

## **CASE STUDY: IMPACT OF FAMILY COUNSELING PROCESS FOR DYSCALCULIC CHILDREN AND THEIR PARENTS<sup>1</sup>**

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### **Abstract**

Dyscalculia is defined as difficulty with certain mathematical skills. This condition can lead to difficulties in understanding numbers, performing arithmetic operations, grasping mathematical concepts, and using mathematics in everyday life. These difficulties faced by individuals with dyscalculia in both academic and daily life can be better managed with family counseling. The aim of this study is to examine the effects of “family counseling” sessions applied to the dyscalculic child and the parents of this child. In this study, case study design was used. This study was conducted with a 6th grade male student with dyscalculia and his parents. A six-session family counseling process was carried out. After the recognition and evaluation phase, goals are set and in line with these goals, and individualized strategies have been developed for family. After the applied strategies, an evaluation session was held with the child and his family and their opinions about the process and results were obtained. A semi-structured interview form was used to collect data. As a result of the study, an increase in self-confidence and academic self-perception was observed. The parents stated that the child developed a more positive attitude towards mathematics and even increased in achievement tests.

**Keywords:** Dyscalculia, Family Counseling, Specific Learning Disabilities, Family Education.

### **1. Introduction**

Dyscalculia is a learning disorder that causes individuals to have difficulty understanding number concepts and performing arithmetic operations. The difficulties that dyscalculic children face in their educational lives are not limited to failure in maths lessons; it can also lead to loss of self-confidence and difficulties in social relationships. Parental support plays an important role in this process.

Dyscalculic children may experience both academic and psychosocial difficulties. Academically; difficulties with basic mathematical skills, difficulties with time and money management, problems with orientation and spatial perception, lack of planning and

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organisational skills, difficulties with attention and memory, inability to understand patterns and logical relationships are seen (Sari Gokten & Saday Duman, 2020).

In addition, dyscalculic children who cannot make progress in maths despite their efforts may develop intense anxiety towards mathematics subjects (Mutlu, 2019). This situation may also cause exam anxiety in the child. Dyscalculic children may also experience future anxiety, worrying that they will not be successful academically or professionally. These concerns can trigger feelings of hopelessness and helplessness at an early age, which can lead to feelings of frustration and anger (Gordu, 2017).

Families of dyscalculic children may also experience a range of difficulties. Many parents may think that the child is lazy or not working hard enough because they do not fully understand dyscalculia, which can create tension in the parent-child relationship. In addition, because maths homework and lessons are challenging for children with dyscalculia, parents need to provide constant support. This process can lead to burnout within the family and negatively affect the general peace and harmony, especially between spouses (Celikten, 2021). Most parents do not know how to help their children because they do not have enough information about dyscalculia. In this context, it is thought that 'family counselling' practices that deal with the family as a whole will be useful.

Family counseling is a guidance service to reduce family relationship and communication problems, to develop coping skills with difficult life events and to regulate parenting skills (Algan, 2016). In the Official Gazette, the basic criteria and working principles of Family Counseling have been determined with the "Regulation on Family Counseling Centers to be opened by Real Persons and Private Law Legal Entities and Public Institutions and Organizations" dated 04.12.2012 and numbered 28401 (Ministry of Family and Social Services, 2024).

Graduates of at least four-year undergraduate programs in one of the fields of Social Work, Psychology, Sociology, Medicine, Nursing and Child Development can receive the relevant training to become a "Family Counselor". Those who receive a certificate after successfully completing the family counseling training program, which is approved by the Ministry of National Education (MNE) or one of the universities, with at least three hundred hours of theory and at least thirty hours of supervision, can work as a "Family Counselor" (Ministry of Family and Social Services, 2024).

Family counseling also includes children with special education needs and their families. In family counseling for children with special learning difficulties, parents; They can learn to develop empathy and understanding, to participate in the learning process, to provide

a supportive home environment, to set realistic goals with the reduction of academic pressure, and to realize their children's potential in other areas (General Directorate of Special Education and Guidance Services, MNE, 2024). This process can greatly contribute to the dyscalculic child's self-discovery and overcoming the academic and social difficulties he is experiencing. In the literature, studies on "Family Counseling" for Attention Deficit and Hyperactivity Disorder (ADHD) (Nuroglu Cirpan, 2019), exam anxiety (Isikay, 2019), physically and mentally disabled children (Sari, 2015), autism spectrum disorder and mentally disabled children (Celikbas, 2021), and chronic diseases (Ilgaz, 2020) have been seen. However, there is no study on "Family Counseling" for special learning difficulties.

