



## The Effect of Clay Therapy on The Quality of Life of Pediatric Oncology Patients

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### ABSTRACT

Some interventions in pediatric oncology care for pediatric patients, such as art therapy and play therapy, ensure the physical and emotional well-being of patients. It also has the potential to improve quality of life during treatment and at the end of life. We aimed to determine the effect of clay therapy on the quality of life of pediatric oncology patients. This study was conducted with nine children (intervention group/clay therapy) inpatients in haematology units and nine children (comparison group). The “KINDL Quality of Life Scale” was used. The children participated for eight weeks in clay applications for two days a week. The post-test (69.66±15.70) of the KINDL Quality of Life Scale total mean score of the children in the intervention group was higher than the pre-test (57.00±10.54) ( $Z = 2.670$ ;  $p = 0.008$ ). There were no significant differences between the pre-test (74.66±5.97) and the post-test (74.55±6.94) of the quality of life of the children in the comparison group ( $Z = 0.005$ ;  $p = 0.755$ ). Clay therapy should be included in nursing care interventions to increase the quality of life for pediatric oncology patients. To increase quality of life, especially in pediatric oncology patients, it is suggested that environments be formed in hospitals where clay therapy can be applied.

**Keyword:** Clay therapy, Nursing, Pediatric oncology patients, Quality of life

### 1. Introduction

Childhood cancer rates have been gradually increasing over the past few decades. Approximately 1,190 children under the age of 15 are expected to succumb to cancer in 2021 (American Cancer Society, 2021). Thanks to advancements in technology and medicine, the survival rate for childhood cancer has risen to 80%. However, the pursuit of complete recovery through treatment can sometimes lead to chronic side effects. Two-thirds of children who have survived cancer suffer from late-effects that have a detrimental impact on their quality of life. Pediatric oncology patients experience significant challenges towards the end of their lives (Levine et al., 2017; Turan et al., 2016). The quality of children's lives is often affected by early or late treatment side effects. Quality of life is a multifaceted concept that encompasses aspects such as life satisfaction, subjective well-being, happiness, functional adequacy, and social well-being, as well as cultural values, one's position and purpose in life, and living conditions. Furthermore, it can be understood as the response to personal illnesses and their social and personal implications (Ceren & Durualp, 2021).

Various factors, such as an inability to attend school, undergoing chemotherapy, experiencing side effects of chemotherapy (vomiting, weakness, drug side effects), hair loss, long hospital stays, and an inability to

spend time with friends, can affect the quality of life of these children. The hospital stays for children with cancer who receive inpatient treatment and their families may be lengthy, adversely impacting the child's quality of life as a result of treatment (Ceren & Durualp, 2021). Hospitalization, cures, symptoms of the disease, and cures can affect the quality of life of pediatric oncology patients. Interventional studies will contribute to reducing the quality-of-life changes in pediatric oncology patients and, by bringing an evidence-based perspective on rehabilitation efforts, fill a visible gap in the literature, serving as a guide for nurses who will be working in this area (Kaye et al., 2018).

Some interventions, such as art therapy and play therapy, in pediatric oncology care for pediatric patients have the potential to improve patients' physical and emotional well-being, as well as their quality of life throughout the course of therapy and beyond at the end of life (Kaye et al., 2016; Satapathy et al., 2018). Alongside this, it can help the expression of conflicts, anxieties, and desires hidden deep within (Chiang et al., 2019). Children often play with objects such as ropes, strings, scissors, papers, balls, balloons, mud, playdough, clay, drums, and swings (Turaşlı, 2016). Clay has always been a toy for children and a game or art therapy tool for therapists (Elbrecht & Antcliff, 2014).

This research will be useful in that it is the first study in Turkey to evaluate the nursing care that pediatric oncology patients receive at the clinics, as well as to specifically explore the effects of clay therapy on pediatric oncology patients. We aimed to investigate the effects of clay therapy on the quality of life of pediatric oncology patients in this study.

