


# Implementation of Behavior Support Plan Introduced to Mothers: A Case Study

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## ABSTRACT

Upon learning that their child has a neurodevelopmental disorder, families enter a different process and can experience problems related to their child's behavior management. This study was designed in response to a request from mothers with children diagnosed with various neurodevelopmental disorders. The study used a multi-level case study, one of the qualitative research designs. A behavior support plan (BSP) was created to address the three mothers' needs concerning the negative behaviors they observed in their children. The BSP is a 12-session program based on applied behavior analysis (ABA). This program was shaped by collecting data through semi-structured interviews, field notes, and the researcher's diary before the family education. It was determined whether the program was effective by continuing to collect data through the data collection tools in the middle and end of the BSP implementation. The results of the inductive analysis revealed that BSP reduced the problem behaviors in the children and ended the punishments given by the mothers and that they felt better via this education. In general, it is recommended to train applied behavior analysts who are going to provide individual family education based on ABA, to make family education a country policy, and to increase such education provided to families both at schools and individually

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Parent training, behavior support plan, problem behavior, evidence-based practice, autism spectrum disorder

## 1. Introduction

Autism spectrum disorder (ASD), a neurodevelopmental disorder, carries significant difficulties in social and communication skills and a limited repetitive behavior, interest, and activity pattern (American Psychiatric Association, 2013). Limited and repetitive behaviors stated in the diagnosis can cause difficulties for individuals with ASD in exhibiting adaptive behaviors, which may lead to self-harm (Steinbrenner et al., 2020). Here, it is necessary to present the effectiveness of evidence-based practices. Evidence-based practices are the most effective of these interventions for individuals with ASD (National Autism Center [NAC], 2015). Through evidence-based practices, permanent teaching can be provided for individuals with ASD, and problem behaviors can be easily overcome (Steinbrenner et al., 2020). In the latest report on evidence-based practices for individuals with ASD, it has been reported that 28 of the effective methods are based on applied behavior analysis (ABA) or include various elements of ABA (Steinbrenner et al., 2020).

Most of the interventions applied in the special education field are based on ABA strategies with the behavioral approach and related ABA-based approaches (Diken & Rutherford, 2005; Golly, Bruce & Walker, 1998; Melekoğlu, 2017). The reason is that ABA and related approaches are effective in reducing and eliminating the problem behaviors exhibited by individuals with neurodevelopmental disorders (Bekiraj et al. 2022; Carr et al., 2002; Duda et al., 2008; Gore et al., 2013; Melekoğlu et al., 2014; Melekoğlu, 2021). In the literature it is underlined that an early intervention program should be applied to individuals with problem behaviors until

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the age of 10 at the latest, and appropriate behaviors should be acquired (Fox & Little, 2001; Sormont, Lewis & Beckner, 2005). Therefore, various programs have been developed and implemented aiming to prevent behavioral problems of children in this age group and to enable them to gain appropriate social skills, and their effectiveness continues to be discussed (Lewis & Sugai, 1999). In addition to these programs, there are many methods and techniques to prevent problem behaviors. These are improving academic skills, creating behavior support plan (BSP) and teaching individuals effective behavior management techniques, enabling them to gain social skills, individual behavioral interventions, and family education (Blackbourn, Patton & Trainor, 2004; Lewis & Sugai, 1999). Family education which is among the mentioned training and the evidence-based practices (Wong et al., 2015) has certain advantages. One of these advantages is that it allows generalization since the skills that are aimed to be taught to individuals with ASD and developmental delay (DD) can be taught in contexts in the natural environment (Ertürk et al., 2021; Hansen et al., 2018). Another advantage is that through family education, children with ASD and DD can learn the skill more efficiently with a natural prompt in their natural environment (Hansen et al., 2018). Also, family-centered interventions in the early period have very positive results in children with ASD and their families (Vismara, Colombi & Rogers, 2009). Besides these advantages, researchers also report positive results of family education practices. Conducted by Ertürk (2019), an ABA-centered study on family education and coaching stated that the socio-emotional development of children with DD in early childhood was provided. Duda et al. (2008) concluded that family education which includes positive behavior support (PBS) practice, which is a part of home-based ABA, reduces problem behaviors in children with ASD. Ferguson, Dounavi & Craig (2002) reported that in the ABA-based education given remotely to families that have children with ASD, the children acquired communication skills and improved in many other aspects according to the families' statements. Koagel, Stiebel & Koagel (1998) reported that family education was given to the parents of children with ASD in the preschool period to reduce sibling aggression and provided as a result of the home-based and PBS-centered study decreased the aggressive behavior of the children with ASD towards their younger sibling. Similarly, individualized multicomponent support plans based on the behavioral therapy approach are found to eliminate problem behaviors in children with neurodevelopmental disorders and various disabilities (Anofer et al., 1994; Derby et al., 1997; Dunlap et al., 2006); and they are successful in addressing problem behaviors after education (Conroy et al., 2005; Lucyshyn et al., 2002). According to the studies, behavioral approach-based ABA and PBS-oriented family education are helpful for families with children with ASD and DD, and the education plays a significant role in parent-child relations and development (Ertürk, 2018). Among the evidence-based practices, different family-centered practices based on ABA are reported (Steinbrenner et al., 2020). Also, the literature shows that the number of ASD-focused research centers or implementation centers has increased; besides, family-centered practices are included in these institutions (Barnhil, Polloway & Sumutka, 2011; Marder & deBettencourt, 2012; Scheuermann et al., 2003).

