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The COVID-19 pandemic: The evaluation of the emergency remote parent training program based on at-home support for children with down syndrome

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ABSTRACT

During the COVID-19 pandemic, the development of emergency remote training programs for young children with Down syndrome, learning difficulties, and severe health problems and their parents became a requirement. The present study aimed to evaluate the impact of the “applied emergency remote training program”, prepared to address the needs of parents with children with Down syndrome and to offer them at-home support. It is an evaluative case study conducted with 11 parents of 11-35 months old children with Down syndrome. The findings demonstrated that the program could be conducted in a home environment, it improved the interactional behavior of both parents and children, reduced the number of difficult routines, and was considered as an educational, instructive, and band-aid solution. Issues such as the development of systematic psycho-social support systems that increase full participation and motivation of parents in distance education programs are important during extreme times such as the pandemic. Difficulties in online data collection, the employment of coaching and counseling systems in information maintenance, individualization of the program, the improvement of the interactivity in the program, and the development of applied training programs on different topics still wait for a solution.

1. Introduction

Following the World Health Organization’s (WHO) global call to “stay at home” (2020), several countries adopted protective measures to control the COVID-19 pandemic, especially in education systems. On March 16, 2020, Turkey suspended in-classroom education (Can, 2020; Özer, 2020). These measured affected nearly 1.6 billion global and 25 million Turkish students (Bisikurt, 2020). The biggest toll was on young children, who were more vulnerable and are already considered a lost generation (Baboo & Walker, 2020; Gromada et al., 2020). Young children are the key stakeholders who will shape the future of countries. Access to early intervention services is more important for young children with special needs for the achievement of their highest potential (Clark et al., 2020). Early intervention (EI) refers to a system of services designed to promote the overall development of young children who are birth to six years of age and have or are at risk of a disability and/or developmental delays, and to provide support to their families (Guralnick, 2019; Meisels & Shonkoff, 2000; Odom & Wolery, 2003; Spiker, 2011). One of the important services in the early intervention system is the education services provided for the parents and children by public and private institutions (Dunst, 2002). Parent training programs are a significant part of the early intervention system, as the parents are the key factors in the child’s immediate environment and could support their development in the early period (Dunst, 2002; Kellar-Guenther et al., 2014). Parent training programs focus on the improvement, support, and empowerment of parenting practices and behavior such as learning age-appropriate child development skills and milestones, promoting qualified play and interaction with the children, and practicing positive discipline techniques (Longo et al., 2020; Meadan et al., 2015; Neece et al., 2020).

Given that every second is important in child development, young children with special needs and their parents are among the most affected by the interruption of education services during the pandemic (Asbury et al., 2020; Neece et al., 2020). In this process, those closest...
and farthest to the children, including politicians, field experts, teachers, and parents had numerous questions (Can, 2020; Neece et al., 2020) such as “What kind of solutions will be offered for the concerns of young children with special needs and their parents about the interruption of education services in these extraordinary circumstances since these groups already experienced educational difficulties under normal conditions?” (Neece et al., 2020; Wilson, 2020). The COVID-19 pandemic changed our traditional approach to education around the world (Bozkurt & Sharma, 2020a,b). Distance education, which was only an option in the past, became a requirement, and implementations during the pandemic were described as “emergency remote education or training” (Bozkurt & Sharma, 2020a; Bozkurt & Sharma, 2020b; Hodges et al., 2020; Ng, 2021).

The responsibilities of the parents who began to spend all their time at home due to the restrictions associated with the pandemic have increased exponentially in the education of their children (Fraenkel, 2020; Longo et al., 2020). Distance education, which was only an option in the past, became a requirement, and implementations during the pandemic were described as “emergency remote education or training” (Bozkurt & Sharma, 2020a; Bozkurt & Sharma, 2020b; Hodges et al., 2020; Ng, 2021).

The responsibilities of the parents who began to spend all their time at home due to the restrictions associated with the pandemic have increased exponentially in the education of their children (Fraenkel & Cho, 2020). Supporting the development of young children with special needs at home became one of the main national goals. Distance education or training programs based on parent empowerment gained greater momentum when compared to the past (Uvariv et al., 2020; Longo et al., 2020). Tele-health, tele-rehabilitation, and digital parenting services became more prevalent (Neece, McIntyre, & Fenning, 2020; Wijesooriya, Mishra, Brand, & Rubin, 2020; Provenzi et al., 2021). The studies conducted during the pandemic reported that parents experienced feelings of abandonment and insecurity about supporting the development of their children at home due to the measures such as the closure of schools and rehabilitation centers, social distancing, and isolation (Fraenkel & Cho, 2020; Spinelli et al., 2020; Wang et al., 2020). Also, the following important issues are currently under discussion: national support approaches have been different and uncertain, experts could not come up with plans and they were unprepared, and curricula that were developed based on the personal developmental traits of each child and parent pair were inadequate (Longo et al., 2020; Spinelli et al., 2020). These uncertainties and the confusion in the system have increased the stress levels of parents (Alhuzimi, 2020; Brown et al., 2020; Longo et al., 2020; Saurabh & Ranjan, 2020; Spinelli et al., 2020; Tohidast et al., 2020; Ventriglio et al., 2020). Emergency remote parent training programs developed during the pandemic were deemed important for the encouragement of the specialists to interact with the parents, supporting the parents in the home environment, and showing them that they are not alone (Lee et al., 2021; Schlesselman, 2020). Furthermore, these programs are expected to contribute to the improvement of home-based and applied intervention programs, which provide an important opportunity to support the knowledge and skills of parents and the development of children (Longo, de Campos, & Schiari, 2020; Marshall, Shannon, & Love, 2020; Petrocchi, Levante, Bianco, Castelli, & Lecciso, 2020; Thompson & Rasmussen, 2021; Tohidast, Mansuri, Bagheri, & Azimi, 2020; Provenzi et al., 2021).

