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Research Article

THE EFFECT OF THERAPEUTIC PLAY ON THE QUALITY OF LIFE AND SYMPTOM CONTROL OF CHILDREN WITH CANCER

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ABSTRACT

Study aimed to investigate effect of therapeutic play on quality of life and symptom control of children with cancer. Participants were 15 children, aged 6-12, who were diagnosed with cancer, and treated in oncology-hematology clinics. Data were collected from two university hospitals between 2019-2021. It was quasi-experimental clinical research with single-group pretest-posttest model. Pediatric Patient Information Form, PedsQL Cancer Module, and Visual Analog Scale for symptoms were used as data collection tools. Mean PedsQL Cancer Module total score of children was 57.97±14.83 before therapeutic play and 62.08±12.97 after therapeutic play. There was no statistical difference between time-dependent median PedsQL Cancer Module total scores of children ($p>0.05$). According to Visual Analog Scale for symptoms, there was statistically significant difference in all symptoms after therapeutic play intervention ($p<0.05$). Study showed that therapeutic play affected symptom control of pediatric patients receiving long cancer treatment. No statistically significant difference was found between scores children obtained from PedsQL Cancer Module Child Report before, during, and after therapeutic play intervention. However, PedsQL Cancer Module Child Report total score increased.

INTRODUCTION

Childhood cancers and the treatment process, which affects the child physically and psychologically, are tiring and frightening for the child and the family (Angström-Brännström, Norberg, Strandberg, Söderberg & Dahlqvist, 2010). The symptoms experienced by the child, and the frequency and severity of the symptoms affect the quality of life of both the child and the family and directly reduce it (Chung et al., 2021; E. Stenmarker, Mellgren, Matus, Hakansson & M. Stenmarker, 2018). With the increase in the incidence of pediatric cancers, the importance of nursing care practices has gradually increased to reduce the symptoms associated with chemotherapy (Bahrami & Arbon, 2012).

The successful treatment of children diagnosed with cancer and the increase in survival rates have significantly affected the goals and objectives of nurses in the field of pediatric oncology (Newmani, Haglund & Rodgers, 2018). Today, the goals of nurses in the field of

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pediatric oncology are to implement national and international treatment protocols, provide individualized family-centered care, educate children and families about the short- and long-term side effects of treatment, and increase the quality of life of the child by providing psychosocial support during the treatment process (Thrane, 2013). The Association of Pediatric Oncology Nurses (2021) highlighted those nurses should be informed about the problems of children and families during the cancer treatment process and provide guidance in solving these problems (The Association of Pediatric Oncology Nurses, 2021). This has brought the issue of planning necessary nursing interventions to improve the quality of life of the child to the forefront of nursing care. In this process, the most important nursing step that may increase the child's quality of life is to plan and implement nursing interventions that may enable the child to cope with the side effects of chemotherapy with a holistic approach (Newmani et al., 2018; The Association of Pediatric Oncology Nurses, 2021). Non-pharmacological methods are limited in the symptom control and disease process of a child with many physiological and psychological problems, whose quality of life is affected, and who exhibits a series of negative behaviors and reactions (Altay, Törüner & Sarı, 2017). However, to cope with these physiological and psychological problems, it is recommended to apply complementary treatment methods in addition to standard medical treatment (Aslan, 2018; Madden, Mowry, Gao, Cullen & Foreman, 2010).

In this respect, therapeutic play is a method that is used to reduce anxiety and anger that often arises in children. It helps the child grow and develop best by supporting him/her to overcome psychosocial difficulties. Also, therapeutic play facilitates hospitalization and helps the child cope with this process (Altay et al., 2017; Aslan, 2018; Caleffi et al., 2016). The therapeutic play method is recommended for all hospitalized children for any diagnosis (Thrane, 2013). One study conducted on hospitalized children with impaired well-being revealed that play is necessary for children's cognitive, affective, and social well-being (Caleffi et al., 2016). Therapeutic play, which is an effective method for reducing the negative effects of hospitalization in children, establishing the relationship between the child and the healthcare staff, and reducing anxiety levels in hospitalized children, is reported to shorten the recovery process by providing children with physical and emotional relief (Caleffi et al., 2016; Li, Chung, Ho & Kwok, 2016; Silva et al., 2017).