## 2. Methods

### 2.1. Study setting and sample

The study was conducted in the Zonguldak Bülent Ecevit University Health Application and Research Centre Pediatric Haematology Oncology Unit between January and April 2015. The total number of pediatric oncology inpatients was 13 children between the ages of 5 and 12 in the unit. Four patients could not participate in the study due to the family's objection and the doctor's recommendation. Children who were not oncology patients from the pediatric service were selected as the comparison group. The post-hoc power of this study was calculated using the G-Power 3.1 Demo package program. We compared two independent groups, and the principal outcome variable was the KINDL Quality of Life Scale total scores. The number of children within each group was 9, for an effect size of 0.8 and a power of 80%. Criteria for inclusion in the study: (1) being a pediatric oncology patient; (2) being seen as appropriate for participation by a doctor (for risk of infection and children with appropriate laboratory results); (3) having family's consent to play with clay.

### 2.2. Data collection tools

Data was collected using a questionnaire prepared by the researchers and the Quality-of-Life Scale. *Socio-Demographic Information Form*: The researchers developed a questionnaire in accordance with the existing literature, comprising 12 questions pertaining to socio-demographic characteristics (such as age, gender, education status, liking for school, etc.) and seven questions concerning information about their disease (impact of the disease on their lives, knowledge about their disease, etc.).

*The KINDL Quality of Life Scale*: Eser et al. (2008) conducted a Turkish validity and reliability study on the KINDL Quality of Life Scale. This scale encompasses six sub-dimensions, namely bodily well-being, emotional well-being, self-respect, friends, family, and school. Scores for both the overall scale and its sub-dimensions range from 0 to 100 points. An increase in an individual's score is associated with an increase in the perceived quality of life. In the validity study, the Cronbach Alpha value for the entire test was determined to be 0.95, with a correlation coefficient of 0.70 in relation to tools measuring similar concepts, and a test-retest correlation coefficient of 0.80 (Eser et al., 2008).

### 2.3. Data collection

The data collection process involved three researchers, specialized in pediatric and mental health and illness nursing, with one of them possessing a play therapy certificate. These researchers, who had conducted previous studies on pediatric oncology patients, informed both parents and children about the study context before voluntary participation. Data was gathered through face-to-face interviews with the children, each lasting approximately 10 minutes.

Children in both the intervention and comparison groups received clay therapy twice a week for eight weeks. The sessions were administered by a faculty member trained in art therapy at the doctoral level, taking place in the hospital's children's playroom with appropriate clothing and equipment. Throughout the sessions, emphasis was placed on maintaining hand hygiene. The clay therapy program, applicable to both healthy and ill children, is outlined in Table 1. The weekly activities included the following: Week 1: Researchers

organized a game to foster communication and familiarity among the children. Week 2: Children were encouraged to craft a story hero, touching, and narrating the hero's story. Week 3: Children formed groups to create various figures, explaining their creations afterward. Weeks 4 and 5 replicated this activity with different groups. Week 6: Each child independently engaged in clay application based on personal preference. Week 7: A designated corner in the game room allowed children to leave their figures to dry. Week 8: Children received their dried figures and were encouraged to conduct clay applications freely with friends of their choice. Each clay therapy session lasted approximately 30-45 minutes. Both groups underwent the KINDL Quality of Life Scale assessment before and after the clay therapy.

**Table 1** The distribution of the socio demographic characteristics of the children

Socio demographic characteristics	Intervention group (n=9)		Comparison Group (n=9)	
	n	%	n	%
Gender				
Female	4	44.4	4	44.4
Male	5	55.6	5	55.6
	(Mean ±SD)		(Mean ±SD)	
Age	9.11±0.33 (9-10)		8.33±0.50 (8-9)	
Cancer diagnosis duration (year)	5.88±1.90 (2-8)			
Hospitalization in the last month				
Yes	4	44.4		
No	5	55.6		
Treatments				
RT	1	11.1		
CT+RT	2	22.2		
RT+ST	1	11.1		
BM+RT+ST	3	33.3		
CT+RT+BM	2	22.2		

RT: Radiotherapy, CT: chemotherapy, ST: Surgical treatment, BM: Bone marrow transplantation

#### 2.4. Data analysis

Statistical analysis of data was conducted using Statistical Package for the Social Sciences 22.0. Socio-demographic characteristics and the distribution of disease-related variables were presented using percentages and mean values. Due to the sample size being less than 30 and the non-normal distribution of the data, nonparametric analyses were employed. The impact of clay therapy on quality of life was assessed using the non-parametric paired group test Wilcoxon.