1.1. The study framework: Early intervention services available for children with down syndrome during the pandemic in Turkey

The significance of EI increased in the last 40 years in Turkey (Diken et al., 2012). There has been an increase in the number of children who received EI and early childhood special education services (Republic of Turkey Ministry of Family, Labor and Social Services [RTMFLSS], 2019; 2021). However, the data on the exact number of children with disabilities, their disability, demographics, and access to services are limited (Çiğit & Dogan, 2019).

Legally, children with disabilities are eligible to receive public services and certain private services funded by the State. For example, the state finances the attendance of 0–6 years old children with disabilities in private special education institutions for up to 2 h a week and 8 h a month. Services beyond these appropriations should be funded by the parents. There are over 2000 private special education institutions that serve about 450,000 children. Children who are 36 months old or older are eligible to attend inclusive classes. According to a report published in 2021, approximately 549 children were attending inclusive preschools (Turkish Ministry of Education, 2021). We see that this number, which was higher in the past, has decreased today (Turkish Ministry of Education, 2016, 2017, 2018). The issue of inclusive education is an important and separate issue that needs to be discussed in Turkey. Although public and private EI services exist in Turkey, systemic issues in the provision of the services created barriers to access for many parents (Er-Sabuncuoglu & Diken, 2010). One of the main problems in the education services for families with disabled children was the inadequacy of the system and lack of early intervention services.

Children with Down syndrome are also an integral part of this system. One in 700 children is born with Down syndrome (National Down Syndrome Society [NDSS], 2021). There is no statistical data on the number and prevalence of children with Down syndrome in Turkey. It is crucial to diagnose children with Down syndrome at an early age and provide early access to EI services (Buckley & Sacks, 2012). However, the parents of Turkish children with Down syndrome face challenges in accessing the EI services and have to find their path within the system with little professional support or guidance (Gören, 2015; Mutlu, 2015). Tomris et al. (in press) examined the experience of parents of young children with Down syndrome on early intervention services in Turkey. This study revealed children with Down syndrome were diagnosed within an average of 2.3 months from birth, but the average age for starting education was 10.5 months in Turkey. The majority of the parents evaluated the process until their children were diagnosed and accessed education services as a rather slow process that proceeded with their own means and efforts. Moreover, the majority of the parents reported that the education services presented to them and their children were not sufficient and early intervention services were not provided within a system. These challenges may lead to delays in the child’s and parents’ early access to services, and more importantly, parents could only access non-empiric information and resources (Mutlu, 2015). In the pandemic, challenges in accessing education and training have increased exponentially (Can, 2020; Sani-Bozkurt et al., 2021; Özer, 2020).

Similar to the rest of the world, several programs for distance education or training were implemented in Turkey by the Ministry of Education (MEB), various non-governmental organizations, and academics in the pandemic (Özer, 2020). Examples of such implementations include programs such as the Education Information Network (EBA) and “Intellectual Disability and Inclusion” and “Intellectual Disability and Education Plan” have been created for students with intellectual disabilities and their families. However, a limited number of materials were included for the early childhood/pre-school age group. In these materials, it is seen that the lectures are monologic, expert consultancy is not included (Sani-Bozkurt et al., 2021). There are no distance education programs specifically developed for children aged 0–3 with Down syndrome and their families. It is noteworthy that the studies carried out during the pandemic are limited to the studies of non-governmental organizations (Turkish Down Syndrome Association, etc.). These studies can be listed as distance family trainings, seminars and conversations. Thus, in emergencies such as a pandemic, emergency remote training programs for young children with Down syndrome,
developmental delays, severe chronic diseases, and low immune systems, and their parents are extremely important.

Researchers adopted an emergency action plan to support parents with young children with Down syndrome at home after the restrictions were first implemented during the pandemic. The present study is considered significant, since it was planned after the conventional education system was suspended due to the pandemic on March 16, 2020, but before the implementation of the distance education or training programs. Thus, an 8-week “Applied Emergency Remote Parent Training Program Based on at Home Support of Children” was prepared for parents with 0–3 years old children with Down syndrome. The present study aimed to evaluate the impact of the program on young children with Down syndrome and their parents. In the study, the following research questions were determined:

1. What are the parental views on the main issues that required support during the pandemic?
2. What is the level of parental involvement in the program (sessions, homework, etc.)?
3. How did the interactional behavior of the parents with their children change after the program?
4. How did the children’s interactional pivotal behavior (attention and initiation of interaction) change after the program?
5. How did the routines that parents established at home with their children change after the program?
6. What are the parental views on the program content, implementation, contributions, and issues?

2. Method

2.1. Participants

The present study was conducted with volunteering participants who could be reached immediately. This was due to the importance of implementing an emergency parent training program without wasting time in the pandemic, which is an extraordinary period. The study participants included 11 parents (10 mothers, 1 father) with 11–35 months old children with Down syndrome and 10 children (a mother and a father attended the program together).

The participants were determined through a non-governmental organization established by parents with children with Down syndrome, and the study was also announced on the authors’ social media accounts. Thirteen parents responded to the announcement; however, then two parents indicated that they could not participate in the study due to personal reasons. Among the children of the participants, four were girls and six were boys. The age of the children varied between 11 and 37 months (X: 23.5; SD: 9.6). The children attended school for an average of 6 h per week before the pandemic. After the pandemic, they could only attend education for an hour per week, while 5 children could not attend at all. The parents resided in four cities in Turkey; five in Eskişehir, three in Istanbul, two in Bilecik, and one in Kutahya. The ages of the parents were between 27 and 39 (X: 33.3, SD: 4.2). One parent was a primary school graduate, 2 were high school and 8 were college graduates.

2.2. Research design

The researchers utilized an evaluative case study research design in this study. Case studies are a research method that aims to understand a current phenomenon or situation within the framework of real life, in its natural environment, considering its complexity and context. This phenomenon or situation can be an extraordinary situation or formation such as a pandemic (Punch, 2013). There are different types of case studies namely descriptive, explanatory, exploratory and evaluative case studies (Yin, 2012). Evaluative case studies involve in-depth description and analysis of a particular instance or aspect of a program, project, or other development activity (Yin, 2012; 2014). An evaluative case study seeks data to assess program accomplishments and leads to recommendations (Yin, 2012). In this process there is no need for a statistically representative sample of a larger population (Merriam, 2009).

