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THE EFFECT OF PAINTING ART ON POST-OPERATIVE HOPELESSNESS AND FATIGUE IN BREAST CANCER PATIENTS / A SEMI-EXPERIMENTAL STUDY

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Abstract

Hopelessness and fatigue are common symptoms experienced by breast cancer patients in the post-operative period. Supportive interventions, such as art making or art therapy, are reported to have a positive effect on the symptoms experienced by cancer patients. This semi experimental study aims to evaluate the effect of painting on post-operative hopelessness and fatigue in breast cancer patients. The population of the study consisted of all adult patients who had surgery for breast cancer in a university hospital in Turkey and lived in the city center. The sample of the study consisted of 110 patients, 55 in the experimental group and 55 in the control group. The sample included patients who were selected through the improbable random sampling method. The research was completed between April 2016 and January 2018. Patient Information Form, Piper Fatigue Scale and Beck Hopelessness Scale were used to obtain data. Percentage, mean, standard deviation, chi-square, independent group's t test, paired t test and correlation were used in the analysis of the data. It was observed that the hopelessness and fatigue scores of the patients in the experimental group decreased statistically significantly after the painting study (p=0.001). No statistically significant change was observed in the hopelessness and fatigue scores of the patients in the control group. In this context, it is thought that nurses should know the effect of painting on hopelessness and fatigue and include it in their practices. It may be recommended to conduct new studies in order to evaluate the effects of painting on different patient groups.

Anahtar Kelimeler: Breast Cancer, Fatigue, Hopelessness, Nurse, Painting Art.

MEME KANSERLİ HASTALARDA AMELİYAT SONRASI RESİM SANATININ UMUTSUZLUK VE YORGUNLUK ÜZERİNE ETKİSİ / YARI DENEYSEL BİR ÇALIŞMA

Öz

Umutsuzluk ve yorgunluk meme kanserli hastalarda ameliyat sonrası dönemde sık görülen semptomlardandır. Sanat yapma ya da sanat terapi gibi destek girişimlerinin kanserli hastalarda görülen semptomlar üzerinde olumlu etki yaptığı bildirilmektedir. Bu yarı deneysel araştırmada amaç meme kanseri nedeniyle ameliyat olan hastaların, ameliyat sonrası dönemde resim yapmalarının umutsuzluk ve yorgunluk üzerindeki etkisini değerlendirmektir. Araştırmanın evrenini Türkiye'de bir üniversite hastanesinde meme kanseri nedeniyle ameliyat olan ve şehir merkezinde yaşayan tüm yetişkin hastalar oluşturdu. Araştırmanın örneklemi ise 55 deney grubu ve 55 kontrol grubu olmak üzere 110 hastadan oluştu. Örneklem evrenden olasılıksız gelişigüzel örnekleme yöntemiyle seçildi. Araştırma Nisan 2016-Ocak 2018 tarihleri arasında tamamlandı. Verilerin elde edilmesinde Hasta Tanıtım Formu, Piper Yorgunluk Ölçeği ve Beck Umutsuzluk Ölçeği kullanıldı. Verilerin analizinde yüzdelik, ortalama, standart sapma, ki kare, bağımsız gruplarda t testi, eşleştirilmiş t testi ve korelasyon kullanıldı. Deney grubundaki hastaların resim çalışması sonrasında umutsuzluk ve yorgunluk puanlarının istatistiksel olarak önemli düzeyde azaldığı görüldü (p=0.001). Kontrol grubundaki hastaların umutsuzluk ve yorgunluk puanlarında ise istatistiksel olarak önemli bir değişim gözlenmedi. Bu bağlamda hemşirelerin, resim yapmanın umutsuzluk ve yorgunluk üzerine etkisini bilmeleri ve uygulamalarında yer vermeleri gerektiği düşünülmektedir. Resim sanatının farklı hasta gruplarındaki etkilerini değerlendirmek amacıyla yeni çalışmaların yapılması önerilebilir.

Keywords: Meme Kanseri, Yorgunluk, Umutsuzluk, Hemşire, Resim Sanatı.

1. INTRODUCTION

Cancer is the second most common cause of death after cardiac diseases, and it qualifies as one of the most serious life-threatening problems. Breast cancer, which ranks first among the cancer types seen in women in the world and in Turkey, is an important public health problem. Breast cancer accounts for approximately 15% of all cancer deaths in women. According to the 2018 data of the World Health Organization (WHO), it is estimated that 2.1 million women are diagnosed with breast cancer every year and 627,000 women die from breast cancer. The average incidence of breast cancer in the world is 46.3 per hundred thousand. In Turkey, the total number of women who died from breast cancer in 2018 was 4264 and the average incidence of breast cancer was 45.6 per hundred thousand (1, 2).