#### 2.5. Ethical considerations

All actions conducted in studies involving human participants adhered to the ethical standards set by the institutional research committee and followed the 1964 Helsinki Declaration and its subsequent amendments or equivalent ethical standards. The study received approval from a university clinical research ethics committee (No: 2014-80-08/04). Data collection was carried out on a voluntary basis, with individuals participating willingly in the study.

### 3. Results

This section presents the outcomes of the study. The sample comprised nine children (4 females, 5 males) deemed suitable for participation by a hospital doctor. The comparison group consisted of nine randomly chosen children (4 females, 5 males) within the same age range (5-12). The mean age in the comparison group was 8.33±0.50. The children with illnesses were diagnosed an average of 5.88±1.90 years ago, with 33.3% undergoing chemotherapy, radiotherapy, and surgery simultaneously (Table 1).

#### 3.1. The relationship between the clay therapy and the Quality-of-Life Scores of the children

Prior to the intervention, the children in the intervention group had a total mean score of 57.00±10.54 on the KINDL Quality of Life Scale. Following the intervention, their total mean score increased to 69.66±15.70. The post-test total mean score on the KINDL Quality of Life Scale for the intervention group was significantly higher than the pre-test ( $Z=2.670$ ;  $p=0.008$ ). In contrast, before the intervention, the total mean score on the KINDL Quality of Life Scale for the children in the comparison group was 74.66±5.97. After the intervention,

their total mean score was  $74.55 \pm 6.94$ . No significant differences were observed between the pre-test and post-test total mean scores on the KINDL Quality of Life Scale for the children in the comparison group ( $Z=0.005$ ;  $p=0.755$ ) (Table 2).

**Table 2** The distribution of the KINDL Quality of Life Scale mean scores differences before and after clay application.

KINDL Quality of Life Scale mean scores	Comparison Group (n=9)		Intervention Group (n=9)	
	Pre	Post	Pre	Post
	application	application	application	application
	Mean $\pm$ SS	Mean $\pm$ SS	Mean $\pm$ SS	Mean $\pm$ SS
Bodily well being	9.55 $\pm$ 1.42	9.55 $\pm$ 2.55	8.88 $\pm$ 3.88	11.11 $\pm$ 5.03
Significance	$Z=-0.085$ ; $p=0.932$		$Z=0.842$ ; $p=0.400$	
Emotional well being	11.66 $\pm$ 1.11	11.66 $\pm$ 1.11	11.44 $\pm$ 4.39	9.88 $\pm$ 6.33
Significance	$Z=0.395$ ; $p=0.195$		$Z=-0.475$ ; $p=0.635$	
Self-respect	10.55 $\pm$ 3.57	10.66 $\pm$ 5.17	12.88 $\pm$ 2.20	15.55 $\pm$ 2.29
Significance	$Z=-0.594$ ; $p=0.553$		$Z=-2.669$ ; $p=0.007^*$	
Family	12.44 $\pm$ 1.81	12.36 $\pm$ 1.47	8.11 $\pm$ 2.31	8.33 $\pm$ 3.74
Significance	$Z=0.348$ ; $p=0.467$		$Z=-0.140$ ; $p=0.888$	
Friends	15.00 $\pm$ 1.32	14.69 $\pm$ 1.28	9.22 $\pm$ 4.23	8.33 $\pm$ 1.50
Significance	$Z=0.000$ ; $p=1.000$		$Z=-0.703$ ; $p=.482$	
School	13.11 $\pm$ 2.26	15.33 $\pm$ 2.69	8.77 $\pm$ 3.03	10.33 $\pm$ 3.93
Significance	$Z=-2.388$ ; $p=0.017^*$		$Z=-0.704$ ; $p=0.482$	
Total quality of life	74.66 $\pm$ 5.97	74.55 $\pm$ 6.94	57.00 $\pm$ 10.54	69.66 $\pm$ 15.70
Significance	$Z=0.005$ ; $p=0.755$		$Z=2.670$ ; $p=0.008^*$	

$Z$ =Wilcoxon Test       $*p<0.05$

Before the application, the mean score for the self-respect sub-dimensions of the children in the intervention group was  $12.88 \pm 2.20$ . Following the intervention, the self-respect sub-dimensions for the children in the intervention group increased to  $15.55 \pm 2.29$ . The post-test mean score for the self-respect sub-dimensions in the intervention group was significantly higher than the pre-test ( $Z=-2.669$ ;  $p=0.007$ ) (Table 2).

