min)	Present (Instant)	None	Present (2-3 Min)	Present (2-3 Min)
	Post-Implementation	Present (1-2 Min)	Present (10-15 Sec)	Present (10-13 Min)	Present (15-17 Min)	Present (Instant)	None	Present (2-3 Min)	Present (2-3 Min)