In addition, when the studies on dyscalculia in the literature were examined, it was seen that there were studies on teacher and stakeholder opinions, diagnosis or intervention methods in general. Studies on family education and participation are very limited. Altindag Kumas (2020) also emphasized the importance of family involvement in dyscalculia and mentioned the necessity of awareness trainings for the family. Coskun & Arik (2023), in their study titled "Theses on specific learning disabilities in Turkey: A systematic review", stated that they came across five studies on mothers' stress levels. However, these studies are not related to family education or family counseling. Mutlu & Polat (2024), in their article titled "Bibliometric and content analysis of dyscalculia research", emphasized that there are gaps that need to be studied in this area. Family education, family participation, psychosocial support to the family are also issues that need to be studied in this field. It is thought that this study will contribute to the literature in this context.

The aim of this study is to examine the effects of "family counseling" sessions applied to dyscalculic child and his parents. For this purpose, answers to the following questions will be sought;

1. What are the effects of family counseling on the dyscalculic child?
2. What are the effects of family counseling on the parents of the dyscalculic child?

## **2. Method**

In this study, case study design, which is one of the qualitative research methods, was used. A case study allows to collect detailed information about a real life or system (Creswell, 2013, p.99). The study group consisted of a 6th grade male student with suspicion of dyscalculia and his parents.

The process started when the mother, who is a teacher, reached out to the researcher through the Dyscalculia Association. The researcher is also an academician working in the field of "Child Development" and "Educational Sciences", who is a "Family Counselor" certified by the Ministry of National Education (MNE). The mother stated that although her son was academically successful in other subjects, he had significant difficulties in mathematics and was unable to make progress in mathematical operations and problem solving, despite supportive teaching. She also stated that before reaching the researcher, he contacted the school guidance service and was referred to a Child and Adolescent Psychiatrist on the suspicion of dyscalculia, and that the psychiatrist diagnosed her child with 'learning difficulties in mathematics' and advised her to contact the Dyscalculia Association.

The mother stated that they did not know about dyscalculia and that they were confused about how to manage the process, and requested "family counseling" from the researcher. Thereupon, a six-session counseling process was planned, and a three-month process was completed by meeting twice a month in one-hour sessions. The content of the application process is given in the "findings" section.

The last session of the counselling process was planned as an evaluation session. A semi-structured interview form was used in the first half of the last session with the child and in the second half with the parents, and their opinions about the process were obtained. The obtained data were subjected to content analysis and categories were created for the views of the child and the parents. For validity and reliability, extracts from the participants' statements are given in the findings section.

### **3. Findings/Results**

The findings of the "Family Counseling" process carried out with dyscalculic students attending the 6th grade and their parents are given under three headings. In the first part, details and content of the six-session counseling process are given. The opinions of the dyscalculic students who participated in the sessions about the process were examined in the second part, and the opinions of the parents about the process were examined in the third part.

#### ***3.1. Six-Session Family Counseling Process***

In the first half of the first session, the child was interviewed and in the second half the family. First session; It is based on understanding clients and determining needs and goals. In the first half of the session, maths tests were given at the grade level and it was seen that the

student could not do it and even exhibited avoidance behavior. When the student was asked about the analog clock, he could not answer. In addition, the student answered the questions about expressing his right and left sides with thinking and hesitation. Afterwards, the student was asked how the mathematics learning disability affected his life and the points that needed to be intervened were determined. In this context; It is planned to focus on information about dyscalculia, mathematics study strategies, studies to overcome mathematics anxiety, discovery of strategies to increase self-confidence, effective communication with the family and a realistic academic future design.

In the second half of the first session, parents were given the "Dyscalculia Symptoms Checklist" prepared by the Dyscalculia Association and asked to fill it out, and the answer was "yes" that dyscalculia symptoms were seen in most items. In addition, parents were asked how the child's mathematics learning disability affected their own lives, and the points that need to be intervened were determined. In this context; It is planned to focus on informing about dyscalculia, support strategies for the child in the field of mathematics at home, recognizing the child's strengths, effective communication with the family and designing a realistic academic future for their children.

