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Research

Effects of Child-Centered Play Therapy on Quality of Life, Depression and Anxiety in Children with Cancer[1]

Esra Coşkun[2] Şaziye Senem Başgül[3]

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Abstract:

The aim of this study is to examine the effect of child-centered play therapy on quality of life, depression, and anxiety levels of 8- to 12-year-old children. The study was conducted using a control group pretest-posttest design. Child-centered play therapy was applied in the experimental group, while no experimental procedure was performed in the control group. The experimental applications of the study lasted between June and October 2024. The whole therapeutic procedure lasted 12 sessions of 45 minutes, 1-2 times a week. In the experimental group, child-centered play therapy was carried out for approximately 5 months. The study included 34 children between the ages of 8 and 12 who were diagnosed with cancer. These children were randomly assigned to the experimental and control groups. 'Quality of Life Scale for Children' and 'Depression and Anxiety Scale for Children' were used to collect the research data. According to the analyses performed on the posttests, child-centered play therapy was found to have significant and positive effects on the quality of life, depression, and anxiety levels of children with cancer.

Keywords: Child-Centered Play Therapy, Quality of Life, Depression, Anxiety, Children with Cancer

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[2] Ph.D. Candidate, Hasan Kalyoncu University, Gaziantep, Türkiye. esra.coskun@std.hku.edu.tr,
https://orcid.org/0000-0001-9592-0341

[3] Professor, Hasan Kalyoncu University, Gaziantep, Türkiye. senem.basgul@hku.edu.tr,
https://orcid.org/0000-0002-9843-8048

INTRODUCTION

Cancer affects children as well as adults, and the number of children diagnosed with cancer is increasing worldwide. Both the disease itself and the treatment pose many physical and psychosocial problems in the lives of children with cancer. The presence of challenging treatments and complications resulting from cancer and its treatment can lead to physiologically, psychologically, and socially negative effects and new problems that are difficult to cope with, ultimately affecting the patients' quality of life (Abecassis et al., 2016; Momani & Berry, 2017; Schultz et al., 2017). It has been found that children experience mental symptoms at the time of diagnosis, during and after treatment, which can be traumatic and life-threatening (Kazak & Noll, 2015).

In the past, the main principle in childhood cancers was to keep the child alive, whereas today, it is to ensure that the surviving child lives a quality life. Innovations in the treatment of chronic diseases such as cancer have prolonged the life expectancy of patients and increased the importance of quality of life (Kemper, 2017). With the implementation of cancer treatment, the prolongation of life expectancy has started to have a greater impact on the physical and psychological conditions of these children and their social and school life. However, since this disease forces children to cope with its side effects, the effects of the treatment process on quality of life have become the subject of research. In recent years, developed and developing countries have started to emphasize the concept of quality of life in health promotion policies (Abecassis et al., 2016; Schultz et al., 2017). As the survival rate increases in childhood cancers, new problems emerge, needs change, and the psychosocial and long-term effects of the disease increase. These long-term effects lead to a rise in the need for support to children and families.

Quality of Life in Children with Cancer

During cancer treatment, children often experience emotional and psychological distress as well as physical effects. These include anxiety, fear, hopelessness and worry. Difficulties during treatment can make children feel worthless. In terms of social effects, children undergoing cancer treatment often have to stay away from school and friends, which can make them feel lonely or isolated. Problems such as depression, hypochondriasis, behavioral and adaptation problems, physical limitation, and excessive anxiety are often observed in children who survive childhood cancers (Kalaycı, 2019).

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Clinical psychiatric studies during cancer treatment have generally focused on depression. The rate of depression in children undergoing cancer treatment is between 12% and 20%. It has also been reported that depressive symptoms are more common in children who experience severe pain during treatment. It has been reported that children diagnosed with cancer at an early age are better adapted to the disease process and, with the positive and supportive approach of their families, and mental problems such as depression are less common.

The psychological effects of illness and hospitalization differ for each child. Determinant factors include individual differences; the nature and age of the child; the nature of the difficulties to be experienced; the level of information provided to the family and the child; the time spent in the hospital; the behavior of the hospital team; the duration and type of separation from the mother; and the family's level of anxiety. Children's personal experiences and beliefs are also important in defining the concept of illness. For example, the reaction of a child who has been very ill and suffered during treatment may be more pronounced than the reaction of a child who has never had a serious illness. These factors constitute sources of psychological stress in patients. Behavioral reactions such as anger and defiance can be observed as problems in adapting to treatment, and these often negatively affect school attendance and performance. For some children and young people with cancer, the sense of being perceived as different can lead to withdrawal from society, make it difficult to establish relationships with friends, and negatively affect sexual identity development. Not all children react to cancer in the same way. While some children and adolescents may be resigned to the situation and take their medication with extreme caution, others may exhibit dangerous and rebellious behavior as a way of asserting their independence. Reactions such as depression and agitation are common

Play Therapy for Children with Cancer

For children diagnosed with cancer and their families, accepting a diagnosis that requires long-term and continuous treatment is quite challenging. When working with children diagnosed with cancer, researchers have emphasized that these individuals often have difficulty in expressing their intense emotions, are unable to use the necessary words and concepts, and find that words are insufficient for their inner feelings. The diagnosis of cancer causes a variety of reactions, ranging from simple stress to a grief and loss reaction, and emotional strain in which the integrity of the self is threatened. Reactions such as fear of separation, fear of the future, fear of death, fear of damage to the body, organs, and parts, and feelings of regret and guilt affect the child's emotional state, mental functioning, balance, physical and emotional autonomy, body image, and social sphere (Last & Grootenhuis, 1998; Li et al., 2010).

In a study conducted in Hong Kong with Chinese children aged 7-12 years and their parents, the effectiveness and applicability of therapeutic play in surgical interventions were evaluated. According to the results of the study, children and their families in the

therapeutic play group had significantly lower levels of anxiety before and after surgery compared to the control group. In addition, it was determined that the postoperative satisfaction level of the families in the therapeutic play group was higher (Li & Lopez, 2008). In order for a game to be accepted as "therapeutic play", it should encourage the expression of emotions, educate children about hospital experiences, and provide physiological benefits. The main aim of play therapy is to prevent or solve psychosocial difficulties and contribute to optimal child health, growth, and development, regardless of the child's condition. Play enriches children's physical, social, cognitive, and emotional abilities and sense of well-being (Elbeltagi et al., 2023).