In Turkey, on the other hand, although the number of research centers has increased, no family-centered behavior support implementation which is based at home, provided by an expert, and carried out in the individuals' natural environment, has been found. This study is also important in terms of leading home-based family practices by an expert in the research centers, which are not reported much in Turkey. Moreover, the study by Ertürk, Machalicek & Drew (2017) shows that family education designed for families, including practical information about challenging and self-harming behaviors, has not been provided yet and thus should be designed. Based on these explanations, there is a need for such a study. Accordingly, this study aims to provide a behavioral approach-based family education that is planned according to the needs of mothers with children with ASD and DD and can be applied practically. In line with this, answers were sought to the question: (i) How does the Behavior Support Plan (BSP) reflect on the behavior of mothers towards their children? (ii) How is the development of each mother regarding education? (iii) What are the similarities in the development of each mother in the education? (iv) What are the differences in the development of each mother in education?

## **2. Methodology**

Under this heading, the research model, study group, data collection procedure and tools, data analysis, and the study's ethical dimension are explained.

## 2.1. Research Model

This study aimed to describe and explain three different situations, and presented comparatively the effectiveness of the BSP that was provided to the mothers living in three different contexts for their children. Thus, the study design is an embedded multi-level case study (Yin, 2014).

## 2.2. Participants

This study has two groups of participants. The first participant group is the mothers, and the second participant group is these mothers' children diagnosed with ASD and DD. Here first, it is necessary to inform about the participant selection. The study group was determined via the criterion sampling method. These criteria are: volunteering to participate in the study, having a child with DD or ASD, and the mother's acceptance of her child's diagnosis. Table 1 shows the participants' details.

**Table 1.** Demographic details of the participants

	Leda	Maria	Cemile
Role in the family	Mother	Mother	Mother
Education	High School	High School	High School
Age	36	30	43
Socioeconomic	Middle	Middle	Middle
Job	Housewife	Housewife	Housewife
Diagnosis of the child	Developmental delay	ASD	ASD
Marital status	Married	Married	Married
Number of the children in the house	3	2	3

The mothers in the study are all high school graduates, housewives, and members of a middle-income family. They are all married. Two of them have three children, while the third only has two. The children of mothers have a diagnosis of ASD and DD.

**Table 2.** Details of the Children with Special Needs

	Sarven	Dimitris	Cem
Diagnosis	Developmental delay	ASD	ASD
Gender	Male	Male	Male
Age	6	6	9
School that he attends	Private kindergarten	Private kindergarten	Special education school
Support education that he receives	Rehabilitation	Rehabilitation	Rehabilitation
Number of siblings	2	1	2
Birth order	3	2	3

Another group that has the features of participating in the study and for which the intervention was carried out is children with neurodevelopmental disorders. Two children are 6 years old and one is 9 years old. Two of them continue their education in a private kindergarten and one in a special education school in a separate education environment. All of them are the youngest child and the only boy in their family. Two of them have two older sisters, one has an older sister. While Sarven's expressive language is close to those of his typically developing peers, Dimitris only says "mother". Cem, on the other hand, cannot demonstrate expressive language skills. All children have receptive language skills. All of them attend the same rehabilitation center. The children don't have any other additional diagnoses. The researcher is involved in the study as an interventionist. For four years, the researcher has been working as the education coordinator in the rehabilitation center where the children attend. She provides support education services to the participant mothers and children. She has carried out scientific studies within the scope of ABA and PBS, conducts ABA courses at the undergraduate level, and provides ABA-based education to families.