The studies in the literature have investigated the effects of therapeutic play on the identification of the psychosocial needs of children diagnosed with cancer, the creation of an environment of trust between pediatric patients and those who provide nursing care, and the reduction of the negative emotions of pediatric patients in invasive interventions. All these

studies show that when therapeutic play is included in the nursing care process, it provides children with social, emotional, and behavioral development. It is an essential skill and achievement for the nurse to add play to their care (Caleffi et al., 2016; Li et al., 2016; Silva et al., 2017).

Most research has focused on the feelings of pain, anxiety, and fear experienced by children receiving cancer treatment during medical procedures. The physical and psychosocial symptoms of the child, who was hospitalized for a long time and exposed to heavy chemotherapeutic agents, remained in the background. This study is one of the few studies examining the effect of therapeutic play on the quality of life and symptom control of pediatric patients receiving cancer treatment. Since the chemotherapy process is difficult, both physiologically and psychologically, and isolation measures make it difficult to work in this area, therapeutic play intervention, which was carefully planned by taking all precautions, is expected to have a positive impact on the quality of life by helping the child cope with the physiological effects of chemotherapy more easily, providing the child with psychological relief, and reducing feelings such as anxiety and fear.

MATERIAL AND METHOD

Research Questions

Does therapeutic play increase the quality of life of children diagnosed with cancer?

Does therapeutic play reduce the severity of symptoms experienced by children diagnosed with cancer?

Research Hypotheses

H^1: Therapeutic play increases the quality of life of children diagnosed with cancer.

H^2: Therapeutic play reduces the severity of symptoms experienced by children diagnosed with cancer.

Aim and Type of Research

The study aimed to investigate the effect of therapeutic play on the quality of life and symptom control of children diagnosed with cancer and hospitalized for chemotherapy treatment in the hematology and oncology clinic.

Research Population and Sample

The data were collected between December 2019 and May 2021 in the hematology-oncology clinics of two university pediatric hospitals in northern and western regions of Turkey.

The hospital in northern Turkey, the oncology clinic is a modern clinic with 20 beds and provides health care services with 15 nurses. The hospital in western Turkey, the oncology clinic is a modern clinic with 24 beds and provides health care services with 19 nurses. The study population consisted of children between 6 and 12 years of age who were admitted to the hematology-oncology clinic for treatment purposes between the specified dates. The research sample was determined by conducting power analysis via G. Power 3.0 program using repeated measurements. The number of interventions was considered in the sample calculation, and the sample size was determined as 15 children with %80 power.

The inclusion criteria: Children between the ages of 6 and 12 years old who have been receiving chemotherapy treatment and staying in the hospital for at least one month and who speak Turkish were included in the study.

The exclusion criteria: Children who stayed in the hospital for less than a month, who were treated with radiotherapy or immunotherapy, and who could not speak Turkish were not included in the study. Between the specified dates, a child wanted to withdraw from the research in the fifth play session; two children did not volunteer to participate in the study; one child had a communication problem, and one did not speak Turkish. Thus, they could not be included in the study.

Data Collection Tools

The Pediatric Patient Information Form, the PedsQL Cancer Module Child Report, and the Visual Analog Scale for symptoms were used to collect data.

1. Pediatric Patient Information Form: This form consists of questions about the socio-demographic characteristics, diagnosis, disease stage, treatments, duration of treatment of children, and the age and gender of parents (Manav & Ocakci, 2016).

2. PedsQL Cancer Module child report for young children (ages 5-7) and children (ages 8-12): The PedsQL Cancer Module child report for young children (ages 5-7) and children (ages 8-12) was developed by Varni & Limbers and its validity and reliability were tested. The scale has 27 items. The scale dimensions are pain and hurt, nausea, procedural anxiety, treatment anxiety, worry, cognitive problems, perceived physical appearance, and communication. The child report has been simplified to a 3-point rating (0, 2, and 4 points). The Turkish validity and reliability study of the PedsQL Cancer Module was conducted by Kabak et al. (2016) and Tanir and Kuğuoğlu (2011), and it was shown that the scale is a valid, reliable, and applicable scale. The scale is short and easy to complete. The internal consistency coefficient is greater than the recommended 0.70 alpha coefficient for group comparison between the 8-18-year-old child

report. For self-reports for the ages of 5 to 7, only the procedural anxiety and treatment anxiety dimensions met the 0.70 standards, while Cronbach's alpha values for most other dimensions ranged between 0.80 and 0.90 (Kabak, Yakut, Çetin & Düger, 2006; Tanir & Kuğuoğlu, 2011; Varni & Limbers, 2009). In this study, Cronbach's alpha of the scale was calculated as pre-, while, and post-intervention values. Accordingly, Cronbach's alpha of the PedsQL Cancer Module for Young Children (ages 5-7) and Children (ages 8-12) was 0.841 pre-intervention, 0.833 while-intervention, and 0.794 post-intervention.