Play therapy helps the child overcome the different obstacles encountered in the development process and in his/her life, helps the child to be more responsible in his/her behavior, and to develop successful strategies and creative solutions to problems. It also teaches children to respect themselves and others, to accept reality, to express their feelings and emotions, and to respect the thoughts and feelings of others; Elbeltagi et al., 2023). Play therapy can be used as a diagnostic and therapeutic tool. Initially, the play therapist observes the child during play to identify the child's main problems and assesses these. The therapist then carries out a problem-oriented process by scaffolding and supporting the child to learn to express himself or herself and communicate through his or her inner world thoughts. The therapist helps the child to overcome the unresolved trauma. It enables the child to master a new coping mechanism, review inappropriate behaviors, and enrich adaptive behavioral responses (Lane et al., 2019, Koukourikos et al., 2021).

Play therapy is examined in three categories. These can be expressed as directive, or structured play therapy, family play therapy, and non-directive play therapy or child-centered play therapy. Directive play therapy is an approach in which the therapist actively directs the process. In family play therapy, the parent-child relationship is supported and parents are taught skills to reduce children's problematic behaviors. In non-directive play therapy, the therapist does not intervene, and the child is allowed to self-direct the process. The most well-known example of this type is child-centered play therapy.

Child-Centered Play Therapy (CCPT) is a method based on the client-centered therapy approach first introduced by Carl Rogers. This approach was developed, and adapted to play therapy by Virginia Axline. Later, this approach developed by Virginia Axline was further developed and conceptualized by Garry Landreth; thus, the child-centered play therapy approach was introduced (Landreth, 2011).

CCPT is a therapy approach in which the client is trusted and the therapist does not aim to control or change, allowing the child to self-manage and explore. In this approach, relationship building is the most important factor. The CCPT focuses on relationships instead of problems, and this relationship is considered the trigger of the healing process. The materials used in therapy are toys in a carefully prepared playroom. The choice of which toys to play with and how to set up the game is left entirely to the individual. It is believed

that the client's guidance of the game by his/her inner feelings and thoughts is more effective than the guidance of the counselor.

CCPT is the belief that children have an innate ability to solve problems and increase their self-efficacy. Therefore, it is believed that it is the child who provides guidance. In this approach, great emphasis is placed on the potential for intrinsic well-being. It is also noted that the therapist is not passive or submissive; on the contrary, the therapist is active in this approach. The therapist empathizes in a reassuring and unconditionally accepting manner, thus providing an environment for the child to explore and manage themselves (Meany-Walen & Teeling, 2016). The focus is on the individual instead of the problem, living in the moment instead of the past, accepting instead of directing, understanding instead of explaining, and emotions instead of perceptions and actions. The main power for healing and change lies in the individual's inner resources and wisdom (Vanfleet et al., 2018).

CCPT is used as a functional intervention method to address children's social, emotional and behavioral problems. This therapy usually works with children between the ages of 2 and 10 and is effective in treating problems such as anxiety, depression, obsessions, and compulsions (Landreth, 2011; Vanfleet et al., 2018). Especially in coping with conditions such as Attention Deficit and Hyperactivity Disorder (ADHD), CCPT is preferred in addition to or as an alternative to drug treatment, which is among the common problems (Orhan, 2022).

CCPT can be used in many situations, such as depression, obsessions, trauma, attention deficit hyperactivity disorder, behavioral problems, sexual and physical abuse, divorce, anxiety disorders, chronic diseases, urinary and fecal incontinence, and perfectionist attitudes. The effects of cancer, which is a serious health problem that profoundly affects life, can be especially sensitive for children and entail psychosocial needs that change periodically. For this reason, play is used as a therapy method to reduce these negative effects in children, and CCPT is one of the most widely used play therapies in this field (as cited in Manav, 2013).

By putting the child diagnosed with cancer at the center, CCPT allows the play therapist to fully focus on them. This therapy aims to help the child cope with anxiety, worry, social isolation and fear caused by the illness, develop a positive sense of self, and become aware of their behavior. In CCPT, the therapist gains the child's trust and does not intervene while giving the child the freedom to make decisions within set boundaries. This approach involves being the child's companion and not taking a leadership role. Research shows that this therapy method reduces anxiety levels in children (Manav, 2013).

CCPT is a form of non-directed play therapy which is a fully empowering approach for children diagnosed with cancer. This approach is based on the premise that children diagnosed with cancer can solve their own problems in their own way (Landreth, 2012).

– Child-centered play therapy helps children diagnosed with cancer.

- Understand your emotions better
- Express their feelings by expressing their needs
- Development of problem solving skills
- Reduction of problematic behaviors
- Increasing skills to deal with conflicts
- Increased self-confidence
- The aim is to develop self-control.

According to Bratton et al. (2005), CCPT has a positive effect on children diagnosed with cancer in areas such as self-perception, behavioral adjustment, emotional adjustment, intelligence, and anxiety/fear, and social skills. In a study conducted by Godino-Iáñez et al. (2020), it was revealed that therapeutic play practice reduced postoperative pain, improved behavior and attitudes, and significantly reduced anxiety during hospitalization in children. A study conducted by Boucher et al. (2014) revealed that play therapy practices for children with chronic, life-threatening, and life-limiting disorders had significant effects on improving the clinical symptoms of the disease and reducing the psychological impact of the disease on the child. In a study conducted by Zareapour et al. (2009), it was shown that the application of play therapy provided a significant improvement in the depression of children aged 6-15 years with cancer and that it can be an effective intervention. Asghari Nekah et al. (2015) found that structured cognitive-behavioral group play therapy applied to children with cancer (8-14 years old) who were treated in a hospital in Iran was effective in reducing anxiety and depression levels. In a study conducted by Godino-Iáñez et al. (2020), it was revealed that play therapy, as an intervention for hospitalized children, reduced postoperative pain, improved behavior and attitudes, and reduced anxiety during hospitalization. In a study conducted by Teber (2015), it was observed that child-centered play therapy reduced children's social and psychologically-based behavioral problems. In addition, it was found that the therapy method applied reduced somatic complaints and depression levels and had positive effects on attention problems.