Before the application, the mean score for the school sub-dimensions of the children in the comparison group was  $13.11 \pm 2.26$ . After the intervention, the school sub-dimensions mean score for the children in the comparison group rose to  $15.33 \pm 2.69$ . The post-test mean score for the school sub-dimensions in the comparison group was notably higher than the pre-test ( $Z=-2.388$ ;  $p=0.017$ ) (Table 2).

### 3.2. The thoughts of the children in the intervention group regarding their disease

In this study, 44.4% of the pediatric oncology patients believed they were not unwell. Additionally, 55.6% of the children expressed sadness about not having many friends, and 77.8% reported feeling sad because they were unable to engage in various activities. Concerns and fear were experienced by 77.8% of the children, with 66.7% expressing apprehension regarding their diagnosis and treatment. Furthermore, 11.1% of the pediatric oncology patients felt they were being punished by the disease, while 22.2% mentioned they experienced quicker anger compared to earlier times. Additionally, 11.1% of the pediatric oncology patients believed that if they had been more cautious, the illness might not have occurred (Table 3).

**Table 3** The distribution of the thoughts and emotions of the children regarding their disease

Thoughts and emotions on disease	n	%
I don't think I'm sick		
Yes	4	44.4
No	5	55.6
I'm sad I don't have many friends		
Yes	5	55.6
No	4	44.4
I feel fear and concern		
Yes	7	77.8
No	2	22.2

**Table 3 Continued**

Thoughts and emotions on disease	n	%
I'm sad I can't do everything		
Yes	7	77.8
No	2	22.2
I'm concerned about my diagnosis and treatments		
Yes	6	66.7
No	3	33.3
I think I'm being punished with the disease		
Yes	1	11.1
No	8	88.9
I get angry quicker		
Yes	2	22.2
No	7	77.8
I think "If I was careful, this wouldn't have happened to me"		
Yes	1	11.1
No	8	88.9

When investigating whether the children were aware of their illness and its impact on their lives, it was found that 11.1% of the children had no knowledge of their disease. Additionally, 55.6% of the children reported experiencing fatigue, persistent pain, and a sense of being constantly obstructed and hopeless, while 33.3% mentioned that the disease negatively affected their morale. Moreover, 44.4% of the children identified constant crying as the most distressing aspect of their illness (Table 4).

**Table 4** The distribution of the status of the children regarding knowing their disease and its effects on their life

Information on disease and the effects of the disease on life	n	%
Information on disease		
Yes	1	11.1
No	8	88.9
I tire easily		
Yes	5	55.6
No	4	44.4
I often feel obstructed and hopeless		
Yes	5	55.6
No	4	44.4
I'm in constant pain		
Yes	5	55.6
No	4	44.4
My disease disrupts my morale		
Yes	3	33.3
No	6	66.7
I think I'm missing out on a lot		
Yes	6	66.7
No	3	33.3
Most upsetting aspect of disease		
Constantly crying	4	44.4
Fear of syringes	2	22.2

**Table 4** Continued

<b>Information on disease and the effects of the disease on life</b>	<b>n</b>	<b>%</b>
Going to the hospital all the time	1	11.1
Not being able to play games	1	11.1
My parents fighting	1	11.1

#### 4. Discussion

We aimed to investigate the impact of clay therapy on the quality of life and self-esteem levels of pediatric oncology patients in this study. The findings revealed that following the intervention, the post-test total mean score on the KINDL Quality of Life Scale for children in the intervention group ( $69.66 \pm 15.70$ ) was higher than the pre-test score ( $57.00 \pm 10.54$ ) ( $Z=2.670$ ;  $p=0.008$ ). However, there were no significant differences in the pre-test ( $74.66 \pm 5.97$ ) and post-test ( $74.55 \pm 6.94$ ) quality of life scores for children in the comparison group ( $Z=0.005$ ;  $p=0.755$ ).