## 2.3. Data Collection Tools and Procedure

The data were collected in the 2019-2020 academic year. The main data collection tools were determined as field notes (FN), semi-structured interview forms, researcher's diary (RD), and personal information forms. FNs were also supported with videos. The relevant forms were sent to three experts who are doctoral graduates conducting studies on ABA, and the final versions were achieved. FNs were kept using behavioral

recording techniques. The researcher wrote the FNs in a measurable and observable way. As of 08.01.2020, the interviews were held with the participants. After all these data were put down and analyzed, the Behavior Support Plan (BSP) was developed according to the educational needs of the participants. The study firstly started with three mothers. However, a break of almost two months had to be taken due to the pandemic. During this period, one of the mothers withdrew from the study. While the BSP offered to the two mothers was continuing, Ms. Maria expressed her desire to participate in the process and be included in the BSP, and the process was started after the first interview with Ms. Maria on 08.06.2020. The BSP was completed with Ms. Cemile on 08.06.2020, Ms. Leda on 02.07.2020, and Ms. Maria on 05.08.2020. The education that had started for the mothers in the rehabilitation center continued at home after the pandemic. Thus, the researcher had the opportunity to observe these children in the home environment. The researcher provided two 45-minute sessions every week before the pandemic and two 45-minute sessions every five days after the pandemic. Table 3 shows the BSPs which was developed according to the needs of each mother and her child in this process.

**Table3.** Behavior Support Plan

Session	Subject	Content
1. Session	Content Introduction (ABA and its Basics)	The program's main features were explained to the participants and the possible results were stated. Information on ABA was given. ABA was defined and its historical background was explained.
2. Session	Identifying and recording target behaviors	Detailed information about the target behavior, how it is recorded, and what ABC recording were provided by giving examples.
3. Session	Increasing appropriate Behaviors	The advantages and disadvantages of reinforcers were explained with examples of reinforcement, positive reinforcement, and types of reinforcement.
4. Session	Increasing appropriate Behaviors	Reinforcement types and how they are used; token economy, and their usage were explained with examples.
5. Session	Reducing inappropriate behaviors	Positive ways of approaching inappropriate behaviors and forms of preventing them were explained with concrete examples.
6. Session	Reducing inappropriate behaviors	Differential reinforcement was defined, and examples of its types were given.
7. Session	Behavior reduction techniques	The concepts of extinction, cost of reaction and time out, and how they should be used were detailed. The video was played.
8. Session	Behavior reduction techniques	The concepts of correction, positive practice, and corporal punishment and how they should be used were detailed. The video was played.
9. Session	PBS	Positive Behavior Support Implementations were explained in detail with concrete examples.
10. Session	Social skills	Explanations about social skills and teaching them were made.
11. Session	Preparing a behavior change plan	Example behavior change plans were presented, and the videos were shown on how to reduce inappropriate behavior.
12. Session	Evaluation	The process was evaluated in all its details.

Table 3 shows the ABA-based BSP in detail. The program, created using the main of the ABA, was designed according to the intervention needs of each mother for her child. In order to shape it, interviews were held at the beginning, then the analyzes were immediately made, FNs and RDs were analyzed, and the program was customized and shaped according to the families' needs. In addition, another interview was conducted in the middle of the training to evaluate the process and the training was redesigned. Finally, interviews were conducted again at the end of the BSP. In ABA, each topic was adapted to the behavior of the children who were the subject of the study and was explained to the mothers using specific examples. In this way, how they will intervene in their child's behaviors in a concrete way was shown in practice in the natural environment. The researcher prepared a separate Power Point presentation for each subject and showed videos about the relevant subject. She set an example for the families when a behavior occurred during the teaching. The BSP was held in two sessions of 45 minutes each. The family education was carried out as a one-to-one presentation with the participants.