3. Visual Analog Scale for Symptoms: visual analog scales (VAS) are psychometric response scales that measure subjective characteristics or attitudes. A VAS is usually a 100-mm long horizontal line with verbal descriptors (word anchors) at each end to express the extremes of the feeling. For this study, children mark the point on the line that best corresponds to their symptom (pain, anxiety, fatigue, nausea) severity. To this end, they are instructed to put a cross on the straight line at the point that most accurately expresses their degree of agreement. When reading the VAS, the position of the respondent's cross is generally assigned a score between 0 and 10 (A. L. Baxter, Watcha, W. V. Baxter, Leong & Wyatt., 2011; Klimek et al., 2017; van Dijk, Koot, Saad, H. Tibboel & Passchier, 2002).

Data Collection Process

Before the study, the researcher attended training and received a Play Therapy Practitioner Education Certificate. After the training, plans were made for the implementation of the therapeutic play intervention by the researcher. First, toys that could be disinfected were selected for each pediatric patient, and a toy bag was created. Projective toys that the child can reflect his/her feelings and experiences were put in the toy bag. From the day the child patient was admitted to the clinic. The treatment protocol was determined, and the treatment was started. The average hospitalization period of children in the clinic is one month or more. Fifteen children who met the inclusion criteria were involved in the therapeutic play sessions for four weeks, two days a week, for a maximum of 60 minutes. A total of 120 therapeutic play sessions were conducted with 15 children. Preliminary data were collected with the data collection tools before the therapeutic play intervention. Quality of life was evaluated using the PedsQL Cancer Module Child Report at the study's beginning, middle, and end. The physiological and psychological problems of the child before and after each therapeutic play session and the effect of therapeutic play on symptom severity were assessed using the VAS.

The Implementation of Therapeutic Play

Before the therapeutic play: The therapeutic play bag was prepared. The therapeutic play bag included toys that do not threaten the child's health, can be disinfected, and facilitate children's self-expression. Since the clinical playroom was closed due to the COVID-19 pandemic, the therapeutic play process was carried out in the child's room to ensure that the child felt safe.

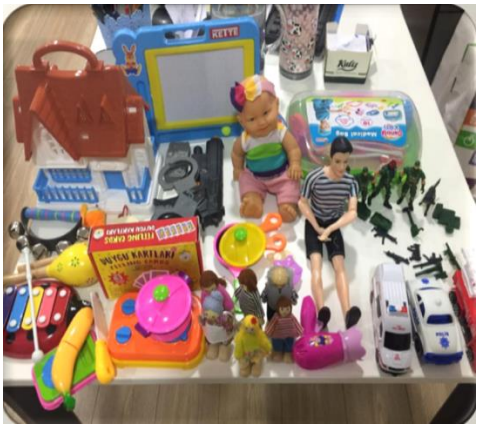

Figure 1. The Therapeutic Play Bag

During the therapeutic play: On the first day of the therapeutic play intervention, the researcher visited the child with the therapeutic play bag and chatted with the child for the first ten minutes to prepare the child for the game. Then, the researcher opened the bag and showed the toys to the child saying, "You can play with any of these toys while I am here." The purpose of therapeutic play is to allow children to express their feelings. All therapeutic play sessions started in the same way.

Therapeutic play sessions

• After the child finished playing with the toy of his/her choice, the child and the researcher drew a picture with the theme of "nurse and hospital environment," and they talked about the picture in the first therapeutic play session.

• Free play was practiced in the second and sixth games of the therapeutic play process, and the child and the researcher played with the toys the child selected.

• In the third play session, the child and the researcher read the book titled “My Friend is a Nurse”; they discussed the hospital environment and the care practices of the nurses, and the child's questions were answered. Afterward, they read a book belonging to the child.

• In the fourth play session, the child was allowed to freely tell his/her own story with the story cubes.

• In the fifth play session, the child and the researcher played a game that allowed the child to express his thoughts about himself and his family with therapeutic playing cards. Therapeutic communication cards were placed between the child and the play nurse, and each person in turn, drew a card and read and answered the question on it.