In our study, we observed that the quality-of-life scores after the clay therapy application were significantly higher than those before the intervention ( $Z=2.670$ ;  $p=0.008$ ). Conversely, there were no notable differences in the pre-test and post-test quality of life scores for children in the comparison group ( $Z=0.005$ ;  $p=0.755$ ). The implementation of clay therapy contributed to an improvement in the quality of life for pediatric oncology patients. Previous studies have also indicated that art therapy, including clay therapy, can enhance the quality of life for individuals dealing with oncological conditions (Aguilar, 2017; Bozcuk et al., 2017). For instance, a study by Bozcuk et al. (2017) explored the impact of water paint applications on the quality of life for oncology patients undergoing chemotherapy, revealing a positive effect in the patient group. The therapeutic benefits of various artistic activities, such as art therapy, game therapy, and work therapy, have been demonstrated in children traumatized by disease-related factors (Denton et al., 2017). Clay therapy, a form of art therapy, is employed to enhance the well-being of individuals in society and to address psychological or psychiatric issues (Shella, 2018). Functioning as a creative and self-expression method, clay therapy is valuable for problem-solving, conflict resolution, interpersonal improvement, behavioral guidance, stress reduction, enhanced self-worth, heightened personal awareness, increased success, and facilitation of self-actualization (Elbrecht & Antcliff, 2014). Clay, a naturally abundant material, easily molded by human hands, enables individuals to articulate their thoughts, emotions, knowledge, skills, and desires (Winnicott, 2017). The application of clay therapy has been shown to aid in understanding and resolving challenges faced by individuals of all ages, such as issues related to abuse, guilt, anger, disappointment, and grief (İkiz et al., 2015).

In this study, the self-respect sub-dimensions' mean score post-test for children in the intervention group surpassed the pre-test ( $Z=-2.669$ ;  $p=.007$ ). The results indicate that clay therapy significantly enhanced the self-respect of pediatric oncology patients compared to healthy children. Art therapy has demonstrated the ability to empower pediatric oncology patients to articulate underlying emotions effectively, develop more robust coping mechanisms, and mitigate adverse side effects, thereby contributing to an elevation in their self-respect levels (Aguilar, 2017). Clay therapy, specifically, plays a crucial role in fostering the physical, mental, and spiritual growth of children. Engaging with clay facilitates a concrete understanding of the child and their perspective on the world (Nan & Wong, 2020). Particularly utilized in children with chronic diseases, clay therapy is a form of psychotherapy proven to aid in coping with the psychological challenges associated with illnesses and hospital environments, leading to the increased prevalence of art therapy services in hospital settings (Elbrecht & Antcliff, 2014; Mohammadi et al., 2017). Art therapy, including clay therapy, serves as a valuable psychological support tool for children with chronic cancer, extending from the diagnosis phase to treatment and post-hospitalization rehabilitation (Rezazadeh et al., 2020). Notably, clay therapy exhibits especially positive effects for individuals struggling to express their feelings or communicate effectively in interpersonal relationships (Shella, 2018; Winnicott, 2017).

In our study, 44.4% of pediatric oncology patients believed they were not afflicted by an illness. Additionally, 11.1% expressed feeling punished by the disease, while 22.2% noted an increased tendency to become angered compared to the past. Another 11.1% believed that carefulness could have prevented their condition. Concurrently, cancer-related issues, such as a decline in individual capacity, difficulty in engaging in physical activities, and diminished quality of life, were prevalent (Kaye et al., 2018). Losses experienced at any stage of life impact individuals differently, eliciting a range of reactions (McDonnell et al., 2017). According to Kubler Rose, individuals undergo a process of loss and grief comprising denial, anger, negotiation, depression, and acceptance. This process, commencing with denial when individuals first confront the event, ultimately concludes with acceptance (Bregman, 2019). Unaware of the emotions of hopelessness and unease, ill children may instinctively incline towards denial (Kazak et al., 2017). Feelings of anger may

arise, with some children perceiving their mortal illness as unfair and even viewing it as punishment for perceived wrongdoing (McDonnell et al., 2017). Our findings indicate that pediatric oncology patients are navigating through various phases of loss.