## 2.4. Data Analysis, Validity, and Reliability of the Study

In this study, videos were archived by first transferring them to the video observation form and then to the computer with FNs. After the interviews were recorded, they were transferred to the semi-structured interview form. Inductive analysis was used in the analysis of the interviews and FN data. Schilling's (2006) data analysis steps were followed in the analysis. The data from the personal information form were put into tables and presented in Table 1 and Table 2. The data in the RDs were colored for the themes obtained from the interviews and labeled with the appropriate theme. The study's validity and reliability were measured. As for credibility, the data was collected from different and multiple environments, expert opinion was sought, participant confirmation was made, and the data was kept. For confirmability; first reliability was made, coding and creating a coding list were done, coding reliability was conducted, themes and sub-themes were created, and they were written and organized after the data had been put down. After conducting inter-coder reliability, all FNs, visuals, and interviews were sent to two experts. For verifiability, the process specified in the data breakdown was conducted. For the study's reliability, the formula of inter-coder reliability =  $\text{Agreement} / (\text{Agreement} + \text{Disagreement}) \times 100$ , defined by Miles and Huberman (1994), was utilised. Inter-coder reliability was made using the relevant formula and the mean reliability was calculated as 100%. Purposive sampling was used for transferability. The findings obtained from the interviews and FN were presented in detailed descriptions. For consistency, multiple data were collected so that the data was ensured to support each other.

## 2.5. Ethical

The ethics committee approval for this study was obtained from İnönü University's Committee on Scientific Research, and Publication Ethics with the decision numbered 10/07/2020\_E.44338. Also, the required consent was obtained from the mothers participating in the study. The participants and their children were given code names.

## 3. Findings

Under this heading, the findings from the data collection tools are included. Firstly, the data obtained before the implementation was analyzed. Data from the semi-structured interviews conducted with participants before, in the middle, and at the end of the BSP are presented comparatively.

**Table 4.** Findings Regarding the Interviews Before the Implementation

Main Theme	Leda	Maria	Cemile
	Sub-Themes		
Problem behaviors	Shouting Hitting the sibling Picking his face skin	Shouting Repetitive behavior(Turning on and off the light)	Shouting during bus travels Not being able to enter into crowded places Not wanting to go to a barbershop
Approach to interfering with inappropriate behavior	Describing the correct form of behavior Punishment	Verbal warning Punishment	Giving food and drink Removal from the environment
Rewarding the appropriate behavior	Using food as a reinforcer Going for a walk	Clapping Saying "Well done!" Physical contact	Letting him listen to music
Preventive intervention approach	Describing the correct form of behavior	Understanding the behavior by observing it	Introducing him to indifferent environments Offering his favorite things (like toys, food)
Behavior management support request	A solution to problem behavior	Turning knowledge into practice	Offering concrete suggestions

The themes and sub-themes from the pre-implementation interviews with the participants are shown in Table 4. The mothers explained that their children exhibited inappropriate behaviors, and described their approaches to intervene in inappropriate behavior. The mothers talked about how they rewarded their children's