• In the seventh play session, a game was played with cards containing around 50 emotions. The cards were shown to the child individually, and he was asked to choose ten emotions he felt. Afterward, he selected the five emotions he experienced the most out of the ten emotions he chose and ranked them. A picture of a person was drawn on a white sheet of paper with the child. Then the child was asked to mark in which part of his body he felt the emotions listed most. The reasons for these feelings were discussed.

• In the eighth play session, the child was asked to match the emotions he had listed in the previous therapeutic game with the colors, and the game named "Three Wishes" was played.

After the fourth week of the therapeutic play intervention, the child and his parents were asked to write a short paragraph to express their thoughts about the games. After the paragraphs, and pictures about the games were prepared, they were submitted to the researcher. The therapeutic play process was completed by allowing children to talk without directing the child. Each game started and ended in the same way. At the end of each therapeutic game, the child was informed about last five minutes and the last minute of the game. After each therapeutic game, the toys were collected and disinfected.

Data Analysis

The data were analyzed using the SPSS Statistics Windows 25.0 program. The descriptive statistical methods (number, percentage, mean, standard deviation, minimum, maximum, median) were used to analyze the data. Non-parametric tests were used in the study because the sample size was less than 30. The Wilcoxon test, the Friedman test, and the Bonferroni test were used. In addition, the Spearman correlation analysis was performed to measure the direction and degree of significance of the relationship between the measurements. The reliability of the scales used in the study was tested with Cronbach's alpha reliability analysis.

Limitations

The study was planned as a quasi-experimental study with a pretest-posttest design. The study results can be generalized to a sample with the same characteristics. The fact that the study was conducted in two different hospitals can be considered a limitation.

Due to the physiological and psychological problems experienced by the children during the study, plays could not always be performed on the planned day and time. However, eight therapeutic play sessions were played with each child.

Ethical Considerations

The study followed accepted national and international standards (Committee on Publication Ethics (COPE, http://publicationethics.org/)). To carry out the research, ethical approval was obtained from the Medical Research Ethics Committee of a university (date: 02.10.2019 Number:19-10T/61), and institutional permission was obtained from the hematology-oncology clinics of two universities in the northern and western regions. The informed consent form obtained the written and verbal consent of children and their parents. The study follows the principles embodied in the Declaration of Helsinki (https://www.wma.net/policiespost/wma-declaration-of-helsinki-ethical-principles-for-medicalresearch-involving-human-subjects/) for all investigations involving human subjects and materials.

RESULTS

Sixty percent of the children were male, and the mean age was 9.66±1.79 years. Of these children, 53.3% attended primary school. All the caregivers were mothers. Among the mothers, 66.7% stated that they played games with their children. The socio-demographic characteristics of the children are presented in Table 1.

Table 1. Socio-Demographic Characteristics of Children with Cancer Diagnosis

	X±Sd	**Min-Max**
Age	9.66± 1.79	6.00-12.00
Gender	**n**	**%**
Female	6	40.0
Male	9	60.0
Educational Status		
Primary school	8	53.3
Secondary school	7	46.7
Mean age of parents	**X±Sd**	**Min-Max**
Mother	35.33±5.43	24-44
Father	39.93±4.68	34-50
Parent Playing with Child		
Yes	10	66.7
No	5	33.3
Total	15	100

X: Mean, Sd: Standard deviation, Min: minimum, Max: Maximum

Eighty percent of the children were diagnosed with hematological cancer and 66.7% were in the remission-induction stage. Among the children, 53.3% knew about their disease. It was

found that 73.3% of the children did not attend school before chemotherapy. Information regarding children's disease and treatment process is presented in Table 2.

Table 2. Disease and Treatment Process of the Children Diagnosed with Cancer

Diagnosis	**n**	**%**
Oncological Cancer	3	20.0
Hematological Cancer	12	80.0
Awareness of the Disease		
Yes	8	53.3
No	7	46.7
Duration of treatment		
1-4 months	9	60.0
5-8 months	2	13.3
9+ months	4	26.7
Previous Treatment		
Chemotherapy	8	53.3
Surgery	1	6.7
None	6	40.0
Pre-Chemotherapy Education Status		
Attending school	4	26.7
Not attending school	11	73.3
Total	15	100