The studies presented above in the literature show that play therapy methods have effects on children's psychosocial development, and that especially CCPT can have positive effects on depression, anxiety and quality of life. Child survivors during and after cancer treatment often need additional motivation, inner dynamism and environmental support to cope with the challenges of the treatment process. Without such support, children may show less compliance with treatment recommendations, interruptions in medical follow-up, development of medical complications or deterioration in overall health. In this context, CCPT can provide important opportunities multidimensional psychological support to these children, both at the onset of cancer, at during the process, and outside the hospital. However, studies on children diagnosed with cancer are limited and more research is needed in this field. In this context, the aim of the study was to examine the effect of the Child-Centered Play Therapy (CCPT) approach applied to children aged 8-12 years

diagnosed with cancer on their depression, anxiety, and quality of life levels. In relation to this purpose, answers to the following questions were sought:

1. Is there a significant difference between the levels of depression and anxiety in children aged 8-12 years in the experimental group that received play therapy and the control group that did not receive any therapy?

2. Is there a significant difference between the quality of life levels of 8-12 year old children in the experimental group who received play therapy and the control group who did not receive any therapy?

METHOD

The independent variable in this study is the "Child-Centered Playful Therapy Practice" applied to children aged 8-12 years with cancer. The dependent variables in the study are "quality of life" and "depression and anxiety" levels of 8- to 12 children with cancer. The aim of the research is to determine whether the independent variable affects the dependent variables. In this context, the study was conducted using the pretest-posttest experimental method and a control group, following the real experimental models (pretest-posttest control and experimental group design). Within the scope of this model, subjects were randomly assigned to the groups. According to Witte and Witte (2017), randomization is one of the most important features of true experimental models. This ensures that each participant or group of subjects has an equal chance of being placed in any group.

While examining the effects of child-centered play therapy on depression-anxiety and quality of life (dependent variables), no therapeutic intervention was performed in the control group. The use of the experimental method in the research is appropriate to test the effects of Child-Centered Play Therapy (CCPT) on depression, anxiety, and quality of life of 8-12-year-old children diagnosed with cancer. The research design is presented in Table 1.

Table 1.

Research Design

Groups	Pre-test	Experimental Procedure	Post-test
GE	M1.1	X+Y	M1.2
GC	M2.1	-	M2.2

EG: Experimental Group; CG: Control Group

X-Y: Child-Centered Play Therapy

M1.1; M1.2: Pretest-posttest measurements of the experimental group (Depression and Anxiety Scale in Children, Quality of Life Scale)

M2.1; M2.2: Pretest-posttest measurements of the control group (Depression and Anxiety Scale in Children, Quality of Life Scale)

Research Group

In this study, in which the effect of Child-Centered Play Therapy on the depression, anxiety, and quality of life levels of the participants was examined, participants were selected through a two-group randomized controlled study process. At this stage, experimental and control groups were formed according to expert opinions and research in the literature. In this context, it was decided to randomly assign the groups and to use a blocked-stratified assignment method. According to Zareapour et al. (2009), the sample size for an experimental study is recommended to be 20 (experimental and control groups in total) using a significance level of .05, $\beta = 0.1$, and 90% power. In this context, the sample size required to determine that Cohen's d effect size was 0.6, in the experimental and control groups was calculated. Considering a loss rate of up to 15%, a total of twenty-five participants in the research groups were considered sufficient to observe an effect with at least 80% power at a 5% significance level. However, due to the nature of childhood cancer, a total of 40 participants were enrolled in the experimental and control groups to account for an anticipated dropout or exclusion rate. The enrolled children were informed about the study and its purpose. Those who agreed to participate signed an informed (parental) consent form.

After signing the informed consent form, children aged 8-12 years with cancer, within the scope of the study, were sequentially numbered based on the blocked-stratified method. The assignment was done completely randomly according to the hospital patient lists, with 20 children in each group (experimental and control). In the experimental group, 2 patients were excluded due to absenteeism during the experimental interventions and 1 participant was excluded due to the exacerbation of their illness. In the control group, two patients were excluded because they did not complete the post-tests and one participant died. Thus, the study was conducted with the participation of 34 children (17 experimental + 17 control group). These children completed the pre-test and post-test of the study. The distribution of the participants in the research group according to demographic characteristics is presented in Table 2.

Table 2.

Distribution of Research Participants According to Demographic Variables

	Experimental Group		Control Group		-p-
Gender of the Child	-n-	%	-n-	%	

Male	8	47,1	9	52,9	0,732
Female	9	52,9	8	47,1	p>0,05
Educational Status of the Child					
Primary School	12	70,6	13	76,5	0,500
Secondary School	5	29,4	4	23,5	p>0,05
Mother's Educational Status					
Primary School graduate	3	17,6	3	17,6	
Secondary School Graduate	2	10,8	-	-	
High School Graduate	8	47,1	11	64,7	
University Graduate	4	23,5	3	17,6	
Father's Education Status					
Primary School Graduate	3	17,6	1	5,9	
Secondary School Graduate	2	11,8	-	-	
High School Graduate	5	29,4	4	23,5	
University Graduate	7	41,2	12	70,6	
Total	17	100,0	17	100,0	

	Experimental Group		Control Group		
	$\bar{X}$	*Sd*	$\bar{X}$	*Sd*	-p-
Age of Child	9,47	1,51	9,41	1,28	0,973
Age of Mother	38,09	3,92	37,26	3,99	0,306
Age of Father	41,47	2,76	40,53	2,29	0,245

p>0,05

Table 2 shows the distribution of participants in the experimental and control groups according to demographic variables. In the experimental group, 8 of the participants were boys and 9 were girls; in the control group, 9 were boys and 8 were girls. Twelve of the children in the experimental group were attending primary school and five were attending middle school. In the control group, 13 participants were attending primary school and 4

were attending middle school. Chi-square analysis performed on the gender and the education level variables of the children in the experimental and control groups shows that there is no significant difference between the groups in terms of these variables. There is no significant difference between the gender-based and educational status distributions of the groups at the beginning of the experimental procedures. The experimental and control groups are equal in terms of gender and educational status. Examining the distribution of children in the experimental and control groups in terms of parental education level, 3 of the mothers in the experimental group graduated from primary school, 2 from secondary school, 8 from high school, and 4 from university. In the control group, three of the mothers graduated from primary school, 11 from high school, and three from university. Three of the fathers in the experimental group graduated from primary school, two from middle school, five from high school, and seven from university. In the control group, one of the fathers graduated from primary school, four from high school, and 12 from university. In general, it is seen that the experimental and control groups are equivalent in terms of demographic variables.