appropriate behavior and about their preventive intervention approaches. Regarding the behavior problem in her child, Ms. Maria made the following statement: *“But right now, he shouts a lot, you know, when he wants something, he shouts. Other than that, nothing too extreme happens. But Dimitris has, you know, he has obsessions. One obsession ends, and another begins.”* In the video, the researcher stated in the rehabilitation environment: *“Dimitris is studying with his teacher. His teacher says something (there is an observation window, the speeches are not understood, only behaviors are visible). Dimitris is doing what the teacher is saying. It seems that his teacher said, “well done”... the lesson has lasted about 20 minutes, and Dimitris has done everything the teacher has said.”* Also, the researcher stated in the RD that she did not encounter any behavioral problems of Dimistris in the rehabilitation environment. However, Ms. Leda’s statement during the interviews regarding that her child shouts was reflected in the FN. In the FN, with the statement *“..Sarven opened the door. I said hello.. and went inside. Sarven shouted for 1-1.5 minutes. At that time, I started talking to Ms. Leda...”* It was reported that one of Sarven’s behavioral problems was shouting. The mothers mentioned their practices regarding the approach of interfering with inappropriate behavior. On this subject, Ms. Maria said, *“I’m trying him to obtain a behavior, but when I do, for example, he poops, and when he poops, I get angry with him, so, for example, I say, “Dimitris, no! Don’t poop!” I raise my index finger...”* and expressed that she gave verbal warnings, and Ms. Leda said: *“When there is a guest, he acts very badly and mischievously, lies on the floor, claps his arms, he does it out of joy, but I don’t want him to do it, frankly, I try to stop him and he shouts then... I don’t want him to shout. I tell him that, my dear, this is not proper...”* and stated that she described the correct form of behavior. The participants also stated to use these methods as a preventive intervention approach. It was observed that this intervention by Ms. Leda was often reflected in the RD. The participant mothers also described the way of rewarding the appropriate behavior. Ms. Maria said, *“I appreciate him, teacher. He knows for sure that what he does is a very good thing, which I appreciate in every way, I show him I become very happy. He smiles at them. For example, you know, we clap our hands in a way that he understands our joy, we say well done, and I sit next to him. For example, I take him on my knees or on my lap. I do such, I sit on the sofa and tell him to sit next to me.”* She stated that she established physical intimacy with him. The researcher reflected her general views on her interviews with Ms. Cemile and Ms. Leda in her diary as follows: *“... At the end of the two interviews, the sincere interviews with the mothers and their justified demands on behavior management were remarkable. The mothers again observed their children correctly and did their best, and we have been together for over three years, and they do their best...”* The researcher evaluated the process by interviewing again in the middle of the behavior management education she gave to the mothers. The findings from the data obtained in the interim interview are shown in Table 5 below.

**Table 5.** Findings Regarding the Interviews During the Implementation

	Leda	Maria	Cemile
Main Themes	Sub-Themes		
Approach to interfering with problem behaviors	Ignoring Taking a break	Ignoring Avoiding the punishment	Continuing the previous methods
Rewarding the appropriate behavior	Saying “Well done!” Clapping	Giving food as a reinforcer	Giving food as a reinforcer
Changed behavior	Being more patient	Beginning to have a positive outlook on the environment Being happy Self-confidence change	No change
Decreased problem behavior	Shouting Picking his face skin	Shouting Decrease in obsessive behavior	No behavior change
Eliminated undesirable behavior		Being able to pee and poop independently	
ABA method	Explaining behavioral consequences Ignoring	Learning to reward Learning to ignore Focus on behavior Avoiding punishment	Learning to reward Avoiding punishment
PBS method	Using positive language	Using positive language	Using positive language
Views on the education	Satisfaction	Satisfaction	Not being able to apply the suggestions

Ms. Cemile, one of the mothers, explained that she did not benefit from the education she received during the education process and that she could not implement the approach of interfering with inappropriate behavior in this process according to ABA: *"I mean, because we do not have one-to-one communication, we could not do anything about what you told, I mean, we could not reinforce it. After all, it is the information you have given, and it made more sense for me to proceed with the things I know for the child."* The researcher reflected this to the RD as follows: *"Actually, the mother made this statement, but I have been supporting Ms. Cemile for a long time. I sent volunteer students. Cem was also very pleased, he stated that there was a little progress, I was happy. However, when the pandemic started, the students could not go. In general, she is an exhausted mother and her only expectation is that her child can speak, but there is nothing to be done; unfortunately, it is too late. She is a desperate mother and I will continue to do my best. I hope my support helps."*

Ms. Leda, one of the mothers, stated that she added to her way of rewarding the appropriate behavior regarding the education with the following words: *"When he exhibits a right behavior, I say good job, my dear, we clap hands altogether, very smart Sarven, well done Sarven, we wanted this too. Sarven does what we want him to do, more or less, like this you know."* Ms. Leda also gave information about the problem behavior that decreased in her child after the BSP. This was also reflected in the researcher's observations: *"We were playing games. His mother said, 'Let's stop playing, we'll have tea'. Sarven inhaled deeply and grimaced. His mother entered the room this time. He acted as if he was picking at his flesh. We took a step back and turned the other direction.. When we were not interested, he gave up"*. This was reflected in the RD as follows: *"He is a very smart child, tried to get us to do what he wanted by pretending to pick his face skin, threatened, but couldn't do it when we ignored it. It hurts him when he picks his face skin. He is aware of it and realized that it didn't work, when we ignored. I think we've completed one more step in giving up 😊."*