The second session is designed to inform children and parents about dyscalculia and to provide necessary guidance. In this context, what dyscalculia is, how it affects the individual, intervention methods are explained, useful resource books and websites are suggested. The student was informed about the nature of the problem and the study strategies to overcome it. On the other hand, the family was told about the strategies to support their children at home. In addition, the importance of keeping in touch with the school and the mathematics teacher was explained to the family.

The third session was conducted with the child only. In this session, it is aimed to discover the strengths of the child in order to increase the self-esteem and self-confidence of the child and to make the child aware of them. In the dialogues that took place during the session, it was noticed that the child was very prone to language learning, could easily answer the questions asked in English, and tried to learn another language on the internet on his own. In addition, the student; He stated that he loved to read books, that he was particularly interested in the political history of countries and that he did readings in this field. Below are some excerpts from the child's statements;

"..... I love learning a new language. For example, I can watch the series in English and without subtitles. Also, Chinese is very interesting to me, I also started to study Chinese on my own on Youtube."

The fourth session was held with only the child. This session is designed to help the child overcome the avoidance behavior towards mathematics. In this context, the importance of accepting oneself and one's situation, aiming to do the best you can, and being able to progress consistently, even if it is small steps, is emphasized. In addition, the mathematics study strategies previously taught in the second session were emphasized again and it was understood that the student made progress on the points where he had difficulty a month ago.

In the fifth session, both the child and the parents were interviewed separately. In this session, communication skills within the family were emphasized. The importance of a healthy communication environment for individuals with mathematics learning difficulties and their families is emphasized. In particular, it was stated that the child was in pre-adolescence in terms of age, and information was given about the developmental characteristics of adolescence. In addition, the academic future design of the child was emphasized, the strengths and weaknesses of the child were evaluated, and the importance of guiding them in line with their abilities was emphasized.

The sixth session was designed as an evaluation session. The opinions of both the child and his parents about the process were taken. The point reached was evaluated and suggestions were made for the future.

**3.2. Dyscalculic Student's Views on Family Counseling Process**

In the first session of the counseling process, the student was asked how the mathematics learning disability affected his life, and the answers given by the student were subjected to content analysis and four main categories were reached. These categories are; It is named as "Problems in academic life", "Problems in social life", "Problems with the family" and "Problems in self-perception". Examples of student sentences for these categories are given in Table 1 below.

**Table 1.** *Categories of Difficulties Experienced by Dyscalculic Students*

| <i>Category</i>           | <i>Example Sentence</i>   |
|---------------------------|---|
| Problems in Academic Life | <i>"..... No matter how hard I try, I can't do math. I always get the lowest grades in class. I can't do my homework. That's why my teacher always gets mad at me."</i> |
|                           | <i>"..... That's why I don't want to go to school anymore, I'm tired of falling behind all the time."</i>   |

|                             |   |
|-----------------------------|---|
| Problems in Social Life     | <p>“..... My friends make fun of me now. I always get the lowest grades, because I can't do the homework.”</p> <p>“..... They think I'm lazy, and sometimes I don't want to talk to them because I'm depressed.”</p>                              |
| Troubles with the family    | <p>“... My parents think I'm lazy and always get angry because I didn't do my homework. The more angry they are, the more scared I am, I don't even want to open the math book.”</p>  |
| Problems in self-perception | <p>“... I feel like an idiot sometimes, everyone is doing it because I can't do it.”</p> <p>“... It's getting harder and harder, I don't know what I'm going to do in the future, I get more and more frustrated when no one understands me.”</p> |

As can be seen in Table 1, the student stated that although he worked hard, he could not do mathematics, he could not understand the problem in himself, he constantly felt embarrassed among his friends, he was accused of laziness by his family, and therefore he felt angry all the time.

In the last session of the counseling process, the student was asked how this process affected him, what changed in his life or perspective, and the answers were subjected to content analysis and examined through four categories determined at the beginning of the process. Examples of student sentences about the achievements or changes in these categories are given in Table 2 below.

As can be seen in Table 2, after the process; He stated that by learning that this situation is a developmental difference, he started to understand himself, became aware of his strengths, his self-confidence increased, his family approached him more understandingly, and his anxiety about mathematics lesson decreased. In fact, he said that after studying Future Design, he would like to pursue a career in the diplomatic service, which does not require a lot of maths and where he can combine his knowledge of foreign languages with his interest in politics.