A majority of breast cancer patients are diagnosed early, and patients benefit from various localized and systemic treatments whose effectiveness have been proven (3). While the 5-year survival rate from breast cancer was 60% in the 1960s, it has risen to 90% in recent years (4). During the treatment process of breast cancer, patients not only encounter physiological problems, alopecia, nausea and vomiting, fatigue, and myelosuppression, but they also encounter many psychological and social problems (5–7). Hopelessness, anxiety, rage, suicidal ideations, decrease in self-respect, adjustment disorder, body image disturbance, depression, and sexual dysfunction are among the psychological problems (2, 4, 8), while social isolation, distorted role and interaction, stigmatization, job loss, and financial problems are among the social problems experienced by patients. As the number and severity of these problems increase, it can lead to failure of treatment or even its termination. These problems negatively affect the success of the treatment and survival rates (9, 10). Hopelessness, which is one of the psychological problems experienced by breast cancer patients, leads to depressive disorder and increases suicidal tendencies (11, 12). Hope has been defined as the possibility of a better future in the context of uncertainty. It has been shown that patients with higher levels of hope tend to live longer (13, 14). Fatigue is another disease- and treatment-related problem that is common in cancer patients (15). Similarly, in breast cancer patients, there is a 91% incidence rate of fatigue after operation and chemotherapy (16). Fatigue cannot be explained through physiological mechanisms alone; rather, it also has social and psychological aspects (17). Thus, hopelessness which is an important predictor of depressive symptoms, increases fatigue. Two separate studies, one by Alexeeva et al. that involved cancer patients, and one by Hammell et al. that involved patients with spinal cord injuries, reported that higher levels of hopelessness led to higher levels of fatigue (18, 19). At the time of breast cancer diagnosis and during treatment, nurses play a key role in the management of commonly encountered symptoms and in resolving psychosocial problems related to these symptoms (2). Verkooijen et al. (2012) reported in their study that 39.7% of the cancer patients needed social support and that 27.3% needed psychological support (20). The provision of active psychosocial support to patients facilitates the treatment of psychiatric symptoms, ensures active participation in treatments, and provides patients the opportunity to freely express their feelings and/or reactions (21-24). Emotional support-oriented meetings, psychoeducation groups, support groups, cognitive-behavioral therapies, family therapy, and art-based treatment are among the psychosocial support interventions available (2, 21).

In cases of breast cancer and other cancer types, artistic activities have been shown to have a positive impact on many of the problems associated with these diseases, such as impaired quality of life, fatigue, hopelessness, and depression (25–27). For example, art therapy involving painting has been reported to positively affect cancer patients' quality of life and depression levels (25, 28); art therapy with clay has been found to reduce the hopelessness levels of patients with neurological problems (26), and finally, painting art has been observed to reduce the depression and fatigue levels of cancer patients (27). Nurses need to plan and implement care in a way that includes all these dimensions. The use of art expands the possibilities of care and adds richness to nursing practice

(11, 12, 23). From a review of the literature on this subject, it was found that studies have shown the benefit of artistic activities in helping cancer patients to cope with the disease and treatment process, but no studies were found analyzing the effects of artistic activities on the post-operative stage of patients with breast cancer. This study, therefore, aims to determine the effect of painting art on hopelessness and fatigue levels in the post-operative period of breast cancer patients.

Hypotheses

(H_1): Painting after breast cancer operation reduces hopelessness levels.

(H_2): Painting after breast cancer operation reduces the fatigue level of patients.

2. METHODS

2.1. Study Design

This study was designed as a semi-experimental study, which included a control group to determine the hopelessness and fatigue levels of patients who did not participate in the painting activities. This study was carried out as a doctoral dissertation. This study was conducted between April 2016 and January 2018 with patients who applied to the chemotherapy unit of a university hospital in Turkey after undergoing a breast cancer operation.