The average age of the children was 9.47 in the experimental group and 9.41 in the control group. In terms of maternal age distribution, the average age of the experimental group was 38.09, while the average age of the control group was 37.26. Finally, the average age of the fathers of the children in the study was 41.47 in the experimental group and 41.43 in the control group. The Mann Whitney U test, analyses performed between the age, maternal age and paternal age variables of the groups did not show a significant difference ($p>0.05$). According to these data, it is observed that the children in the experimental and control groups showed an equal distribution in terms of age and parental age.

Ethical approval was obtained from the ethics committee of Hasan Kalyoncu University to conduct this research. Necessary application permissions were obtained from the Dean of the Faculty of Medicine at Necmettin Erbakan University, where the research would be implemented. The announcement was made to inform children, their families, and doctors at the pediatrics department of the relevant faculty. Participants were children between the ages of 8 to 12 who had cancer and were receiving outpatient or inpatient treatment at the hospital. Participants were children receiving long-term cancer treatment at the Department of Pediatrics at Necmettin Erbakan University, Faculty of Medicine. Eligibility criteria were determined based on previous studies on this subject. Participants were included in the study based on the inclusion and exclusion criteria and the order of hospitalization of children receiving cancer treatment.

Experimental Application

Within the scope of the experimental procedure, 12 sessions of child-centered play therapy were applied to the experimental group. In the control group, no therapy was performed, and free time was spent instead of play therapy. At the beginning of the

experimental procedures, the measurement scales of the study were applied to both groups as a pre-test. After the experimental procedures, the same scales were applied to both groups simultaneously as a post-test.

The experimental applications lasted between June and October 2024. The entire therapeutic procedure consisted of 12 sessions of child-centered play therapy, once or twice a week, and the therapy lasted for approximately 5 months. All scales in the experimental group, which received child-centered play therapy, were filled in before and after the therapy procedure. In the control group, the research scales were applied both as pre-test and post-test.

In this study, the child-centered play therapy method, planned as 12 sessions, was applied to the participants in the experimental group. The control group received regular health care without any therapy. Regular health care consisted of routine disease care and daily expressions of comfort and encouragement from medical personnel. The child-centered play therapy was conducted in the hospital once or twice a week and lasted 45 minutes for each subject. In the study, precautions were taken, aligned with the hospital's visiting hours, so that the children with cancer in the experimental and control groups would not exchange information during the study period. The research was conducted at Necmettin Erbakan University at the Faculty of Medicine Hospital in Konya. A child-centered play therapy room was established in the pediatrics department. The room was arranged in line with expert opinions.

In the child-centered play therapy applications carried out in the experimental group, toys were used in each session. The toys used in the sessions are as follows: dramatic/role-playing tools; creative expression tools; tablets and digital tools; classical play therapy toys; expressive art tools; cards, gift cards; mandala; balls (large, small); counseling balls; sand boxes, sand; art tools; sensory tables; handicraft materials; magic wand; costume clothes; musical instruments; animal mascots; blackboard-chalk; easel; brushes, pencil; children's furniture; story books; medical kit.

The target outcomes of child-centered play therapy were first determined. The targets determined within this scope are as follows; Target 1: To establish an emotional and friendly relationship with children and to create trust; Target 2: To enable the child to manage and believe in his/her own inner wisdom; Target 3: To reduce the emotional and behavioral problems of children. Target 4: To gradually improve the negative emotions and behaviors of children, to bring them to enthusiasm and calm them down; Target 5: To eliminate all symptoms of emotional and behavioral problems of children.

The main themes and topics of the child-centered play therapy sessions in the study were determined according to the child-centered play therapy models suggested by Bratton et al. (2015), Landreth (2012), Post et al. (2019), Ray (2011), Sweeney & Landreth (2009), VanFleet et al. (2010), and Wilson, Kendrick & Ryan (2005). According to these models,

child-centered play therapy follows a specific procedure and can be adjusted according to the therapy situation. In this study, only one child was admitted to the playroom at a time to ensure that the sessions were effective. Before the session began, the therapist took the child through a strict hand hygiene procedure and introduced, in a soft and gentle voice, the play treatment room and the process to be performed. After becoming familiar with the environment, the therapist guided the child to get used to the play activity and relax. The therapist emphasized that the play could be anything and that the child would not be judged. While the child was playing the game, the therapist recorded the child's behavior and the miniatures used. The therapist adopted the "silent witness" approach, accepted, appreciated and accompanied the child, and created a safe, tolerant and supportive atmosphere so that the child could devote himself wholeheartedly to the process of making play creations. After the treatment session, the therapist asked the child to introduce the play and their creations according to the child's psychological state, communicated with the child, and guided them to appreciate and explore their inner world.

After the experimental applications in the study, depression, anxiety, and quality of life scales were applied to the experimental and control groups as posttests.

Data Collection Tools

Depression, anxiety, and quality of life variables used in the pre-test and post-test applications of the study were measured with standard psychological scales.

Pediatric Quality of Life 4.0 Inventory (PedsQL 4.0)

PedsQL 4.0 Pediatric Quality of Life Inventory is a modular assessment tool developed by Varni et al. (2001) to measure health-related quality of life in children. This inventory consists of 23 items covering physical, emotional, social, and school functions. It consists of sections covering 8 physical functions, 5 emotional functions, 5 social functions, and 5 school functions. The inventory was prepared in two different forms for age groups of children (5-7 years, 8-12 years, 13-18 years) and families (2-4 years, 5-7 years, 8-12 years, 13-18 years). The scale is scored using a five-point Likert system, responses are graded from 0 to 4 (0 = no problem, 4 = always a problem). The total score is converted into the range of 0-100, and higher scores indicate better health-related quality of life.

The validity and reliability study of the Turkish form of this inventory was conducted by Sönmez and Başbakkal (2007). In a study conducted by Varni et al. (2001) on children with rheumatological diseases, the reliability analyses found that the total score was α = .92, for children and α = .94, for families. For physical functions, α = .89 for children and α = .91 for families, and for psychosocial functions, α = .87 for children and α = .90 for families. In addition, in another study conducted on children with cancer, the reliability of the total score in the 8-12 age group was found to be α = .89 for children and α = .92 for

families. For physical functions, α = .84 for children and α = .90 for families, and for psychosocial functions, α = .85 for children and α = .87 for families.