No statistically significant difference was found between the median scores the children obtained from the PedsQL Cancer Module for Young Children (ages 5-7) and Children (ages 8-12) (X^2=1.200, p=0.549), and from the subscales. There was a difference between the median scores of the children on the procedural anxiety dimension before and after therapeutic play (X^2=6.906, p=0.032). The median scores for the procedural anxiety dimension were 33.25 before the play intervention and 66.75 after the intervention, respectively. A statistically significant difference was observed between the time-dependent median scores of the children on the perceived physical appearance dimension (X^2=9.846, p=0.007). The median scores for the perceived physical appearance dimension were 66.75 before the therapeutic play intervention and 50.00 after the therapeutic play intervention. A statistically significant difference was found between the time-dependent median scores of the children for the communication dimension (X^2=10.840, p=0.004). The median scores of the children for communication were 83.25±22.23 before the therapeutic play intervention, 83.25 during the intervention, and 50.00 after the intervention (Table 3).

Table 3. The Mean Scores of the Children Diagnosed with Cancer on the Pedsql Cancer Module, Its Dimensions, and the Comparison of the Median Scores

		$\bar{x}$± Sd	Min- Max	1st quarter	3rd quarter	Median	X^2	p	Bonferroni
PedsQL Cancer Module Scale	**Pre**	57.97± 14.83	37.91- 87.25	47.90	67.51	57.19	1.200	0.549	
	While	60.80± 16.54	31.25- 90.63	48.92	77.82	58.34			
	Post	62.08± 12.97	41.16- 85.31	54.92	75.64	61.97			
Pain and hurt	**Pre**	48.33± 27.49	0.00- 100.00	46.87	65.62	50.00	1.647	0.439	
	While	53.33± 29.68	0.00- 100.00	50.00	75.00	50.00			
	Post	56.67± 24.03	0.00- 100.00	50.00	75.00	50.00			
Nausea	**Pre**	56.00± 26.13	10.00- 90.00	40.00	80.00	50.00	1.170	0.557	
	While	55.33± 30.21	0.00- 100.00	33.75	91.25	60.00			
	Post	58.00± 25.97	0.00- 100.00	50.00	80.00	50.00			
Procedural anxiety	**Pre**	38.88± 26.49	0.00- 83.25	25.00	60.37	33.25	6.906	0.032*	1<3
	While	48.87± 26.32	0.00- 100.00	31.18	37.50	50.00			
	Post	61.10± 29.30	0.00- 100.00	39.62	83.25	66.75			
Treatment anxiety	**Pre**	75.55± 32.04	0.00- 100.00	50.00	100.00	100.00	0.563	0.755	
	While	77.78± 25.72±	33.25- 100.00	50.00	100.00	100.00			
	Post	80,02± 22.88	50.00- 100.00	50.00	100.00	100.00			
Worry	**Pre**	41,10± 36.11	0.00- 100.00	12.56	83.25	50.00	4.439	0.109	
	While	57,77± 37.19	0.00- 100.00	39.62	91.75	50.00			
	Post	64,45± 22.60	50.00- 100.00	50.00	100.00	50.00			
Cognitive problems	**Pre**	58,33± 21.99	0.00- 87.50	50.00	75.00	62.50	0.884	0.643	
	While	66,67± 18.70	50.00- 100.00	50.00	80.00	62.50			
	Post	60,83± 21.58	12.50- 100.00	50.00	75.00	62.50			
Perceived physical appearance	**Pre**	66,65± 15.39	50.00- 83.25	50.00	83.25	66.75	9.846	0.007*	3<1
	While	48,88± 22.23	0.00- 83.25	41.75	75.00	50.00			
	Post	66,65± 19.90	50.00- 100.00	50.00	87.43	50.00			
Communication	**Pre**	78,90±22.23	50.00- 100.00	50.00	100.00	83.25	10.840	0.004*	3<1
	While	77,77± 23.29	33.25- 100.00	66.75	100.00	83.25			2<1
	Post	48,88± 22.23	0.00- 83.25	47.93	87.43	50.00			

*p<0.05, 1: Pre, 2:While, 3:Post , X^2:Friedman Test

Each child (n=15) who received chemotherapy treatment after being diagnosed with cancer was interviewed eight times during the one-month therapeutic play intervention period, and they were asked to state the symptoms they developed. The children developed the following symptoms: 85% pain, 76.7% fatigue, 57.5% nausea, 62% sadness, 64.2% anxiety, 48.3% insomnia, and 71.7% feeling unwell (Table 4).