2.2. Participants

The population consisted of all adult patients who underwent operations to treat breast cancer in the aforesaid hospital and who resided in the city center. The sample was selected using the improbable random sampling method. In the chemotherapy unit, the first patient who met the inclusion criteria was assigned to the experimental group and the second to the control group, and so on in consecutive order. The sample size was calculated with power analysis, the results of which showed that the sample should include at least 55 individuals in each group (i.e., the experimental and control group). The power analysis calculation was conducted based on two-way significance, 0.5 effect size, 0.95 confidence interval, 0.5 margin of error, and 0.95 power. During the data collection process, 7 patients from the experimental group withdrew from the study. These patients were replaced by new patients who met the inclusion criteria to maintain the determined sample size. The study included only those patients who did not have any problems preventing their ability to communicate, who were not diagnosed with any psychiatric disease, who were not allergic to the materials used in painting, and who were not involved in any other artistic activity. Patients who had received chemotherapy in the pre-operative period were not included in the study due to the possible impact this would have had on their fatigue and hopelessness levels.

2.3. Nursing Intervention

The nursing intervention was shaped in line with the literature (12, 25, 26, 29, 30) and the training the primary researcher received from the Association of Art Psychotherapies. The interventions were standard for every patient. Drawing pencil, drawing paper, crayons, markers, chenille, eva foam, pompom, colorful glitter (in different colors), colorful feathers, glue, and different shaped mandalas were used in the painting activities. The following 12-week program was applied to each patient.

1st Week: The patients were asked to draw a picture according to their wishes.

2nd Week: The patients were asked to draw a picture according to their wishes.

3rd Week: The patients were presented mandalas in different shapes and asked to choose one and paint it.

4th Week: The patients were asked to draw a picture that reflected the effect of breast cancer on their bodies.

5th Week: The patients were given mandalas in different shapes and asked to choose one and paint it.

6th Week: The patients were asked to imagine a perfect world and make a collage reflecting it using materials, such as journals, newspapers, bead, ribbon etc.

7th Week: The patients were asked to draw a picture of their hands and add features on their fingers that gave them strength.

8th Week: The patients were asked to draw a picture of their family members.

9th Week: The patients were given mandalas in different shapes and asked to choose one and paint it.

10th Week: The patients were asked to make a free-form collage.

11th Week: The patients were asked to glue a leaf on their papers and create a picture by drawing shapes and coloring around it.

12th Week: The patients were asked to imagine and draw the safest place for them.

2.4. Instruments

The data were collected using a patient introductory form, the Beck Hopelessness Scale, and the Piper Fatigue Scale.

Patient Introductory Form: This form was developed by the researcher and consists of 10 questions on the sociodemographic characteristics of the patients, such as age, marital status, educational level, and profession, and medical-related issues, such as previous operation experience, comorbidities, type of operation for breast cancer, lymphedema, metastasis, and the phase of the disease.

Beck Hopelessness Scale: This scale was developed by Beck et al. and consists of 20 items that assess negative expectations about future. The Turkish validity and reliability study of the scale was carried out in 1994 by Durak, and its Cronbach's alpha coefficient was found to be 0.85. The scale items are in yes-no question format. Answers of "yes" to the items 2, 4, 7, 9, 11, 12, 14, 16, 17, 18, and 20 are scored 1 point, while answers of "no" to the items 1, 3, 5, 6, 8, 10, 13, 15, and 19 are scored 1 point. The highest score possible on this scale is 20, with higher scores indicating higher levels of hopelessness. The hopelessness scores are categorized into four groups, namely 'no hopelessness' (score between 0-3), 'mild hopelessness' (score between 4-8) 'moderate hopelessness' (score between 9-14) and 'advanced hopelessness' (score between 15-20) (31). The Cronbach's alpha coefficient for the present study was found to be 0.61.

Piper Fatigue Scale: This scale is used to measure subjective fatigue and includes 22 items. Its Turkish validity and reliability study was conducted by Can, who determined the reliability coefficient for the Turkish version to be 0.94. It includes four subscales: cognition, behavior, affect, and sensory. Each of the items on this scale are scored from 1 (weak) to 10 (strong). The respondent selects the number in every item that best identifies his/her fatigue experience at the time. Total fatigue sore is achieved by adding up all item scores and dividing the obtained value by the total number of items. The highest score possible on this scale is 10, with higher scores indicating higher levels of fatigue. No fatigue is indicated by a total score of 0, mild fatigue by a score from 1 to 3, moderate level fatigue by a score from 4 to 6, and severe fatigue by a score from 7 to 10. The scale includes 5 open-ended questions, but these questions are not evaluated during the calculation of the fatigue score (32). The Cronbach's alpha coefficient of this scale was found to be 0.91 in this study.