In addition to these studies, Sönmez and Başbakkal (2007) reported the reliability coefficient for the family form as α = .90 and for the child form as α = .88 in their general validity and reliability studies. When the total score of children and families is calculated on the scale, the lowest possible score is 0 and the highest score is 2300. The internal consistency coefficient (Cronbach's Alpha) of the pediatric quality of life 4.0 inventory, based on this study's data, was calculated as 0.91. This finding shows that the scale has high reliability in the group of 8- to 12-year-old children with cancer.

Children's Anxiety and Depression Scale (CADS-Y)

The Children's Anxiety and Depression Scale (CADS-Y) is a comprehensive assessment tool developed to measure anxiety and depression symptoms in children and adolescents aged 8-17. The Turkish validity and reliability study of this scale, which was first developed by Chorpita et al. (2005), was conducted by Görmez et al. (2017). The scale was prepared based on DSM-IV criteria and is used specifically to assess depression and anxiety symptoms in children and adolescents.

The CADS-Y consists of 47 items and is answered in a 4-point Likert-type format. Participants indicate how often they experience symptoms by scoring the items between 0 (never true) and 3 (always true). The total score that can be obtained from the scale varies between 0 and 141, and the scale consists of six subscales: Separation Anxiety Disorder (7 items), Social Phobia (9 items), Generalized Anxiety Disorder (6 items), Panic Disorder (9 items), Obsessive Compulsive Disorder (6 items), and Major Depressive Disorder (10 items). The raw score calculated for each subscale is converted to the corresponding T-score, and a T-score of 65 or above is considered indicative of a clinically significant disorder.

In the Turkish adaptation, the cut-off score was determined as 7.5 for generalized anxiety disorder, 5.5 for separation anxiety disorder, 9.5 for social phobia, 6.5 for panic disorder, 11.5 for major depressive disorder, and 7.5 for obsessive-compulsive disorder. The internal consistency coefficient for the Turkish version of the scale was found to be quite high. Cronbach's α value for the general scale was .95, and for the subscales, α ranged from .75 to .86. These results show that the scale is highly reliable in terms of internal consistency.

Görmez et al.'s (2017) study proved that the scale was successful in terms of both reliability and validity. The confirmatory factor analysis supported the original six-factor structure of the scale and determined that the CADS-Y gave more consistent results in recognizing anxiety and depression disorder compared to other measurement tools. These findings show that the scale can be used safely in clinical practice and academic research.

The internal consistency coefficient (Cronbach's alpha) of the anxiety and depression scale in children, based on the data from this study, was calculated as 0.94 for the entire

scale. The reliability coefficients calculated for the sub-dimensions were 0.85 for the 'Separation Anxiety Disorder' sub-dimension, 0.89 for the 'Social Phobia' dimension, 0.75 for the 'Generalized Anxiety Disorder' dimension, 0.71 for the 'Panic Disorder' dimension, 0.87 for the 'Obsessive Compulsive Disorder' dimension, and finally 0.71 for the 'Major Depressive Disorder' dimension. These findings show that the anxiety and depression scale in children with cancer aged 8-12 years has high reliability in both its entirety and in its sub-dimensions.

Data Analysis

The analysis of the research data was carried out with SPSS 25.0 statistical software. According to the normality test results, neither the pre-test nor the post-test scores had a normal distribution (See Table 3). In this context, the Mann Whitney U Test was used among the non-parametric tests in the analysis phase of the data obtained as a result of the quality of life, anxiety, and depression subtests applied to the experimental and control groups. The data were analyzed using appropriate techniques to test the hypotheses stated in the study.

Table 3.

Normality Test Results

		Kolmogorov-Smirnov		
		Z	Sd	p
Quality of life	Pre-test	0,16	34	0,02
	Post-test	0,13	34	0,13
Separation anxiety disorder	Pre-test	0,18	34	0,01
	Post-test	0,15	34	0,04
Social phobia	Pre-test	0,28	34	0,00
	Post-test	0,15	34	0,04
Obsessive compulsive disorder	Pre-test	0,19	34	0,00
	Post-test	0,19	34	0,00
Panic disorder	Pre-test	0,11	34	0,20
	Post-test	0,23	34	0,00
Generalized anxiety disorder	Pre-test	0,19	34	0,00

	Post-test	0,18	34	0,01
Major depressive disorder	Pre-test	0,13	34	0,18
	Post-test	0,17	34	0,01
CADS-Y Total	Pre-test	0,14	34	0,11
	Post-test	0,15	34	0,04

Ethical Considerations

Before starting the research, ethical principles were applied to the Hasan Kalyoncu University Scientific Research and Publication Ethics Committee, and an ethics committee approval certificate numbered was obtained.

Ethical Review Board: [Hasan Kalyoncu University Scientific Research and Publication Ethics Committee]

Date of Ethics Review Decision: [05.12.2023]

Ethics Assessment Document Issue Number: [E-97105791-050.01.01-47349]

FINDINGS

In this section of the study, findings related to the research hypotheses are discussed. First, the pretest findings of the scales, applied to the children who will form the experimental and control groups, are compared. Then, in the second stage of the study, comparisons are included between the posttests applied to the experimental and control groups.

Comparison of Pre-Test Results of Groups

Table 4.

Quality of Life of Experimental and Control Groups, Descriptive Values of Pre-Test Scores

		Group			
		Experimental		Control	
Variables	Test	Average	Sd	Average	Sd
Quality of life	Pre-test	551,82	340,34	668,53	225,27

Table 4 shows the pre-test results of the quality of life of the experimental and control groups. The mean of the experimental group is 551.82 and its standard deviation is 340.34. The mean of the control group is 668.53 and its standard deviation is 225.27. These results show the difference between the pre-test values of the quality of life of both groups.

Table 5. Pre-test Mean Ranks and Mann-Whitney U Test Results for Quality of Life of Experimental and Control Groups

Variables		Group	N	SO	ST	U	z	p
Quality of life	Pre-test	Experimental	17	14,21	241,5	88,5	-1,93	0,06
		Control	17	20,79	353,5			

Table 5 shows the results of the comparison of the pre-test scores of the quality of life of the experimental and control groups using the Mann-Whitney U test. The mean rank of the experimental group was calculated as 14.21, and that of the control group as 20.79. The Mann-Whitney U test result was U=88.5, z=-1.93, and p=0.06. Although the p-value obtained was above the 0.05 level of significance, it was quite close to the threshold of significance. This finding showed that there was no significant difference between the experimental and control groups in terms of the pre-test scores of the quality of life, and that the groups were equivalent in terms of quality of life before the experimental procedure.

Table 6.