**Table 2.** *Dyscalculic Student's Views on Achievements in the Counseling Process*

| <i>Category</i>                        | <i>Example Sentence</i>  |
|--|--|
| Achievements for Academic Life         | <i>"... I'm not as scared of math anymore as I used to be, I'm still struggling a little bit, but I think I'm slowly progressing."</i>                                   |
| Achievements for Social Life           | <i>"... Even though I struggle with math, there are many areas that I am good at, I don't become withdrawn anymore, I don't feel bad around my friends."</i>             |
| Gains in Communication with the Family | <i>"... My father and mother are no longer angry with me like they used to be, we sometimes study mathematics together with games on the internet."</i>                  |
| Gains in Self-Perception               | <i>"... Even though I struggle with math, there are many areas that I am good at, for example, I want to be a diplomat when I grow up."</i>                              |
|  | <i>"... I wasn't the only one who went through this, it was a difference in my brain, and once I understood that, I wasn't mad at myself anymore like I used to be."</i> |

**3.3. Opinions of Parents of Dyscalculic Children on Family Counselling Process**

In the first session of the counseling process, parents were asked how their children's mathematics learning difficulties affected their lives, and the answers were subjected to content analysis and four main categories were reached.

These categories are; They are named as "Views on the child", "Problems in the family", "Emotional Burnout" and "Concerns about the future of the child". Examples of parent sentences for these categories are given in Table 3 below. The mother's sentences are coded with the letter "M", and the father's sentences are coded with the letter "F".

As can be seen in Table 3; Parents of a 6th grade student dyscalculic child stated that they thought that their children were lazy before the counselling process, that doing their math homework at home turned into an ordeal, that they experienced burnout due to the lack of progress in mathematics in their children despite all their efforts, that there were tensions

between spouses and their children from time to time, and that they were worried about their children's academic and professional future.

**Table 3.** *Difficulties Faced by Parents with Dyscalculic Children*

| <i>Category</i>                   | <i>Example Sentence</i>   |
|-----------------------------------|---|
| "Views on the Child"              | <i>M: ".....I didn't understand why he struggled so much in math when he had no problems in other subjects. I was thinking that getting homework done was an ordeal, that he was running away from being challenged, that he was being lazy."</i> |
|                                   | <i>F: "..... My math was always very good, I started to think that he didn't solve the questions to spite me when we was studying, I had never heard of dyscalculia before."</i>  |
| "Problems in the Family"          | <i>M: "....my husband and I started having arguments, saying that since I was a teacher, I should take more care of the child."</i>   |
|                                   | <i>F: ".... As our son didn't want to do his homework and got low grades, the tension at home was rising. I couldn't be patient when I was teaching my son, my voice was getting louder."</i>   |
| "Emotional Burnout"               | <i>M: " ..... Despite all our efforts, there was no progress, we didn't know what path to take."</i>  |
|                                   | <i>F: "..... We also took private lessons, but it didn't help, our efforts seemed to be in vain."</i>   |
| "Concerns for the Child's Future" | <i>M: "I was thinking, .....If it goes on like this, he will not be able to do mathematics in the exam and enter a good high school. That would definitely affect his professional life."</i>   |
|                                   | <i>F: "..... If he can't even do simple math problems, how will he get into college, what profession will he do?"</i>   |

In the last session of the counseling process, parents were asked how this process affected them, what changed in their lives or perspectives, and the answers were subjected to content analysis and examined through four categories: "Change in Child's Perspective", "Contributions to Family Communication", "Awareness / Access to the Right Resources" and

"Observations on Changes in the Child". Examples of parental sentences about the achievements for these categories are given in Table 4 below.

**Table 4.** *Opinions of Parents of Dyscalculic Child on Their Achievements in the Counseling Process*

| <i>Category</i>                             | <i>Example Sentence</i>  |
|---|--|
| "Change in the Perspective of the Child"    | <i>M: ".....When I learned that this is not a situation that is in our child's hands, but a neurodevelopmental difference, my perspective changed, I can approach it with more understanding"</i>  |
|   | <i>F: "..... I'm more patient with him now. I hadn't noticed his strengths before, I had always focused on the areas where he was lacking."</i>  |
| "Contributions to Family Communication"     | <i>M: ".....The tension in the house has decreased, both with my wife and my son..."</i>   |
|   | <i>F: "..... Despite the difficulty he had in mathematics, I was relieved to realize that he could come to good places in the future with his aptitude for foreign languages."</i>   |
| "Awareness / Access to the Right Resources" | <i>M: "... I heard about dyscalculia when I was studying at the Faculty of Education, but I didn't have any detailed information, now I know how to approach it. I pay attention to this in my own teaching profession as well. Gamification and concrete examples from daily life were very important."</i> |
|   | <i>F: " ... In this process, we were able to reach the right resources without wasting effort and time, this is very important. I recommend that other families who have such problems seek expert support."</i>   |
| "Observations on Changes in the Child"      | <i>M: "..... The math teacher said he was trying to listen more carefully to the lessons, and there was a slight increase in his grades, at least he was trying a little harder."</i>  |
|   | <i>F: ".... He's not as angry as he used to be, and when we approached him with more understanding, he seemed to diminish."</i>  |