The mothers also commented on their own changes in the process, and Mrs. Mary said that she applies what she has learned not only in managing her son's behavior, but also in communicating with other family members, in the following words: *"So when you do something, the smallest thing. You know, leading directly to the result. So I tried it on my daughter too I even tried it on my husband, so I've started to look around in a different way."* Ms. Maria also related her experiences with teaching toilet skills, describing it as an unpleasant behavior that vanished, and the following consequence of ABA: *"When I took him in a week or so ago, he was doing it.. My goal was for him to do it by himself anyway. I mean, I was focused on it. He goes by himself, turns on the light, and closes the door. He's at that stage right now. He turns on the light, he goes, he does. He pulls on his pants. He flushes. Then he somehow closes the door, turns off the light, and leaves. That was my aim. I've reached my goal about peeing now, teacher"*.

Ms. Maria also gave information about the ABA and PBS approaches that she used. Ms. Maria explained how she ended her son's obsessive behavior of "turning on and off the lights" by using the method of ignoring which is among the ABA techniques, with the following words: *"We used to always say Dimitris, do not do it, turn the light off. That is, how important it is to ignore it, that you can actually get results when you have a little patience. I learned that I could not get any results when we behave the other way. So, with your method, I really observed the result, I did it, we continued step by step. It may have taken a while, but we are still very satisfied."* Regarding how she used the PBS approaches she was taught during the education in the home, she stated, *"I used to verbally tell my child things like don't do it. I've definitely stopped doing it now... To the child, look, if you do this, this will happen ummm... instead, let's do this ummm... let me give you chocolate, you know, always in a positive way, not to pose a threat to the child, but I can define it as saying or acting positively, in a way that the child can understand."*

In general, the high satisfaction of the researcher and Ms. Maria reflected on the RD as follows: *"I observed a change in Ms. Maria in particular. She was obviously extremely satisfied with the education I provided, and she achieved results. Through this education, she understood better why we do what we do. I'm happy. It's nice to support mothers."*

Lastly, the third and last interview was held after the family education given to the mothers was finalized. The data analysis of the interview is shown in Table 6.

**Table 6. Findings Regarding The Interviews at the end of the Implementation**

Main Theme	Leda	Maria	Cemile
Approach to interfering with problem behaviors	Ignoring Rewarding the appropriate behavior	Ignoring	Describing the correct form of behavior
Rewarding the appropriate behavior	Going go to a shopping center Going outside	Hugging Physical intimacy	Kissing Using social reinforcer
Changed behavior	Shouting	Positive outlook Approaching calmly	I am happier
Decreased problem behavior	Throwing things Harming his face Being stubborn	Obsessive behavior Shouting	Not peeing/pooping in the toilet
ABA method	Ignoring	Ignoring	Rewarding
PBS method	Using positive language	Using positive language	Using positive language
Behavior management support request		Teaching how to wash hands	Receiving continuous consultancy support
Family Education output	Starting to reward	Teaching how to use toilets Positive behavior support	Starting to reward Avoiding punishment Teaching how to use toilets Realizing that he behaves correctly
Views on the education		Satisfaction	

The interviews were held for the last time for the mothers to evaluate their education. Ms. Leda, one of the mothers said: *“I mean, not pushing Sarven... by telling him that what he does is bad... Sarven is clever, we believe in him once again, sometimes by rewarding him. We got through it that way, so there is not much left, but it can happen sometimes.”* and shared the PBS and ABA approaches she used in general and explained that almost all of the behaviors which she observed in his child disappeared.