Descriptive Values of Anxiety and Depression Pre-Test Scores of Experimental and Control Groups

		Group			
		Experimental		Control	
Variables	Test	Average	Sd	Average	Sd
Separation anxiety disorder	Pre-test	15,71	1,83	14,24	3,88
Social phobia	Pre-test	22,82	3,19	20,71	3,95
Obsessive compulsive disorder	Pre-test	7,29	0,92	6,59	2,06
Panic disorder	Pre-test	13,24	2,11	12,29	2,76
Generalized anxiety disorder	Pre-test	13,94	2,86	12,53	2,83
Major depressive disorder	Pre-test	20,65	3,22	19,24	2,44

CADS-Y Total	Pre-test	92,53	12,20	85,59	14,93

Table 6 shows descriptive values for the anxiety and depression pretest scores of the experimental and control groups. The mean and standard deviation values of the experimental and control groups are shown for the subscales of separation anxiety disorder, social phobia, obsessive compulsive disorder, panic disorder, generalized anxiety disorder and major depressive disorder. The mean total score of the experimental group on the CAS-Y was 92.53 and that of the control group was 85.59. These values indicate that there are differences in anxiety and depression levels between the groups.

Table 7.

Anxiety and Depression Pre-Test Rank Means and Mann-Whitney U Test Results of Experimental and Control Groups

Variables	Group	N	SO	ST	U	z	p
Separation anxiety disorder pretest	Experimental	17	18,85	320,5	121,5	-0,8	0,42
	Control	17	16,15	274,5			
Social phobia pretest	Experimental	17	20,21	343,5	98,5	-1,6	0,11
	Control	17	14,79	251,5			
Obsessive compulsive disorder pretest	Experimental	17	18,59	316	126	-0,65	0,51
	Control	17	16,41	279			
Panic disorder pretest	Experimental	17	19,24	327	115	-1,02	0,31
	Control	17	15,76	268			
Generalized anxiety disorder pretest	Experimental	17	20	340	102	-1,48	0,14
	Control	17	15	255			
Major depressive disorder pretest	Experimental	17	19,97	339,5	102,5	-1,46	0,14
	Control	17	15,03	255,5			
CADS-Y Total pretest	Experimental	17	20	340	102	-1,47	0,14
	Control	17	15	255			

Table 7 shows the Mann-Whitney U test comparison of the pre-test results of the experimental and control groups regarding the anxiety and depression sub-dimensions. For separation anxiety disorder, the mean rank of the experimental group was 18.85 and that of the control group was 16.15. The Mann-Whitney U value was calculated as 121.5, z=-0.8, and p=0.42, and no significant difference was found between the groups. In the social phobia sub-dimension, the mean rank of the experimental group was 20.21, while the control group was 14.79, with U=98.5, z=-1.6, and p=0.11. No significant difference was observed for this dimension either. In the obsessive-compulsive disorder sub-dimension, the mean rank of the experimental group was 18.59, while the control group was 16.41, with U=126, z=-0.65, and p=0.51. Again, no significant difference was found between the two groups. In the panic disorder subdimension, the mean rank of the experimental group was 19.24 and the control group was 15.76, with U=115, z=-1.02, and p=0.31. In the generalized anxiety disorder subdimension, the mean rank of the experimental group was 20, and the control group was 15, with U=102, z=-1.48, and p=0.14. Similarly, in the major depressive disorder subdimension, the mean rank of the experimental group was 19.97 and the control group was 15.03, with U=102.5, z=-1.46, and p=0.14. Finally, in the total score of the Anxiety and Depression Scale for Children, the mean rank of the experimental group was 20 and the control group was 15, with U=102, z=-1.47, and p=0.14. These findings show that there are no statistically significant differences in pre-test scores in terms of anxiety and depression sub-dimensions between the experimental and control groups. As a result, it was understood that the participants in the experimental and control groups were equivalent in terms of anxiety and depression sub-dimensions before the experimental procedure.

Comparison of Post-Test Results of Groups

Table 8.

Descriptive Values of Post-Test Scores for Quality of Life of Experimental and Control Groups

		Group			
		Experimental		Control	
Variables	Test	Average	Sd	Average	Sd
Quality of life	Post-test	947,24	217,50	679,06	216,23

Table 8 presents descriptive values of the post-test scores regarding the quality of life for the experimental and control groups. The mean score of the quality of life of the experimental group is 947.24 and its standard deviation is 217.50, while the mean score of the control group is 679.06 and its standard deviation is 216.23. These results show that there

is a significant increase in the quality of life of the experimental group compared to the control group in the post-test.

Table 9.

Quality of Life Post-Test Mean Ranks and Mann-Whitney U Test Results of Experimental and Control Groups

Variables		Group	N	SO	ST	U	z	p
Quality of life	Post-test	Experimental	17	23,88	406	36,00	-3,74	0,00*
		Control	17	11,12	189			

*p<0,05

Table 9 shows the Mann-Whitney U test results regarding the post-test scores of the quality of life of the experimental and control groups. The mean rank of the experimental group to which Child-Centered Play Therapy was applied, was calculated as 23.88, while that of the control group was calculated as 11.12. The Mann-Whitney U test results were found as U=36.00, z=-3.74, and p=0.00 (p<0.05). These results show that there is a statistically significant difference between the experimental and control groups in terms of quality of life. The quality of life scores of the experimental group are significantly higher than those of the control group. This suggests that Child-Centered Play Therapy positively affects the quality of life of children diagnosed with cancer.

Table 10.

Descriptive Values of Anxiety and Depression Post-Test Scores of Experimental and Control Groups

		Group			
		Experimental		Kontrol	
Variables	Test	Average	Sd	Average	Sd
Separation anxiety disorder	Post-test	11,59	2,32	14,29	3,77
Social phobia	Post-test	12,94	2,56	20,18	3,88
Obsessive compulsive disorder	Post-test	5,06	2,36	7,59	1,84
Panic disorder	Post-test	9,65	1,27	12,12	2,57
Generalized anxiety disorder	Post-test	5,76	1,30	12,53	2,40

Major depressive disorder	Post-test	11,18	2,19	19,41	2,15
CADS-Y Total	Post-test	56,18	5,70	85,18	13,82

Upon examining Table 10, it can be seen that, descriptive values of the anxiety and depression post-test scores of the experimental and control groups are shown. The scores of the experimental group in the subscales of separation anxiety disorder, social phobia, obsessive compulsive disorder, panic disorder, generalized anxiety disorder, and major depressive disorder are significantly lower than those of the control group. The total score of the CADS-Y was calculated as 56.18 in the experimental group and 85.18 in the control group. These results reveal a significant decrease in the anxiety and depression levels of the experimental group.