Table 4. Development of Cancer-Related and Chemotherapy-Related Symptoms ın Children

Symptom	Development of the symptom	Symptom frequency n (%)
Pain	**Yes**	102 (%85.0)
	No	18 (%15.0)
Fatique	**Yes**	92 (%76.7)
	No	28 (%23.3)
Nausea	**Yes**	69 (%57.5)
	No	51 (%42.5)
Anxiety	**Yes**	77 (%64.2)
	No	43 (%35.8)
Total		120(100)

A statistically significant difference was found between the symptoms of pain (z=-3.408, p=0.001), fatigue (z=-3.410, p=0.001), nausea (z=-3.409, p=0.001), anxiety (z=-3.299, p=0.004) before and after the therapeutic play intervention. Children had a lower score in all these symptoms after the therapeutic play intervention than before (Table 5).

Table 5. Visual Analog Scale (Vas) For Symptoms Mean Scores and Comparison of Scores

		$\bar{x} \pm$ Sd	Min-Max	Median	z	p
Pain	**Pre**	3.45± 1.55	1.43- 6.14	3.14	-3.408	0.001*
	Post	0.88± 0.75	0.00- 2.63	0.87		
Fatique	**Pre**	2.84± 1.72	0.88- 6.50	2.75	-3.410	0.001*
	Post	0.70± 0.71	0.00- 2.13	0.62		
Nausea	**Pre**	2.28± 2.27	0.13- 9.00	1.75	-3.409	0.001*
	Post	0.55± 0.85	0.00- 3.13	0.12		
Anxiety	**Pre**	1.90± 1.58	0.00- 5.13	1.50	-3.299	0.001*
	Post	0.55± 0.80	0.00- 2.38	0.25		

*p<0.05, z: Wilcoxon test

A negative relationship was observed between the total score for the pain and hurt dimension after the therapeutic play intervention in the PedsQL Cancer Module for Young Children (ages 5-7) and Children (ages 8-12) and the mean score of the children on the pain dimension of the VAS after the intervention (r=-0.600, p= 0.018). In addition, a negative relationship was found between the PedsQL Cancer Module Child Report total nausea score after the therapeutic play intervention and the VAS nausea mean score of the children after the intervention (r=-0.656**, p =0.008). A negative relationship (r=-0.533*, p=0.041) was found between the total score obtained after the therapeutic play intervention from the PedsQL Cancer

Module for Young Children (ages 5-7) and Children (ages 8-12) treatment anxiety dimension and the VAS anxiety mean score the children after the intervention.

DISCUSSION

In this study, the mean PedsQL score of the children after the therapeutic play intervention was 62.0±2.97. According to child responses, children's overall quality of life scores increased after the therapeutic play intervention; however, this increase was not statistically significant. In the study of Chung et al. (2021), the quality-of-life score of children aged 7-14 years diagnosed with cancer was 63.6 ±9.8. Stenmarker et al. (2018) reported that in Argentina, the quality-of-life score of children aged 5-12 was 66.8±12.2, and in Switzerland, this score was 85.5±5.9. Another study compared the quality-of-life scores of 16 children diagnosed with brain tumors before and after art therapy. The comparison showed that the quality-of-life scores of children receiving art therapy increased. They reported that they experienced less pain, nausea, and anger and more excitement and happiness (Madden et al., 2010). In Ozcan's (2012) study, eight art therapy sessions were applied to children diagnosed with cancer for one month. No statistically significant difference was found between children's pre and post-quality-of-life scores. However, the quality-of-life score of children who received art therapy was found to be higher when compared to children who did not (Ozcan, 2012). Yıldız (2018) gave symptom control training to children with leukemia through computer-assisted games and reported that the mean quality of life scores of these children was higher than before (Yıldız, 2018). Quality of life is affected by physiological, psychological, sociocultural, and environmental factors (Sitaresmi et al., 2009). In the study, it is thought that the quality of life of children could be affected by the type of disease, stage, and duration of the treatment. In addition, it is estimated that the quality of life of children does not change due to prolonged hospital stays, physiological and psychological symptoms caused by the disease, as well as having to struggle with the side effects of chemotherapy.