In our study, 77.8% of the children encountered fear and apprehension, with 66.7% expressing concerns specifically related to their diagnosis and treatment. Our results underscore that a cancer diagnosis has substantial impacts on the psychological well-being, physical condition, and friendships of children. Changes in external appearance, symptoms like fatigue and pain constraining physical activities, heightened infection risks, and the uncertainty surrounding how friends should approach the child all contribute to a reduction in the child's social circle (Turan et al., 2016).

Implementing clay therapy or other forms of art therapy into the comprehensive care of pediatric oncology patients has the potential to enhance both their quality of life and self-respect. It is advisable for pediatric oncology nurses to engage in discussions about the possibilities and advantages of clay therapy. Establishing effective communication with children through art not only provides insights into the needs of this pediatric oncology patient population but also contributes to the development of a more effective care plan. Offering materials like clay or other art-related items may serve as encouragement for pediatric oncology patients to participate, fostering their engagement in artistic activities and daily life tasks (Uğur, 2022). Nevertheless, to implement this successfully, nurses may benefit from training in art therapy. Those working in pediatric oncology inpatient units should be informed about and encouraged to pursue training opportunities. The inclusion of art therapy or play therapy certification for nurses should be considered in corporate policies (Günay & İnci, 2020).

Because of the several cases diagnosed with cancer in the hospital, the study was performed with a small sample. It is recommended that future studies encompass larger sample sizes and employ extended and more recurrent monitoring periods.

## 5. Conclusion

As a result, clay therapy demonstrates a more positive impact on the quality of life and self-respect of pediatric oncology patients compared to children without cancer. The study's findings suggest that incorporating regulations for clay therapy within pediatric oncology services could enhance the quality of life during the treatment phase and positively influence treatment compliance and the overall healing process. The implementation of game-based art therapies for pediatric oncology patients, along with diversifying such applications, is likely to be effective in elevating the quality of life for this patient population.

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## References

- Aguilar, B. A. (2017). The efficacy of art therapy in pediatric oncology patients: An integrative literature review. *Journal of Pediatric Nursing*, 36, 173–178. <https://doi.org/10.1016/j.pedn.2017.06.015>
- American Cancer Society. (2021). *Cancer Facts & Figures 2021*.
- Bozcuk, H., Ozcan, K., Erdogan, C., Mutlu, H., Demir, M., & Coskun, S. (2017). A comparative study of art therapy in cancer patients receiving chemotherapy and improvement in quality of life by watercolor painting. *Complementary Therapies in Medicine*, 30, 67–72. <https://doi.org/10.1016/j.ctim.2016.11.006>
- Bregman, L. (2019). Kübler-Ross and the re-visioning of death as loss: Religious appropriation and responses. *Journal of Pastoral Care and Counseling*, 73(1), 4–8. <https://doi.org/10.1177/1542305019831943>
- Ceren, G. L., & Durualp, E. (2021). Examining the satisfaction of the mothers whose two-seven years old children with cancer regarding the diagnosis and treatment process. *Türkiye Klinikleri Journal of Health Sciences*, 6(4), 723–733. <https://doi.org/10.5336/healthsci.2020-79995>
- Chiang, M., Reid-varley, W. B., & Fan, X. (2019). Creative art therapy for mental illness. *Psychiatry Research*, 275(March), 129–136. <https://doi.org/10.1016/j.psychres.2019.03.025>
- Denton, R., Frogley, C., Jackson, S., John, M., & Querstret, D. (2017). The assessment of developmental trauma in children and adolescents: A systematic review. *Clinical Child Psychology and Psychiatry*, 22(2), 260–287. <https://doi.org/10.1177/1359104516631607>
- Elbrecht, C., & Antcliff, L. R. (2014). Being touched through touch . Trauma treatment through haptic perception at the Clay Field : A sensorimotor art therapy. *International Journal of Art Therapy*, 19(1), 19–30. <https://doi.org/10.1080/17454832.2014.880932>
- Eser, E., Yüksel, H., Baydur, H., Erhart, M., Saatli, G., Özyurt, B. C. İ. Z., Özcan, C., Ravens-sieberer, U., &