In this study conducted to evaluate the changes the emergency remote education program prepared during the pandemic caused on parents and children. Also, this study attempts to determine how the program works and what its reflections are on the home environment with the volunteer and small sample group. The emergency remote training program which is prepared in this study is an example of an ongoing program that needs reviews and updating. We see this evaluation case study as the beginning point of a long-term study (Türedavga et al., 2021). Thus, a pilot study was conducted to apply the program to a larger sample group in the future (Merriam, 2009; Yin, 2014). Taking into account all of these made the evaluative case study design the best-suited research design for this study. This research design is functional based on creating the content of the program, examining how it is implemented, determining possible problems related to implementation, examining the causes of the problems and thus reformulating the program (Gay et al., 2006; Merriam, 2009; Yin, 2014).

2.3. The research process

The study was conducted between March and October 2020. The authors prepared the preliminary emergency plan in March 2020 when the pandemic restrictions were initiated in Turkey. First, the participants were assigned and semi-structured interviews were conducted with the participants to determine their needs before prepare the program. Second, the program was implemented for 8 weeks between April and June 2020. In this stage, pre-test, post-test, and follow-up data were collected with quantitative data collection instruments and qualitative data were used as supporting data. Thus, it is aimed to collect in-depth data and to make data triangulation. The data collection instruments are detailed in the next section.

In Turkey, the normalization process was initiated on June 1, 2020; however, the pandemic restrictions were reintroduced on October 2020 due to the second wave. Thus, the data collection process was difficult and the follow-up data were collected four months later. Finally, all data were analyzed and interpreted. The research and data collection processes are summarized in Table 1.

| Phases Process and data collection instruments |
|-----------------------------------------------|
| 1st Phase: Determination of Pre-Implementation Requirements |
| • Qualitative Data: Semi-structured interviews with the parents before implementation |
| • Quantitative Data: Analysis of parent–child interaction with Maternal Behavior Rating Scale (MBRS) and Child Behavior Rating Scale (CBRS) and home environment routines with Routine Assessment Form before the implementation |
| 2nd Phase: Implementation of Program |
| • Qualitative Data: Weekly emotional state of the parents collected with the Menntimeter App, word analysis of weekly session contribution to the parents, researchers’ notes |
| • Quantitative Data: Analysis of the weekly assignments by the parents with the Self-Assessment Form |
| 3rd Phase: Analysis of the Program |
| • Qualitative Data: Semi-structured interviews with the parents after implementation (social validity) |
| • Quantitative Data: Analysis of parent–child interactions with MBRS-CBRS and home environment routines with Routine Assessment Form after the implementation and follow-up stages |

Table 1 Research process and data collection instruments.
2.4. Preparation of the program

Before the implementation, program content and materials were prepared by the three authors. All three authors are experts in the field of early childhood special education and have been conducting applied studies with children and their parents for about eleven years.

The program content was based on parental needs and evidence-based strategies (responsive teaching, naturalistic teaching strategies, environmental organization strategies, etc.). In the program, support for all development areas, especially the language development of the children was prioritized. The program was based on the analysis of the opportunities of at-home teaching and embedding the instructional objectives into the daily routines and activities at home. Program material included PowerPoint slides, sample implementation videos, evaluation forms, and assignments. Assignments included sharing feelings, emotions, needs, and expectations, evaluating the child’s development, setting developmental goals, developing a naturalistic teaching plan, defining daily routines, conducting environmental organizations at home, and improving quality interaction in playtime.

The program content, and related material were submitted to three field experts to ensure content validity. The weekly program content is presented in Fig. 1.

2.4.1. Implementation of the program

Sessions were conducted weekly for 8 weeks on the online Acaport Academic Portal platform. Acaport is an online platform developed in Turkey to organize online lectures, meetings, and conferences (www.acaport.com). Sessions were conducted with all parents in a virtual group setting. The authors attended the sessions to answer the questions and encourage dialog between the participants. In addition to the weekly sessions, a group was established on WhatsApp to encourage continuous dialog and communication.

2.5. Data collection

2.5.1. Semi-structured interviews

Semi-structured interviews were conducted to determine the topics about parental needs before the implementation and to analyze the program after the implementation. The interview questions were edited and improved based on the views of the field experts. These questions are presented in Table 2.

The semi-structured interviews conducted before and after the implementation were recorded online on the Acaport Academic Portal. The sessions lasted between 35 and 55 min.

2.6. Researchers’ notes

Researchers took notes during all research phases. These notes were employed as supportive data during the interpretation and discussion of the findings.

2.6.1. Maternal behavior Rating scale (MBRS)

The Maternal Behavior Rating Scale (MBRS) was employed to analyze the interaction levels between parents and their children during the pre-implementation, post-implementation, and follow-up stages. The scale was developed by Mahoney et al. (1986) and adapted to the Turkish language by Diken et al. (2009) in a study conducted with 123 mother–child pairs with different developmental disabilities. The scale analyzes behavior in three subscales: (a) sensitivity-responsivity, (b) affect-expressiveness, and (c) achievement orientation-directiveness that parents exhibit during interaction with their children. In general, the internal consistency of the Turkish Version of the MBRS was high.

Table 2

| Interview questions | Pre-implementation Questions | Post-implementation Questions |
|---------------------|-----------------------------|------------------------------|
| 1. What is your role in the education of your child? (Pre- and post-pandemic) | 1. Please define this program with three words. | 1. What are your views on the program? |
| 2. What do you do for the education of your child during the pandemic? | 2. What are your views on the program? (Content, length, presentation, achievements, challenges, etc.) | 3. What are the difficulties associated with education at home? |
| 3. What are the difficulties associated with education at home? | 3. What do you propose to improve the functionality of the program? | 4. What are your educational needs? |
| 4. What are your educational needs? | 4. How do you envisage a different distance parental education program? | 5. What are your views on distance parental education programs? |

Fig. 1. Weekly content of the program.
For the entire scale, Cronbach’s alpha coefficient was 0.73, and Kaiser-Meyer-Olkin (KMO) was 0.80. Internal consistency for the three subscales was also high (Cronbach’s alpha 0.87 for Responsiveness, 0.86 for Affection, and 0.72 for Achievement/Directiveness).