Positive emotional changes caused by a fun and safe play environment during the therapeutic play intervention are associated with increased pain threshold and immunity, decreased stress hormones, and positive health (Kurudirek & Arıkan, 2020). The literature describes play as an effective method of reducing hospitalized children's anxiety, fear, and negative feelings. It contributes to the recovery of children by relieving them both physically and emotionally, enabling them to express their feelings and knowledge levels about the disease, and facilitating communication between the child and the healthcare staff. Thus, it is necessary to provide holistic and high-quality care (Al-Yateem & Rossiter, 2017; Caleffi et al.,

2016; Godino-Iáñez et al., 2020; Li et al., 2016). Many studies have reported that play activities with hospitalized children reduce anxiety, fear, and perceived pain (Li et al., 2016; Silva et al., 2017). Studies also state that distracting games effectively reduce pain and fear in invasive procedures (Karakaya & Gözen, 2016). Pain is a common symptom in children diagnosed with cancer. In addition to the physiological effect of cancer on tissues and nerves, medical procedures such as LP, intrathecal treatment, and bone marrow aspiration also cause pain. Pain is often associated with fear, anxiety, and stress. Many nursing interventions provide effective pain management and reduce analgesic consumption. Distraction, imagery, relaxation techniques, and cutaneous stimulation applications are some of these interventions (Karakaya & Gözen, 2016). This study revealed that the therapeutic play intervention significantly reduced the pain experienced by children diagnosed with cancer during inpatient treatment with chemotherapeutic agents. Aslan (2018) determined that the therapeutic play intervention applied to children diagnosed with cancer during invasive procedures effectively reduced pain. Madden et al. (2010) found that art therapy decreased the pain children aged 2-13 experienced during chemotherapy. Studies have shown that practices such as games, listening to music, art, or watching TV/videos effectively reduce and manage pain (Aslan, 2018; Karakaya & Gözen, 2016; Kurudirek & Arıkan, 2020). Studies show that these methods effectively reduce perceived pain, ensure pain management, and increase comfort.

The study revealed that therapeutic play significantly reduced nausea during children's hospitalization and treatment process with chemotherapeutic agents. Griffiths (2005) found that when children diagnosed with cancer played video games during chemotherapy, the frequency of nausea, vomiting, and systolic blood pressure decreased. In the experimental study of Chan et al. (2015), relaxation exercises and dreaming strategies were taught to 4–11-year-old children in the experimental group. Risk management, antiemetic use, and nutrition training were given to the second group. It was found that nausea and vomiting decreased in children in the experimental group after the third day compared to the control group. McCulloch et al. (2014) reported that distraction and daydreaming methods are the most frequently used and very effective in coping with nausea and vomiting in children with cancer (McCulloch, Hemsley & Kelly, 2014).

The study showed that therapeutic play significantly reduced fatigue during the treatment process of children with chemotherapeutic agents. The randomized controlled study by Mohammadi et al. (2021) found that the symptoms of pain, fatigue, and anxiety related to the disease and chemotherapy were reduced in children with cancer who had game-based occupational therapy. In the study, while pain and anxiety were experienced more frequently

and severely in children in the first stages of treatment, more fatigue symptoms were observed in children later (Mohammadi, Mehraban, Damavandi, Zarei & Haghani, 2021).

The study further revealed that the therapeutic play intervention significantly reduced the level of anxiety during the inpatient treatment of children with chemotherapeutic agents. Paula et al. (2011) observed less fear, anxiety, and anger in children who had therapeutic play intervention during chemotherapy treatment in the outpatient clinic (Paula, Artilheiro, De Amorim Almeida, Maria & Chacon, 2011). The systematic review of Thrane (2013) reported that interventions such as virtual reality applications, various mind-body techniques, creative art therapy, music therapy, massage, and hypnosis effectively reduce pain and worry in children with cancer. In their study, Li et al. (2011) played a computer game containing virtual reality with children who had cancer five days a week. The evaluations on the seventh day showed that children playing computer games had fewer depressive symptoms than the control group (Li, Chung & Ho, 2011). Altay et al. (2017) used therapeutic play techniques such as drawing pictures and telling stories in their study with children receiving cancer treatment. They found that the children who used these techniques had less anxiety compared to the beginning of the study. One randomized controlled study by Li et al. (2014) with Chinese children revealed that anxiety and negative mood levels were lower in the experimental group in which therapeutic play was applied (Li, Chan, Wong, Kwok & Lee, 2014). Paula et al. (2011) stated that therapeutic play is associated with positive behavior in preschool children receiving chemotherapy; it improves the feelings of trust by increasing cooperation with healthcare professionals, and children smile during play. Frygner-Holm et al. (2020) applied 6-8 therapeutic play sessions to children with cancer. The children were asked how they felt after each game, and they stated that they were pleased.