After the counseling sessions, parents; After understanding that this situation experienced by their children was caused by a neurodevelopmental difference, they stated that they were able to develop understanding and empathy towards their children. They stated that cooperation and communication between spouses and their children were strengthened, and that they realized the strengths of their children and focused on them. During the counseling process, they stated that their awareness of dyscalculia increased, and they did not waste time and effort by being directed to the right resources and materials. In addition, they said that they observed that their children improved in mathematics achievement tests at school and that their mathematics anxiety decreased.

They stated that their children started to manage their anger with the counselling process and became more adaptable. In summary, they stated that the family counseling process has very positive contributions to both themselves and their children, and recommended that families with similar problems (dyscalculia or other learning difficulties) should also benefit from the counseling process.

#### **4. Discussion, Conclusion and Recommendations**

As a result of the study, it was understood that the family counseling process had positive effects on both the dyscalculic child and his parents. It has been observed that communication within the family has become stronger and more constructive. Nuroglu Cirpan (2019) also found in her master's thesis that family counseling practices improve the communication and problem-solving skills of family members, are effective in reducing behavioral disorder symptoms, and can reduce social anxiety disorder symptoms. In this process, the child also stated that there was an improvement in friendship relations.

In addition, an increase in self-confidence and academic self-perception was observed by the parents. Sari Gokten & Saday Duman (2020) also in their works; they emphasized the importance of counseling both the child and the family on attention, memory, motivation, learning and study skills and guiding the family to develop the child's self-esteem.

Parents stated that the child developed a more positive attitude towards the mathematics lesson, and even there were increases in achievement tests. They also drew attention to the contribution of the process in overcoming the emotional burnout they experienced. Sari (2015), in her doctoral thesis, organized family counseling sessions for mothers with disabilities and

stated that these mothers' anxiety, depression and stress levels decreased. Families of children with special learning difficulties may also experience intense emotional burden as they are in a long-term process. Therefore, family counseling sessions, which enable disabled mothers to cope more easily with psychological problems, should also be applied to families of children with learning difficulties. Celik, on the other hand, (2021), in her master's thesis, the "Value-Oriented Spiritual Empowerment and Care Program" was applied to the mothers of children with special learning difficulties. After this application, a positive increase was observed in the "Psychological Well-Being Scale" scores of the mothers.

Parents about the contribution of the process to them; They stated that their awareness and empathy of dyscalculia increased, they learned to support their children's weaknesses (dyscalculia), to encourage their strengths discovered in the process, and to strengthen family integrity by accepting their children in all their forms. As a matter of fact, Altindag Kumas (2020), families; In order to improve the self-esteem of the dyscalculic child, he recommended talking not only about the learning difficulties he suffers, but also about his strengths, appreciating not only the result, but also the process and the effort.

As a result, it was concluded that 'family counselling' sessions for people with 'specific learning disabilities' and dyscalculia and their families are very effective. In this context, it is recommended that the concept of 'family counselling' should be more widely used in special educational institutions and support programmes related to learning disabilities.

Individuals diagnosed with specific learning disabilities and dyscalculia and their families should be directed to the free family counseling service offered by the Provincial Directorates of Family and Social Services. Seminars for parents should be organized by Family Counselors in order to raise awareness through associations working on a voluntary basis in the field of special learning disabilities. In these seminars, family relations, discovering the strengths of the child diagnosed with special learning difficulties, setting realistic goals, and creating an accepting and supportive family ecosystem should be emphasized.

Finally, it should be emphasised that this study is a case presentation, and it is recommended to study with different cases and larger samples in order to generalise the positive results. In addition, counsellors who will apply the family counselling process to children with dyscalculia and their families should definitely be trained on specific learning disabilities and dyscalculia. Thus, it is thought that they can direct the family to the right resources with an expert perspective and provide the necessary cognitive and psychosocial support.

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