MBRS is a Likert-type scale rated between 1 and 5 points. The minimum subscale score is 1, the maximum subscale score is 20 in the “Sensitivity-Responsivity” subscale, 25 in the “Affect-Expressiveness” subscale, and 15 in the “Achievement Orientation-Directiveness” subscale. The mean score should be 5 in the “Sensitivity-Responsivity” and “Affect-Expressiveness” subscales, and 3 in the “Achievement Orientation-Directiveness” subscale.

2.6.2. Child behavior Rating scale (CBRS)

The Child Behavior Rating Scale (CBRS) was employed to analyze the interaction levels between children and parents during the pre-implementation, post-implementation, and follow-up stages. The scale was developed by Mahoney & Wheeden (1999) and adapted to the Turkish language by Diken et al. (2009). The scale includes two subscales, namely “Attention” and “Initiation.” The internal consistency of the Turkish Version of the CBRS was high, while Cronbach’s alpha coefficient was 0.89 and Kaiser-Meyer-Olkin (KMO) was 0.82. Cronbach’s alpha coefficients for attention and initiation were 0.89 and 0.84, respectively.

CBRS is a 5-point Likert-type scale that analyzed children’s interactional behavior between low and high interaction. The minimum score in the “Attention” subscale is 1 and the maximum score is 20. The minimum score in the “Initiation” subscale is 1 and the maximum score is 15. The maximum overall scale score is 35.

Both scales could be completed by recording 10–15 min of free play interaction between the parent and child (Karaaslan & Mahoney, 2013; Toper et al., 2019). In the present study, parents were asked to record about 10 min of free play videos before, immediately after, and four months after the implementation and submit the videos online. The parents were asked to submit the videos via WeTransfer (www.wetransfer.com), GoogleDrive, WhatsApp, or Yandex Disc. The interactions between the children and their parents in the videos were viewed and coded by two independent researchers.

2.6.3. Routine assessment form

The daily routines of the parents and children were analyzed with the “Routine Assessment Form” completed before and after implementation and during the follow-up stage. This online form was developed by the authors and revised based on field expert feedback. In the form, the listed routines (changing/using the bathroom, feeding, bathing, washing hands, dressing, playing alone at home, playing with the parents, daytime sleep, etc.) are graded between 1 (mostly very difficult) and 5 (mostly very enjoyable). Furthermore, the form included sections where parents could list the three most difficult and enjoyable routines that they conduct with their children.

2.6.4. Parental self-assessment form

A form was developed for the current topic each week (seven in total), and parents indicated the completion of the weekly assignment on the form. Thus, the form aimed at the participants to evaluate, monitor, and manage their weekly performance. This online form was developed by the authors and revised based on field expert feedback. The form is graded between 1 and 5 points and included sections where comments and examples could be written. For instance, questions such as “Am I sensitive? (Can I recognize my child’s needs?),” “Can I follow my child’s lead?” and “Am I responsive? (Do I respond accurately to my child’s needs?)” were included for week 6, and “What are the stages of developing a teaching plan at home?” and “Am I aware of what to do and where and how to do it?” were included for week 7.

2.6.5. The Mentimeter app

Mentimeter is an assessment and evaluation tool. Mentimeter makes the evaluation process more fun with interactive questions, visual multiple-choice questions, word clouds, and a quickest-answer-wins scheme (www.mentimeter.com). In the study, the participants were first asked “How do you feel today?” in each session, and the final question in each session was “What are your takeaways from today?” Word clouds were created based on participant responses at the beginning and end of each session, and these responses were discussed with the participants. Thus, the weekly emotional state of the parents and their acquisitions in the session were evaluated.

2.7. Data analysis

The semi-structured interviews conducted in the study were analyzed with the inductive thematic analysis method.

The inductive thematic analysis allows a researcher to attribute a meaning to the patterns and establish themes based on the data (Percy et al., 2015). Analysis of the interview responses allowed the organization, processing, and interpretation of the parental views to answer the research questions. Data analysis began with coding, and the transcribed interviews were read by the authors. After coding, the responses were screened for similarities to develop patterns for each interview. Similar responses were clustered. In the next step, the patterns were synthesized to develop the themes across the data. Patterns were grouped based on semantic similarities and their association with the research questions. Summary statements were developed for each group of patterns based on the themes. Members were controlled, and field expert opinions were obtained in the next step, and finally, all participant responses were classified into patterns and themes.

The quantitative data were analyzed with descriptive analysis due to the small sample size, and the findings are presented in graphs. Researcher notes were analyzed with the macro analysis method, which provides a holistic and broad view of the data to support the findings (Patton, 2014).

2.8. Validity and reliability

In the study, two authors independently coded the mother–child interaction videos during free play. Disagreements in coding were discussed until a consensus was reached. The interobserver reliability was 94.4%.

An “Implementation Checklist” was developed based on the basic standards for each training session (starting the session, asking how the participants felt that day, evaluation of the previous week with the participant, participant questions, presentation, asking about participant acquisitions during the session, etc.). All authors participated in all training sessions and completed the checklist independently. Based on the coding, the implementation reliability was about 95% for each session.

2.9. Ethical concerns

Participation in the program was voluntary. Before the study, all research processes (video recording, freedom to leave the study, employment of codenames, etc.) was explained to the participants in online meetings. Ethics committee approval was obtained at Anadolu University (protocol number: 43714). The participants signed an online informed consent form.

3. Findings

The study findings are presented in three sections associated with the research questions. These sections include pre-implementation needs, implementation data, and the post-implementation impact.
3.1. Pre-implementation needs

Semi-structured interviews were conducted with 11 parents before the implementation. The findings on the pre-implementation needs of the parents are categorized under three main themes. These are presented in Fig. 2.