Table 11.

Anxiety and Depression Post-Test Rank Means and Mann-Whitney U Test Results of Experimental and Control Groups

Variables	Group	N	SO	ST	U	z	p
Separation anxiety disorder post-test	Experimental	17	13,62	231,5	78,50	-2,30	0,02*
	Control	17	21,38	363,5			
Social phobia post-test	Experimental	17	10,03	170,5	17,50	-4,40	0,00*
	Control	17	24,97	424,5			
Obsessive compulsive disorder post-test	Experimental	17	12,00	204	51,00	-3,26	0,00*
	Control	17	23,00	391			
Panic disorder post-test	Experimental	17	12,74	216,5	63,50	-2,84	0,00*
	Control	17	22,26	378,5			
Generalized anxiety disorder post-test	Experimental	17	9,03	153,5	0,50	-5,00	0,00*
	Control	17	25,97	441,5			
Major depressive disorder post-test	Experimental	17	9,06	154	1,00	-4,97	0,00*
	Control	17	25,94	441			
CADS-Y Total post-test	Experimental	17	9,18	156	3,00	-4,88	0,00*
	Control	17	25,82	439			

*p<0,05

Table 11 presents the Mann-Whitney U test results regarding the anxiety and depression posttest scores of the experimental and control groups. For separation anxiety disorder, the mean rank of the experimental group was calculated as 13.62, and the control group as 21.38, with U=78.50, z=-2.30, and p=0.02 (p<0.05), indicating a significant difference between the experimental and control groups. In the social phobia sub-dimension, the mean rank of the experimental group was 10.03 and that of the control group was 24.97, with U=17.50, z=-4.40 and p=0.00 (p<0.05). For obsessive-compulsive disorder, the mean rank of the experimental group was 12.00 and the control group was 23.00, with U=51.00, z=-3.26, and p=0.00 (p<0.05), indicating a significant difference. Similarly, in the panic disorder subdimension, the mean rank of the experimental group was 12.74 and the control group was 22.26, calculated as U=63.50, z=-2.84, and p=0.00 (p<0.05). In the generalized anxiety disorder subdimension, the mean rank of the experimental group was 9.03, and the control group was 25.97, calculated as U=0.50, z=-5.00, and p=0.00 (p<0.05), indicating significantly lower scores in the experimental group compared to the control group. In the major depressive disorder subdimension, the mean rank of the experimental group was 9.06 and the control group was 25.94; with U=1.00, z=-4.97, and p=0.00 (p<0.05), and a significant difference was found. In terms of the total scores of the Children's Anxiety and Depression Scale, the mean rank of the experimental group was 9.18 and that of the control group was 25.82, with a significant difference of U=3.00, z=-4.88 and p=0.00 (p<0.05). These findings show that Child-Centered Play Therapy significantly reduced the anxiety and depression levels of children in the experimental group compared to the control group.

DISCUSSION

This study examined the effects of the CCPT approach applied to children aged 8-12 diagnosed with cancer on their depression, anxiety, and quality of life levels. When the findings regarding whether the CCPT application provided a significant improvement in the quality of life of children diagnosed with cancer were examined, it was observed that the quality of life scores of the children in the experimental group who received CCPT were significantly higher than those of the children in the control group who did not receive any therapy. This finding shows that the children to whom CCPT was applied tended to approach the disease processes and treatment more positively. While Landreth (2012) stated that play therapies were effective in understanding the emotional and cognitive processes of children, these results also emphasized the importance of therapy as a factor that increases the quality of life of children. This increase observed in the quality of life of the children in the experimental group shows that play therapy strengthens their coping mechanisms against stress. Especially in long-term and stressful diseases such as cancer, children's emotional resilience and participation in the treatment process are of critical importance.

One of the main reasons underlying the positive effect of CCPT on quality of life is that children can release their emotional expressions through play. Play therapy provides a

safe space for children to understand their inner worlds and express emotional stress through play. Play can help children understand their emotional experiences and develop coping strategies that will positively affect their quality of life (Lin & Bratton, 2015). In cases where children have difficulty expressing themselves, play therapy provides them with a safe space which supports an increase in their quality of life (Muro et al., 2006). Loftin (2022) determined that CCPT increases children's quality of life and their ability to participate in medical treatment. CCPT supports children's developmental level by alleviating functional impairments (Ray et al., 2013). Perryman and Bowers (2018) emphasized that this method is effective in preventing negative behaviors in at-risk children, while Pester et al. (2019) found that CCPT was moderately effective in reducing common childhood mental health symptoms.

Bratton et al. (2005) emphasize that play therapy improves children's social skills and self-confidence. From this perspective, the increase observed in the quality of life of children who received CCPT may indicate that they have developed a more positive perspective on the disease process and gained stronger self-confidence. Since chronic diseases such as cancer can undermine children's self-confidence, play therapy can serve an important role in addressing this issue. Another reason for the significant increase in the quality of life of the experimental group in the study is that play therapy supports social relationships and interactions among children. This positive effect of play therapy can be explained by the fact that children develop positive perceptions of themselves and their environment during the therapy process. During play therapy, children get to know themselves better, become more competent in understanding the emotions of others, and become more competent at increasing their empathy skills. This can be seen as an improvement in their perception of quality of life. Research have shown that play therapy has a relaxing effect on children under psychological stress and provides a safe space for them to express their trauma (Kottman, 2011). The fact that there was no significant change in the quality of life of children in the control group emphasizes the need for professional support in helping children cope with stressful life events. Children who are not supported by CCPT may have difficulty overcoming the effects of stressful experiences. This can be evaluated as a finding that emphasizes the effect of play therapy not only on the emotional quality of life but also on the general quality of life of children.