Ms. Cemile also gave the information about the approaches to interfering with inappropriate behavior and the way to reward the appropriate behavior in the education as follows: *“For example, do not pee here and there... I mean, do not do it inside the house, etc. you used to get angry and use violence, any way, you would not stop and used to make him scared, kinda. But over time, trying to explain this to him in a state of bewilderment as if it was a very bad thing: ‘Is it okay doing this, it’s such a shame’ or something like that, then, when you take him to the toilet one by one after that, for example, when he pees in the toilet, shouting with great joy, ‘Oh,wellldone! Cempeed here, in the toilet’ or something, which attracts the child’s attention, of course.”* The researcher noted this in her diary: *“Although the mother does not state it during the interviews, we know that Cemurinates everywhere at home. By applying the methods in the ABA, the mother eliminated this behavior.”* Ms. Maria also explained how she intervened and eliminated the inappropriate behavior, with these words: *“I waited patiently for a while, like 7 days, 8 days, 9 days, for a week or so. I did a little, a little thing. He’s slowly getting better now. Otherwise, it would increase, he would never stop, he would shout. I’m still doing the same thing now and then when he shouts. In other words, it is as if he calms down immediately when no one reacts, but I don’t react much anymore, so when I know how he will act when no one reacts, the child does not prolong problematic behavior either. I think the determination of the mother is very important in this matter. May Allah bless you for supporting me.”* Ms. Leda, one of the mothers, said, *“For example, he used to hit on the doors, he stopped doing it a lot, now the shouting has decreased a lot, there are always other things, but there was a face picking, for example, you said that you can reduce it with an award, we reduced that a lot. So it had a positive impact.”* She explained the decreasing problem behavior during the education given to her.



#### 4. Conclusion and Discussion

The development of individuals is affected by heredity and the environment. The literature states that the development of individuals is mainly influenced by environmental factors (Aydın, 2014; Senemoğlu, 2005). In this sense, when the environment that a child is affected is put in an order from near to far, this goes as family, living environment, school environment, region, country, and world. Among these, the family and school environment has the most effective role in the learning and development of the child (Melekoğlu, 2017). Thus, the family must direct a child's development, especially the development of a child with special needs, in the early period. Considering the findings of this study, it is understood that the families' acceptance of their child's diagnosis contributes positively to the process, that during the education, the new information was increasingly functionally used in the family and it even has positively reflected in their lives, and that they also reported their developments positively. At this point, the fact that education always profits in every way, as stated by the theories of education economics, can be said to emerge again.

Difficulty in adapting to the social environment, self-harm, and difficulties in communication skills are common expressions emphasized in the definition of problem behavior in the literature. Thus, when these problem behaviors are observed in individuals, an appropriate intervention program should be implemented to reduce the identified problem behavior and gain appropriate behaviors (Melekoğlu et al., 2014). Looking at the RD, the mothers requested education from the researcher as the expert. Researchers emphasize the importance of cooperation and communication between service providers and caregivers to improve the existing situation, as well as providing individual care to individuals with ASD (Douglas, Jensen & West, 2022; Jensen et al., 2020; Morris et al., 2019; Quivan, 2020; Zwaigenbaum et al., 2016). Therefore, when the findings were examined comparatively, it was revealed that the families' demands about their children are justified and that the progress which they demand is very easy when they cooperate with an expert.

It is observed that problem behaviors are exhibited differently in different developmental stages of children. They don't act differently every time, and if the problem behavior(s) they showed at a young age isn't met with an appropriate and early intervention to get rid of it, these problem behaviors continue and change depending on the environment they are in and the attitudes and actions of the people around them (Cole & Morgan, 2001; Stormant et al., 2008). In other words, the preschool period is important and critical. In this period, providing sufficient opportunities and a rich, stimulating environment gained importance in exhibiting appropriate behaviors (Kaya et al., 2021). Also, studies mention the importance of family involvement in early intervention programs (Kauffman, 1999; Ramey & Ramey, 1998). In this study, the families also received education for their children diagnosed with ASD and DD to prevent problem behaviors that they could not overcome by specifying their educational needs before the age of 10, which is stated to be the critical age in the studies (Fox & Little, 2001, Sormont, Lewis & Beckner, 2005). Looking at the results, it is clear that they have achieved positive results. The website RD states that the researcher continued to interview families despite the study's termination. The mothers also reported that the problem behaviors which they had stated in their children were completely terminated. This study once again revealed that family education in the early childhood period is crucial, which is stated in the literature.