3.1.1. Psychological-emotional support needs

The analysis of the interviews revealed that the parents emphasized psychological and emotional difficulties they experienced during the time they spent at home during the pandemic. Various emotional burdens experienced by the parents included educational responsibilities during the time spent at home, developmental concerns about their children, changes in home routines and daily life activities, changing childcare roles and responsibilities, and problems in sharing the domestic workload with spouses. Parents stated the following:

“I behaved like a teacher, not a mother. This has been exhausting. Honestly, I feel like my daughter would fail if I did not do it, I panicked…” (Mother 7)

“I feel worn out psychologically, I think I am not enough for my child… This causes a lot of stress.” (Mother 4)

3.1.2. Guidance and counseling needs

The analysis revealed that the parents required guidance and counseling during the pandemic. According to the parents, the “role of the teacher” that they needed to assume due to the lack of proper education for their children, led to questions like “Am I making a mistake somewhere?” and “I am not an educator, am I doing something wrong?” The parents were stressed that they did not know “whether they were doing right or wrong” and they needed an expert to tell them “Yes, you’re doing OK!”. One parent argued the following:

“Sometimes I don’t know what I’m doing is right or wrong… When I say do not do it, he would not listen… Especially during the pandemic, he can sometimes be very combative at home. We do not know how to act as parents. We need the assistance of a field expert…” (Father 1)

3.1.3. Child development information needs

The analysis revealed that parents required information about the development of their children. One parent stated the following:

“Is she going to be underdeveloped? We need information and support on her development…” (Mother 6)

Parental responses on information requirements were processed in the word cloud and presented in Fig. 3. The particular topics that parents needed information on the development of their children included language development, physiotherapy services, toilet training, and movement skills such as walking and crawling.

3.2. Implementation findings

The parental participation data for the sessions (See Fig. 4) demonstrated that the participation was 100% in the first five sessions. However, parental participation decreased in the final three sessions. One parent did not participate in session 6 (Mother 10), two parents did not participate in session 7 (Mother 5 and Mother 9), and three parents did not participate in session 8 (Mother 4, Mother 5, and Mother 9). The normalization process announced on June 1, 2020, played a key role in this decrease in participation. After this date, communication became more difficult with the parents.

Parents were invited to fill in the Self-Assessment Forms after each session. Furthermore, they were assigned homework every week. As seen in Fig. 5, parental participation in completing the forms and assignments varied. It should be noted that only four parents fully completed the forms and homework (Mother 2, Mother 3, Mother 6, and Mother 7).

The highest participation rates were observed in the assignments of taking notes about the daily routines of their children, evaluating the quality of these routines, the emotional changes during difficult times, child development, and the determination of developmental goals. The lowest participation rates were observed in planning naturalistic teaching strategies at home and submitting the play/interaction videos. On the other hand, it was determined that while the rate of completing the assignments was higher during the first weeks, it decreased during the last two weeks. According to the parents, this decline was due to the new parental roles and responsibilities during the pandemic, the emotional changes they experienced, and the time required to apply the acquired knowledge in practice. One participant stated the following:
“Our home routines got disrupted during the pandemic. As a mother, my household responsibilities increased… I could not find time to do the assignments… and sometimes I was demoralized… I also needed to internalize the information a little…” (Mother 5)

3.3. Post-implementation impact findings

The post-implementation impact data were based on the analysis of the 10-minute videos requested before and after the implementation, in the follow-up stage, and one-on-one interviews conducted after the implementation to determine the quality of the parent–child interaction and parental routines.

Before the implementation, nine parents submitted interaction videos. One parent could not record videos since she was in the final 1.5 months of her pregnancy; however, she attended 80% of the sessions (Mother 9). Another parent could not submit the video due to technical reasons (inability to use online file upload system); however, attended all training sessions (Mother 1). Due to the significance of emergency intervention in an extraordinary period such as the pandemic, these parents were included in the study without pre-implementation videos.

Only four parents submitted pre-implementation, post-implementation, and follow-up videos on time (Mother 2, Mother 3, Mother 6, and Mother 7). A one-week break was given in the program due to a religious holiday, participants moving to other cities, lifting of the pandemic curfew, reopening of special education and rehabilitation centers, and return of parents to their old routines and personal reasons (one parent giving birth [Mother 9], one parent’s child undergoing emergency surgery [Mother 1]) led to difficulties in the collection of post-implementation and follow-up videos. There were similar issues with the Routine Assessment Forms that should be filled during the post-implementation and follow-up stages. Thus, the following section includes only the data collected from four parent–child pairs (Mother 2, Mother 3, Mother 6, and Mother 7) who fully participated in all implementation processes and submitted videos and Routine Assessment Forms at all stages of the study.
3.3.1. The analysis of parental behavior

The pre-implementation, post-implementation, and follow-up mean scores and standard deviations of the parents in the “Sensitivity-Responsivity”, “Affect-Expressiveness” and “Achievement Orientation-Directivity” subscales are presented in Fig. 6.

In Fig. 6, it could be observed that the parental “Sensitivity-Responsivity” and “Affect-Expressiveness” behaviors were at a moderate level before the implementation, and expected increases were observed in these behaviors after the implementation. Although a slight decrease was observed in the “Sensitivity-Responsivity” behavior during the follow-up, the desired increase in “Affect-Expressiveness” behavior was preserved. Before the implementation, the “Achievement Orientation-Directiveness” behavior of the parents was already very high. Although the desired decrease was observed in this behavior after the implementation, it should be noted that there was an unexpected increase in the follow-up stage.

Based on these findings, it could be suggested that the program achieved the desired changes in the parental “Sensitivity-Responsivity”, “Affect-Expressiveness”, and “Achievement Orientation-Directiveness” behavior. However, the program should be adjusted to achieve more permanent results in “Achievement Orientation-Directiveness” behavior.

3.3.2. The analysis of children’s behavior

The pre-implementation, post-implementation, and follow-up “Attention” and “Initiation” subscale mean scores and standard deviations of the children are presented in Fig. 7.