According to the findings of this study, CCPT applications significantly reduce the anxiety and depression levels of children with cancer. The fact that the post-test scores of the children in the experimental group for separation anxiety, social phobia, obsessive compulsive disorder, panic disorder, generalized anxiety disorder, and major depressive disorder were lower than those in the control group reveals that CCPT is effective in the treatment of emotional disorders. According to Bratton, Ray et al. (2005), the fact that the therapy is play-based can accelerate recovery by facilitating children's self-expression. The stress and anxiety that children diagnosed with cancer encounter throughout their illness

process can be managed with this therapy method (Reddy, Files-Hall & Schaefer, 2005). Studies in the literature suggest that CCPT improves children's emotional regulation skills and provides a significant decrease in depression and anxiety levels, findings that are parallel to this result (Asghari Nekah et al., 2015; Bratton et al., 2005; Bratton & Lin, 2015; Landreth, 2012; Ray et al., 2013). Since problems such as depression include behavioral, cognitive, emotional, and social components, CCPT is suitable for approaching these symptoms with a holistic intervention (Burgin & Ray, 2021). It is also used in many conditions such as depression, trauma, attention deficit, behavioral problems, divorce, anxiety disorders, and chronic diseases (Wilson et al., 2005).

Ray (2011) reported significant improvements in depressive symptoms and behavioral problems in children who received CCPT. When children encounter incompatibility between environmental demands and their own self-perception, they can experience a self-actualization process aimed at resolving these incompatibilities through CCPT (Landreth, 2012; Ray, 2011). The safe and relationally supportive environment provided by CCPT allows children with depressive symptoms to accept themselves and learn healthier ways of coping (Burgin & Ray, 2021). Semerci (2022) states that the effectiveness of this therapy stems from the fact that it contributes to the development of children's ability to express themselves and process their emotional experiences through play. Symbolic expressions and repeated games that emerge during the play process allow the child to re-interpret traumatic experiences. In addition, the trusting relationship established with the therapist supports the child's emotional healing process.

The safe and accepting environment provided by CCPT for children who have difficulty coping with anxiety can help them heal their emotional wounds and reduce their anxiety levels. The decrease in conditions such as separation anxiety, social phobia, and generalized anxiety disorder in the study suggests that CCPT may be an effective intervention in alleviating children's internal distress. The decrease in separation anxiety disorder scores shows that CCPT is effective in reducing children's anxiety about separation from their parents. Children who have to stay in the hospital for a long time can greatly benefit from play therapy to cope with this situation. Play therapy provides a safe space and allows children to express such anxieties through play (Gil, 2011). This allows children to become emotionally stronger during the treatment process. According to the findings of this study, CCPT applications significantly reduce anxiety and depression levels. The fact that the post-test scores of the children in the experimental group for separation anxiety, social phobia, obsessive compulsive disorder, panic disorder, generalized anxiety disorder, and major depressive disorder were lower than those in the control group shows that CCPT is effective in the treatment of emotional disorders. According to Bratton, Ray and Rhine (2005), the play-based nature of the therapy can accelerate recovery by facilitating children's self-expression. The stress and anxiety that children diagnosed with cancer encounter throughout their illness can be managed with this therapy method (Reddy, Files-Hall &

Schaefer, 2005). Studies in the literature indicate that CCPT improves children's emotional regulation skills and provides a significant decrease in depression and anxiety levels, which are parallel to this result (Bratton et al., 2005; Landreth, 2012; Lin & Bratton, 2015; Zareapour et al., 2009). This therapy method aims to understand the psychological state of children by considering their physical, emotional, social, behavioral, and cognitive aspects as a whole (Landreth, 2012; Ray, 2011). In the CCPT approach, children's behavior is considered to be a reflection of their emotional health and self-perception. Since problems such as depression include behavioral, cognitive, emotional and social components, CCPT is suitable for approaching these symptoms with a holistic intervention (Burgin & Ray, 2021). It is also used in many conditions such as depression, trauma, attention deficit, behavioral problems, divorce, anxiety disorders, and chronic diseases (Wilson et al., 1992).

In general, when the experimental and control groups are compared, the effect of the therapy can be clearly seen. The anxiety and depression reducing effect of CCPT on the children in the experimental group shows that this therapy is a strong intervention option, especially for children with emotional problems. The lack of such a healing effect in the control group supports the idea that the periods spent without intervention do not contribute to the emotional health of the children. However, the limited observations in the control group indicate the need for further studies. The need for studies examining the long-term effects of anxiety and depression disorders in childhood emphasizes the importance of this study.

CONCLUSION AND RECOMMENDATIONS

Based on the results of this study, CCPT should be integrated into the therapy processes for children diagnosed with cancer. BCCPT is effective in improving the quality of life of children. It is recommended that CCPT be used as a standard treatment approach in clinical practices to reduce the anxiety and depression levels of children. CCPT, which has been observed to be effective especially in the social phobia sub-dimension, should be considered as a recommended therapy method for children with high social anxiety. Given that CCPT is effective in reducing the symptoms of obsessive-compulsive disorder, panic disorder, and generalized anxiety disorder, it should be included in treatment plans. Studies can be conducted to monitor the effects of CCPT on the quality of life of children diagnosed with cancer over an extended period and to investigate its permanent effects after therapy. Studies investigating the effects of CCPT on anxiety and depression in chronic diseases other than cancer should be initiated.

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Data Availability Declaration

While the primary datasets utilized in this study are not publicly accessible due to certain constraints, they are available to researchers upon a formal request. The authors have emphasized maintaining the integrity of the data and its analytical rigor. To access the datasets or seek further clarifications, kindly reach out to the corresponding author. Our aim is to foster collaborative academic efforts while upholding the highest standards of research integrity.

Author Contributions

All authors, Esra Coşkun and Prof. Dr. Şaziye Senem Başgül, contributed equally to this work. They collaboratively handled the conceptualization, methodology design, data acquisition, and analysis. Each author played a significant role in drafting and revising the manuscript, ensuring its intellectual depth and coherence. Both authors have thoroughly reviewed, provided critical feedback, and approved the final version of the manuscript. They jointly take responsibility for the accuracy and integrity of the research.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

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Biographical notes:

Esra Coşkun: Holds a B.A. in Psychology from San Francisco State University and an M.A. in Clinical Psychology from Dicle University. She is a Ph. D. candidate at Hasan Kalyoncu University, researching play therapy in children with cancer.

*Şaziye Senem Başgül*2**:** Graduated from Trakya University Faculty of Medicine, specialized in Child and Adolescent Psychiatry at Kocaeli University. Currently a Professor in the Psychology Department at Hasan Kalyoncu University.

Web of Science Researcher ID: AAK-3628-2021

Scopus Author Identifier Number: 35589589700

Google Scholar Researcher ID: https://scholar.google.com.tr/citations?user=Tuu98NgAAAAJ&hl=tr