Quality of life refers to the child's perception of his or her physical, emotional, social, and spiritual state. Studies have shown that the quality of life of children who experience symptoms caused by the disease or chemotherapy is lower. Rosenberg et al. (2016) reported that the quality of life of children experiencing physical symptom stress due to pain, nausea, and vomiting is lower. In the literature, the children’s quality of life is frequently evaluated based on parental information (Kabak et al., 2016; Mohammadi et al., 2021). However, the care process should be planned considering the evaluations of the child, parent, and primary nurse providing care (Rosenberg et al., 2016; Stenmarker et al., 2018; Varni & Limbers, 2009). Nursing interventions planned for symptom control based on the information obtained from the child and parents may increase the child's quality of life.

This study showed that the child with a low mean score for pain and nausea symptoms after therapeutic play had a high quality of life score from the PedsQL Cancer Module pain and hurt and nausea dimensions after the therapeutic play intervention. In addition, it was found that the child with a low mean sadness score before the therapeutic play intervention had a high quality of life score in the PedsQL Cancer Module treatment anxiety dimension after the intervention. It was shown that the child with a low mean sadness score after the intervention had a high quality of life score on the PedsQL Cancer Module anxiety dimension after the intervention. The study revealed that the severity of the symptoms decreases after therapeutic play. As a result, the pain and hurt, nausea, and treatment anxiety dimensions of the PedsQL Cancer Module are positively affected. Li et al. (2013) conducted a study with children aged 9-16 who received cancer treatment, and they found that children with high depression levels had low quality of life scores (Li, Williams, Lopez, Chung & Chiu, 2013). The severity, frequency, and duration of the symptoms are affected by many factors. All these symptoms directly affect the quality of life of children (Linder & Hooke, 2019).

The children in our study participated in the one-month therapeutic play intervention willingly. At the end of the intervention, they said they had an enjoyable time and were very happy. After the intervention, the mothers made comments such as, "You had a very positive influence on my child," "My child loves you very much," "My child wants to stay here just for you," and "My child forgets everything when s/he sees you." These feelings point to the effectiveness of the therapeutic play intervention. It is stated in the literature that symptom control performed by nurses in children receiving chemotherapy positively affects patients' quality of life. The statements, behaviors, and body language of the children showed that they mostly wanted to play games and feel happy, participate in the treatment and care process, and communicate well with healthcare professionals (Bahrami & Arbon, 2012; Campos, Rodrigues & Pinto, 2010). It is seen that play, defined as children's work, has been associated with happiness and fun by children trying to cope with their disease and the treatment process in the hospital environment. The study conducted by Gariepy and Howe (2003) with 3-5-year-old children hospitalized due to leukemia found that play is associated with feeling happy. In the qualitative study of Angström-Brännström et al. (2010), parents reported that their children receiving cancer treatment wanted to play and have fun despite their pain and suffering since this reduced their stress experienced, and they felt better. Campos et al. (2010) conducted a study with hospitalized children and concluded that play is necessary for children's cognitive, affective, and social well-being.

CONCLUSION

The results of study showed that no statistically significant difference was found between the scores the children obtained from the pain and hurt, nausea, treatment anxiety, worry, and cognitive problems dimensions of the PedsQL Cancer Module Child Report before, during, and after the therapeutic play intervention. However, the PedsQL Cancer Module Child Report total score increased. The scores of the children on the PedsQL Cancer Module procedural anxiety dimension were higher after the therapeutic play intervention. According to the VAS Scale, there was a statistically significant difference between the pre- and post-therapeutic medians of the symptoms of pain, fatigue, nausea, and anxiety. It was observed that the children had lower scores in all these symptoms and decreased severity of symptoms after the therapeutic play intervention.

Therapeutic play should be included in the nursing care process as it increases the compliance of children with cancer to treatment, enables children to express their physical problems and emotional reactions, and facilitates coping. Nurses working in pediatric hematology-oncology clinics should receive education on therapeutic play. Nurses working in these units should include therapeutic play in children with cancer care plans.

Therapeutic play is essential for children diagnosed with cancer and hospitalized for treatment in hematology and oncology clinics. Therapeutic play interventions can increase the quality of life and symptom control of children diagnosed with cancer. For this reason, therapeutic play can be added nursing care process to help the child in the difficult treatment process. It is recommended that randomized controlled experimental studies be conducted with a larger sample group.

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