The review of Fig. 7 demonstrated that mean scores “Attention”, “Initiation”, and total scores of the children increased after the implementation; however, a slight decrease was observed in the follow-up. Thus, it could be suggested that the program led to the desired changes in children’s interactional/pivotal behavior. This indicated that the improvement of parental interaction levels increased the interactional behavior in children. Furthermore, the decrease in parental behavior during the follow-up phase could have a slight impact on the decrease in child behavior during the follow-up.

3.3.3. Findings on difficult routines

As seen in Fig. 8, the most difficult parental routines associated with their children were playing together, feeding, bathing, and washing hands, respectively. In particular, all four parents reported difficulties in playing with the children in the pre-implementation stage. This was followed by the feeding routine. In the post-implementation and follow-up stages, however, no parents reported difficulties in the playing-together routine. In the post-implementation interviews, the parents stated that they benefited from the program in the organization of daily routines. One parent stated the following:

“The program helped me realize how important the daily routines are. Now I always organize these routines and create learning moments within them...” (Mother 2)

3.3.4. Parental views on the program after the implementation

Semi-structured interviews were conducted with the parents after the implementation to determine their views on program content, implementation, contributions, and issues. All parents (11 parents) participated in the post-implementation interviews. Three main themes emerged with the inductive analysis of the interview data. These main and sub-themes are presented in Fig. 9.

3.3.4.1. Views on the program’s contributions. The parents described the program as an educational, instructive, and effective distance education process where they created a social network. One parent considered the program a “band-aid”. Another parent described the education provided in the program as an “emergency support mechanism” during a time when they were isolated at home with their children.

The analysis revealed that all parents generally had positive views on the program, and parents emphasized the contribution of the program to the family members and their daily lives. According to the parents, the knowledge acquired in the program helped them recall their parenting skills. The application of this knowledge in daily routines and activities allowed them to spend more quality time and led to smoother daily routines. Certain participants stated the following on these issues:

“It was good for us to pay attention to ourselves and our children and remember that we are parents first not educators.” (Mother 3)

“We started to spend more quality time with my spouse and child. Once we started to have regular routines, his temper tantrums subsided... Thanks to the information we acquired...” (Mother 7)

3.3.4.2. Views on the program content and implementation. Parents stated that the program content met informational and implementation requirements during the pandemic. According to the parents, the distribution of weekly topics allowed them to associate the information. One

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![Fig. 6. The analysis of parental behavior. X: Mean; SD: Standard Deviation.](image-url)
of the parents emphasized the holistic nature of the program as follows: “The course was good from start to end... The sessions flowed well into the next week...” (Mother 6)

Most parents considered both the weekly and total length of the program as adequate. Parents found all program materials visual, attention-grabbing, exemplary, clear, and understandable; however, but suggested that further guest field experts and sample implementation videos could be included in the sessions. Furthermore, they suggested that more one-on-one implementation processes such as coaching and counseling could be included. Parents also stated that they needed practice and more time for the permanence and internalization of the program strategies. Two parents stated the following:

“We look forward to the continuation of the program... especially in such a period, we need both training and counseling...” (Mother 9)

“I think I need to internalize some of the [program] information and parental behavior. I think it takes time to change after behaving the way we did for so long...” (Mother 3)

The parents also underlined certain issues they experienced during the implementation. The parents stated that this was the first time they participated in a distance education program. The main attendance issues were associated with the Internet connection, portal login, video recording and online posting, and filling the online forms. One parent stated that “This was my first time attending an online course... I managed to send the video after several tries. The first video I took was too long, so I took another one. My internet disconnected while uploading... so I re-uploaded...” (Mother 7)

Parents stated that they tried to organize the routine changes after the curfew was lifted and special education and rehabilitation centers were reopened. It was noted that especially after “normalization”, the parents lost their motivation to participate in the sessions. One of the parents said the following: “While the pandemic restrictions were going on, he did not attend school and we felt helpless at home, it was great to be part of the program. But we could not attend the last two sessions. We had to return to our hometown once the restrictions were lifted.” (Mother 5)

3.3.4.3. Views on the improvement of the program. Most parents suggested that a module on behavioral problems that disrupt daily routines and more implementation videos could be included in the program. Most parents stated that the length of the program was adequate. However, some parents argued that the program could be shorter and include briefer information due to the social, psychological, and emotional difficulties experienced in the pandemic. Finally, parents emphasized that they needed this type of program more than ever, especially during an emergency such as a pandemic, and they wanted these courses to continue. Thus, they suggested that a system that allows...
them to receive continuous counseling/coaching services could be implemented.

4. Discussion, conclusion, and recommendations

The present study entails an applied emergency remote parent training program developed based on the needs of parents with young children with special needs during the COVID-19 pandemic. After the conventional educational activities were discontinued due to the pandemic in Turkey, the authors developed an emergency action plan for young children with Down syndrome with developmental delays, severe chronic diseases and low immune system and their parents. Dunst (2002) reported that it is important to take parental needs into account in parent education to achieve effective and successful results. In this study, pre-implementation interviews were conducted with the parents. The interviews revealed the main issues that parents should be assisted in during the COVID-19 pandemic. These issues included the support of the children’s communication and interaction skills, information about the incorporation of educational objectives into the home environment, and professional support and guidance on the employment of this information in practice. Furthermore, it was determined that parents needed to be included in a social group and required psychological and emotional support in this period. Especially, parents stated that they sometimes felt stress and anxiety due to the routine changes and new responsibilities during the pandemic. It could be suggested that children with special needs and their parents whose daily social lives, routines, and education were interrupted due to the pandemic constitute an important group in need of emergency support (Ameis et al., 2020; Brown et al., 2020; Lee et al., 2021; Malhi et al., 2021). Based on these in this study, these needs of parents were taken into account and it was aimed to reach parents as soon as possible.