During the interviews with the mothers before starting the family education, the mothers generally stated that they punished and used punitive language. As a result of the interviews and observations during the family education, it was revealed that the families stopped using punishment, generally used the practice of ignoring, and started to exhibit their behavior management skills based on PBS practices and rewards. Ms. Leda expressed that they punished her child while she also stated that the child harmed his face. In this study, she stated that through the BSP for her child, this behavior disappeared over time and they stopped using punishment; and this was also reflected in the FNs. Ms. Maria made a similar statement. Studies report that functional communication training involving families in the early period regarding self-harming behavior of individuals with ASD is effective and preventive (Fahmie, Iwata & Mead, 2016; Luczynski & Hanley, 2013). In addition, it is revealed that this behavior has disappeared in the ABA-based implementation conducted for individuals with ASD and DD (Erturk, Machalicek & Drew, 2017). Researchers state that it is important to educate service providers that work in the early period regarding the evaluation of practices in self-harm (Erturk, Machalicek & Drew, 2017). In this study, the professional who received education and provided education on ABA intervened in the early period and ensured that this behavior was eliminated quickly. In general, self-harming behavior is actually associated with punishment. With BSP, which is presented

comprehensively and systematically in the early period, mothers can overcome even serious behavior such as self-harm. At this point, the importance of reaching a professional, emphasized by Erturk, Machalicek & Drew (2017), becomes evident once again.

The BSP presented to mothers based on their children's needs was offered individually to each child, and as the results of the study showed, problematic behaviors decreased and partially disappeared, and the mothers indicated that they were happier because of the positive changes in their children. While the mothers expressed that some of the practices which they did were correct, they also stated that they would continue their practices more consciously. However, since face-to-face education was given to two mothers at the beginning of the process, the process continued face-to-face. In contrast, a mother was given completely online education due to the pandemic. When all these family education were compared with each other, it was revealed that the mother who reported satisfaction and made rapid progress most frequently was the mother who received the online education. At this point, it is understood that online education was economical in all aspects, and faster feedback was received. Similar results are also expressed in the study by Ferguson, Dounavi & Craig (2022). After the pandemic, virtual education has entered our lives. In this process, it can be said that online and individual family education can be more effective as long as the participants are willing. Also, this study was carried out in a city where access to education for special education is difficult. Thus, it can also be considered an evidence-based study conducted in rural areas, since it was carried out in a place where it is difficult to find a professional special education specialist and access sustainable education. Therefore, this study presents online services to families with special needs children and to facilitate access to education as a solution for families living in rural areas.

In sum, it was revealed that behavioral approach-based BSP having ABA-based contents is effective both face-to-face and online. It can be said that the main reason for the success of BSP is that the mothers accepted the diagnosis of their children and volunteered to participate in this education. The second important point is that the researcher teaches on ABA and PBS at the undergraduate level and contributes to the development of children with neurodevelopmental disorders by making implementations based on ABA for many years. In addition, the researcher provides services as the education coordinator in the rehabilitation center where the children in this study attend and has known the participants for a long time. In this study, it was stated that ABA was again effective in changing the behavior of children with neurodevelopmental disorders, quite good results were obtained from all the education, especially the online education, the mothers stopped the punishment-based practices. They started to apply the ABA techniques more consciously by understanding the reasons, they tried to change their behavior based on rewards by adopting PBS approach and using a positive and constructive language. At the end of all these, they felt better and approached more positively to their children with a diagnosis and everyone around them. As a result, this qualitative study also reported the effectiveness of family education, which is an evidence-based practice.

As a result, ABA is a science that aims to change behaviors, gain appropriate behaviors, and reduce and eliminate undesirable behaviors by regulating behavior and environmental stimuli. In evidence-based practices for individuals with ASD, many different methods are used to achieve these aims (NAC, 2015; Odom & Connie, 2015; Tekin-İftar, 2014; Steinbrenner et al., 2020). It has recently been reported that different family-focused techniques based on ABA are effective in many areas, especially problem behaviors, in individuals with ASD, particularly in early childhood (Steinbrenner et al., 2020). In this study, the natural environments in which the children live were rearranged, practical examples were presented to the families, and the problem behaviors were prevented and eliminated. Thus, through this study that a family practice based on ABA was performed, the results of evidence-based practices have again proven effective.

## **5. Recommendations**

The dimensions from the study results were revealed with the data obtained differently from different data sources, especially observations and interviews, via the qualitative research method. At this point, the family education program's effectiveness can be examined using single-subject studies or experimental studies and standard measurement tools. The effectiveness of implementations such as ABA and PBS-based behavior change-focused programs for family members, family education, coaching, and mentoring can be experimentally examined in comparison. This study was conducted with the participants who received service from a university's research center. Considering the study results and the international reports, increasing

university research center-oriented family education programs is recommended. This study also suggests that experts should carry out studies in cooperation with the families in the natural environment of individuals with ASD.

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