- Abstract, Ö. (2008). The Psychometric Properties of the New Turkish Generic Health-Related Quality of Life Questionnaire for Children (Kid-KINDL). *Journal of Turkish Psychiatry*, 19(4), 409–417.
- Günay, U., & İnci, R. (2020). Knowledge, opinions and practices of pediatric nurses about therapeutic play. *Acibadem University Journal of Health Sciences*, 10(3), 547–551. <https://doi.org/10.31067/0.2019.187>
- İkiz, F. E., Yörük, C., Asici, E., & Tanrikulu, M. (2015). Creativity, entrepreneurship and psychological counseling. *Western Anatolian Journal of Educational Sciences*, 6(11), 37–63.
- Kaye, E. C., Friebert, S., & Baker, J. N. (2016). Early integration of palliative care for children with high-risk cancer and their families. *Pediatric Blood Cancer*, 63, 593–597. <https://doi.org/10.1002/pbc>
- Kaye, E. C., Jenkins, J., Blazin, L., Baker, J. N., Gushue, C. A., Sykes, A., Johnson, L., Demarsh, S., Snaman, J. M., Morrison, R. R., Levine, D. R., & Lu, Z. (2018). Illness and end-of-life experiences of children with cancer who receive palliative care. *Pediatric Blood and Cancer*, 65, e26895. <https://doi.org/10.1002/pbc.26895>
- Kazak, A. E., Barakat, L. P., Martha, A., Mccafferty, M., Lattomus, A., & Deatrck, J. (2017). Provider perspectives on the implementation of psychosocial risk screening in pediatric cancer. *Journal Of Pediatric Psychology*, 42(6), 700–710. <https://doi.org/10.1093/jpepsy/jsw110>
- Levine, D. R., Mandrell, B. N., Sykes, A., Pritchard, M., Gibson, D., Symons, H. J., Wendler, D., & Baker, J. N. (2017). Patients' and parents' needs, attitudes, and perceptions about early palliative care integration in pediatric oncology. *JAMA Oncology*, 3(9), 1214–1220. <https://doi.org/10.1001/jamaoncol.2017.0368>
- Mcdonnell, G. A., Salley, C. G., Barnett, M., Derosa, A. P., Werk, R. S., Hourani, A., Hoekstra, A. B., & Ford, J. S. (2017). Anxiety among adolescent survivors of pediatric cancer. *Journal of Adolescent Health*, 61(4), 409–423. <https://doi.org/10.1016/j.jadohealth.2017.04.004>
- Mohammadi, A., Mehraban, A. H., & Damavandi, S. A. (2017). Effect of play - based occupational therapy on symptoms of hospitalized children with cancer : A single - subject study. *Asia-Pacific Journal of Oncology Nursing*, 4, 168–172. <https://doi.org/10.4103/apjon.apjon>
- Nan, J. K., & Wong, W. W. (2020). A qualitative analysis of a clay art therapy project in enhancing emotion regulation among secondary school youth in the context of socio-political unrest. *Journal of Clinical and Development Psychology, Online fir*, 27–44.
- Rezazadeh, H., Froutan, R., Abadi, A. A., Mazloun, S. R., & Moghaddam, K. (2020). Effects of art therapy program on anxiety and depression among 6-12-year-old burned children. *Macedonian Journal of Medical Sciences*, 8(B), 126–132.
- Satapathy, S., Kaushal, T., Bakhshi, S., & Chadda, R. K. (2018). Non-pharmacological interventions for pediatric cancer patients: A comparative review and emerging needs in India. *Indian Pediatrics*, 55, 225–232.
- Shella, T. A. (2018). Art therapy improves mood , and reduces pain and anxiety when offered at bedside during acute hospital treatment. *The Arts in Psychotherapy*, 57, 59–64. <https://doi.org/10.1016/j.aip.2017.10.003>
- Turan, S. A., Esenay, F. I., & Güven, M. (2016). Symptoms in children after chemotherapy. *The Journal of Current Pediatrics*, 14(2), 74–81. <https://doi.org/10.4274/jcp.03164>
- Turaşlı, N. K. (2016). A review on universality and currency of some games and toys of children in preschool Period. *Journal of Educational Sciences of Uludag University*, 29(1), 111–131. <https://doi.org/10.19171/uuefd.11636>
- Uğur, T. B. (2022). Importance of the game in pediatric inpatients. *Journal of Umraniye Pediatrics*, 2(2), 40–44. <https://doi.org/10.14744/upd.2022.69885>
- Winnicott, D. (2017). *Playing and reality*. Metis Bookstore.