Indeed, an emergency remote training program includes efforts to find temporary solutions based on current needs (Bozkurt, 2020). These programs allow the practitioner to be free to make instructional decisions to maximize the learning opportunities of the participants despite the crisis (Toquero, 2020). In the present study, the authors attempted to determine the basic needs of parents to maximize the employment of the program, as well as allowing them to make instructional decisions, planning, and analysis. The present study is important since it included children with developmental disabilities and their parents and basic emergency assistance and evidence-based practices. Because it is an important issue that the support services to be provided to parents include evidence-based practices (Akemoğlu & Meadan, 2018; Meadan et al., 2016). Thus, the knowledge on evidence-based practices such as responsive and naturalistic instruction strategies and implementation of these strategies in daily life were provided for the parents. At the end of the study, it was seen that the program made positive changes to parents and children’s interactional behaviors and their daily routines.

The study findings demonstrated that the parental “Sensitivity-Responsivity” and “Affect-Expressiveness” behaviors were moderate and “Achievement Orientation-Directiveness” behavior was high before the implementation. Blacher et al. (2013) argued that parents with children with Down syndrome exhibited more positive behavior towards their children, were more accepting, warm, and loving when compared to parents with other developmental disabilities (autism spectrum disorder, cerebral palsy, etc.). In the literature, parents who have a child with Down syndrome were described as directive but warm (Cebula et al., 2009). It is possible to characterize the parents included in this study similarly. While warm and emotionally expressive behavior is more easily acquired with parental instincts, a high level of achievement-oriented behavior could be associated with the parental focus on

![Fig. 9. Main and sub-themes determined in post-implementation interviews.](image-url)
education due to the anxiety of assisting their children with special needs to catch up to their peers (Mahoney & Perales, 2003). The “Sensitivity-Responsivity” and “Affect-Expressiveness” behavior of most parents improved after the implementation of the program and reached desired levels. These findings were consistent with the findings reported by several studies on responsive teaching strategies (Karaaslan et al., 2011; Landry et al., 2006; Mahoney et al., 2006). Mahoney and MacDonald (2007) emphasized the importance of the parents in the implementation of responsive training strategies for at least six months to achieve effective results. Furthermore, it was suggested that parents acquired the basic strategies after a very short time and incorporated them into their daily lives. Other studies revealed that after as little as eight sessions, there was an increase in the “Sensitivity-Responsivity” and “Affect-Expressiveness” behavior of the parents and child development (Toper et al., 2019; Warren & Brady, 2007). In the present study, an increase was observed in the “Sensitivity-Responsivity” and “Affect-Expressiveness” interactional behavior of the parents after the 6-week long implementation. Furthermore, the parents stated that the program helped them reorganize their routines and spend quality time when playing with their children and feeding them after the implementation. Indeed it should be noted that the daily routines that parents considered the most difficult were playing with and feeding their children. Studies demonstrated that parents with children with Down syndrome were highly directive, especially during play activities, constantly force their children to learn, warn their children, give instructions, and play a supportive role during the feeding routine (Pino, 2000; Tingley et al., 1994). A recent study by Toseeb et al. (2020) reported that parents with children with special needs required assistance during the pandemic, especially in supporting their children’s education and development at home and regulate the changing routines. The present study also revealed that the challenges that parents faced and one of their most basic needs was the reorganization of daily routines.

The study also revealed that the “Achievement Orientation-Directiveness” behavior of the parents decreased after the implementation; however, this behavior increased again during the follow-up phase. This undesirable increase could be due to several factors such as stress, anxiety, depression, and loss of motivation that parents experienced due to COVID-19, as well as the lack of adequate time to change these behaviors. The analysis of the implemented program based on duration revealed that 8 weeks could not be sufficient to ensure the permanence of the target behavior such as directiveness. Various studies on family-implemented distance education programs reported that one of the most important discussion topics was “the maintenance of behavior” (Meadan, Meyer, Snodgrass & Halle, 2013; Meadan et al., 2016; Wainer and Ingersoll, 2013). Discussion topics included the implementation models that promoted the permanence of the learned knowledge during the programs, and the methodology and the duration of the implementation (Meadan & Daczewitz, 2015). Previous studies argued that coaching could facilitate the achievement of parental goals, especially in distance education-based applications, and ensure the maintenance of these goals (Meadan et al., 2013; Meadan et al., 2016; Meadan et al., 2017). It was suggested that programs that focus on the direct needs of the parents, provide individualized, one-to-one counseling or coaching assistance, and include further implementation examples, live events, guest lectures, and visual-published material should be developed (Cahapay, 2020; Longo et al., 2020). In this study, the parental views and recommendations after the implementation confirmed this premise. Furthermore, the fact that parents acquired more time to practice and internalize the strategies indicated that repetition and more time were needed for the permanence of the behavior.

The behavior of the children revealed that a positive changes was observed in the “Attention” and “Initiation” behavior of children in the present study, although a slight decrease was determined in the follow-up. Various studies revealed that there was a correlation between the parental “Sensitivity-Responsivity” behavior and the development level of the child (Landry et al., 2006; Mahoney and Perales, 2003; Mahoney et al., 2006). Parental responsiveness was considered as one of the most important socio-environmental variables associated with significant cognitive, communication, and social-emotional development of children in early childhood (Kim & Mahoney, 2004). In summary, the program that was prepared and implemented in the present study affected parental behavior, which may have reflected on children’s behavior.

Although these improvements of the program on parents and children behaviors, implementation the program during such an extraordinary time led to several unpredicted challenges. The biggest difficulty was experienced during data collection. Participants experienced internet connection problems, low internet and download speeds, required assistance for portal login, and had difficulties when completing the online forms and uploading the videos. Rahiem (2020) indicated that the above-mentioned issues are the main problems that could be experienced in emergency remote education programs. Cason et al. (2012) states that there are some potential barriers to using an internet-based program to train parents of children with special needs. Technology infrastructure such as the availability of high-speed internet connection is one of them. American Recovery and Reinvestment Act (2009) focused on increasing access to high-speed internet in communities throughout the United States by providing financial support to enhance the country’s infrastructure for broadband technology (The Recovery Board, 2009). As of June 2012, 98% of Americans had access to internet download speeds of at least 3 megabits per second (Mbps), and 78.5% of Americans had access to broadband speed of 25 Mbps, the speed considered basic and sufficient for video-conferencing (U.S. Department of Commerce, 2013). With the pandemic, we can say that the need for broadband/high-speed internet has increased. This situation makes it necessary to update the broadband/high-speed internet of the countries. Mobile internet speed in Turkey is 34.79 Mbps. Fixed internet speed is 28.89 Mbps. The two numbers are well below the world average. New investments are needed for the Internet and connectivity to become more widespread and use in Turkey (Turkey on the Road to Digitization Report, 2021). Meadan et al. (2013) states that internet-based or remote interventions will offer a potential solution to some of the challenges associated with the delivery of early intervention services, particularly in rural areas. On the other hand, Meadan et al. (2013) pointed out the viability of programs based on internet-based technologies will be limited to people who have access to high internet speed and connectivity and other necessary technologies. We can say that these limitations related to technology have an effect on the participation of the participants in this study.

In addition to the difficulties related to technology, as the “normalization” started in Turkey on June 1, 2020, there was a decrease in parental participation in the sessions, and the authors experienced difficulties in contacting parents and collecting the post-implementation data. Another potential barrier of using internet technology to deliver early intervention services is the possible impact on the degree of rapport that can be established with the family. Building rapport (i.e., keep in touch, hear from each other, harmonious interaction between two people in which each person’s feelings and ideas are understood and communicated well) with families is an essential component of family-centered services in early intervention (Curtiss et al., 2016; Pletcher & Younggren, 2011); however, attempting to build rapport in a long-distance internet relationship can be challenging. The technology adopted for long-distance training may interfere with building rapport (Murphy & Rodriguez-Manzanares, 2012). In this study, as stated by Curtiss et al. (2016), important messages (filling the forms, reminding the session time, etc.) were sent regularly (weekly) to the parents, individual interviews were conducted with parents as a clear and empathetic listener, has been tried to respond quickly to the questions and technical problems they experienced. In future studies, designing user-friendly online materials and regular communication with different communication channels can be considered (Curtiss et al., 2016; Hamad et al., 2010). Furthermore, since the parents participated in an online
course for the first time, they experienced difficulties in full participation in all processes in the program. Another factor that affected full participation in the program was the length of the program. While it was suitable for most parents, some parents considered it long. However, the length of the program was based on the literature, and it was planned for an average period (8 weeks) for the internalization of the target behavior (Mahoney & MacDonald, 2007; Warren & Brady, 2007). This demonstrated that each program and prevailing conditions are unique. On the other hand, difficulties are expected in program development and implementation due to the unplanned nature of the emergency distance education program (Affouneh et al., 2020). Toquero (2020) argued that although the development of an emergency remote training program requires a systematic and planned approach, even a carefully planned program would have limitations in most cases due to emergency transitions.

In conclusion, empowering parents with practical emergency remote education programs based on their needs could trigger positive changes in child development and daily routines. Parents who participated in a social network and acquired knowledge in the program described the program as a “band-aid” and “emergency support mechanism”. Issues such as the development of systematic psycho-social support systems that increase full participation and motivation of parents in distance education programs during periods such as the pandemic, resolving the difficulties in online data collection, the employment of coaching and counseling facilities to improve the sustainability of knowledge, individualization of the program, the improvement of interactivity in the program, and the development of applied training programs on different subjects should be resolved. This study is limited to a small number of volunteer participants by its nature and the findings should be interpreted within this limitation. Based on the present study, the following could be recommended for future research and practitioners in the field:

- Remote service delivery in early intervention seems like a logical step to close service gaps and reduce costs in service delivery. However, more research with different research methods, participants number, disability groups etc. is needed to determine acceptable and effective procedures for internet-based parent interventions. In particular, future research should include studies on designing different emergency parent education programs in terms of different parental needs and child characteristics such as age group and disability.
- Although we still need to evaluate its feasibility and effectiveness with a large number of families, using emergency remote parent training program could have the potential to reach many families and improve both parents’ and children’s quality of life.
- Using rigorous experimental research methodologies that allow the analysis of functional relation between the intervention (i.e. the independent variable, parent training from distance) and the target behaviour (i.e. dependent variable, parents’ knowledge, and practices) could contribute to the field and to our understanding best practices in training parents from a distance.
- Researchers should investigate the advantages and disadvantages of different technologies and procedures and identify effective internet practices for training parents from a distance.
- Different and current applications such as supervisors’ observation, evaluation and instant feedback, bug-in-ear technology can be used in future remote parent trainings.
- Although there were no significant changes in parents and children behavior and their daily routines, these are not enough to say anything about the effectiveness of the program. Adding an individualised coaching component to the intervention could enhance target behaviour change.
- The development of a coaching system that includes follow-up and professional advice via weekly short videos could improve the motivation of the parents to participate in all program processes. In addition to the coaching system, social-emotional support systems could be included in the program to increase parental motivation and interaction.
- Nations should invest in online parent assistance platforms and deliver uninterrupted internet connectivity to families in every region.
- Ensuring the collection of parent–child interaction videos in simultaneous online meetings, determination of more adequate tools for video transfer, and ensuring the instruction of the parents on how to upload the requested documents before the implementation could resolve the data collection problems. The development of online platforms where parents could easily upload the requested forms and documents (videos, etc.) could be another solution to this problem.
- In future studies, the characteristics of the parents and their motivation to work may be taken into account. In this study, although the process started with 11 parents, it was possible to work with four highly motivated parents until the end of the research. These characteristics limit the potential generality of the results and represent a test of the intervention under optimal conditions with regard to participants.
- Future investigators need to explore factors that may influence parent responsiveness to intervention and that might account for variability within and across families (e.g., parent education level, social-economic status, race, training and coaching schedules, and relevant prerequisite skills).
- Future researchers could explore methods for maintaining rate and quality of implementation by requiring a more rigorous criterion for mastery of each strategy or by shifting more responsibility to the parents for conducting the sessions and asking them to embed sessions in varying routines throughout the day.

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CRediT authorship contribution statement

S. Çelik: Conceptualization, Methodology, Writing – original draft. G. Tomris: Methodology, Writing – original draft. D.M. Tuna: Data collecting, Implementation of the program.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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