2.5. Data Collection

The data were collected between July 2016 and August 2017 by the primary researcher. The researcher met with each of the patients who came for the first chemotherapy sessions a month after

the operation and provided them with information about the study and recorded their address and contact information for the next meetings. Next, pretest data were collected using the patient introductory form, the Piper Fatigue Scale, and the Beck Hopelessness Scale. The questions were read to the patients and the answers they gave were marked on the form. It took an average of 20 to 30 minutes to fill out the forms for each of the patients. Due to the severe side effects that typically occur after the first chemotherapy, painting activities were started a week after the second chemotherapy. The patients carried out the painting activities at their own homes in company with the researcher every other week for a total of 8 to 12 times (33 patients 8 times, and 22 patients 9 to 12 times). After the last painting activity, posttest data were collected using the Piper Fatigue Scale and the Beck Hopelessness Scale. The control group's posttest data were collected through the Piper Fatigue Scale and the Beck Hopelessness Scale at their own homes 12 weeks after pretest data were collected.

2.6. Data Analysis

The SPSS 15.0 software package was used for statistical analyses of the study results. The results were analyzed in the 95% confidence interval and at $p<0.05$ significance level. Introductory and medical characteristics of the experimental and control groups were assessed and compared using percentage, mean, and standard deviation through the chi-square test. Comparison of their mean hopelessness and fatigue scores was conducted using the independent samples t-test. The intragroup mean hopelessness/fatigue scores before and after painting activities were compared using the paired t test. Cronbach's alpha was used for reliability analysis.

2.7. Ethical Considerations

Before starting the study, necessary permissions were obtained from the head physician and the ethical committee of the hospital in which the study was carried out (***Approval number: 50687469-1491-48-15/SEC677***). Verbal and written consents were obtained from the patients in the experimental and control groups.

3. RESULTS

This section presents the introductory and medical characteristics of the patients in the experimental and control groups and the results that show the effect of painting on fatigue and hopelessness levels. Analysis of the introductory and medical characteristics of the patients in the experimental and control groups showed that they were similar in terms of these characteristics ($p>0.05$) (Table 1).

Table 1. Patients' Introductory and Medical Characteristics

Characteristics	Experimental Group (n=55)		Control Group (n=55)		p value
	Number	%	Number	%	
Age					
26-40	21	38.1	17	30.9	0.612[a]
41-55	31	56.4	33	60	
56 and over	3	5.5	5	9.1	
Marital Status					
Married	47	85.5	48	87.3	0.781[a]
Single	8	14.5	7	12.7	
Education Level					
Literate/primary school	3	5.5	9	16.4	0.171[a]
Secondary /high school	33	60	31	56.4	
University and higher	19	34.5	15	27.3	
Profession					
Civil Servant	14	25.4	8	14.5	0.134[a]

Housewife	31	56.4	41	74.5	
Unemployed	10	18.2	6	10.9	
Previous Operation Experience					
Yes	32	58.2	38	69.1	0.234[a]
No	23	41.8	17	30.9	
Comorbidities					
Yes	16	29.1	19	34.5	0.539[a]
No	39	70.9	36	65.5	
Type of Operation					
Breast-Conserving Surgery	18	32.7	20	36.5	
Simple Mastectomy	6	10.9	4	7.3	0.777[a]
Modified Radical Mastectomy	31	56.4	31	56.4	
Lymphedema					
Yes	5	9.1	6	10.9	0.751[a]
No	50	90.9	49	89.1	
Metastasis					
Yes	3	5.5	2	3.6	0.315[a]
No	52	94.5	53	96.4	
Phase of the Disease					
1st phase	7	12.7	2	3.6	
2nd phase	20	36.3	27	49.1	0.257[a]
3rd phase	25	45.5	24	43.6	
4th phase	3	5.5	2	3.6	

a: Chi-Square

It was found that the difference between the pretest hopelessness scores of the experimental and control groups were significant (p=0.002) (Table 2), while the difference between the posttest scores were insignificant (p=0.309), (Table 2). The mean hopelessness score of the experimental group decreased significantly compared to their score before the painting activity (p=0.001) (Table 2). No significant difference was found between mean pretest and posttest scores of the patients in the control group (p=0.359) (Table 2).

Table 2. Comparison of Patients' Intragroup and Intergroup Mean Hopelessness Scores

	Experimental Group (n=55)	Control Group (n=55)	p value
Follow-up times	Mean ± sd	Mean± sd	
Pretest	5.05±2.59	3.49±2.63	0.002[a]
Posttest	3.72±1.90	3.29±2.52	0.309[a]
p value	<0.01[a]	0.359[a]	

a: t test

There was a significant difference between the pretest and posttest fatigue scores of the experimental (p=0.001) (Table 3) and control groups (p=0.025) (Table 3). The mean fatigue score of the experimental group decreased significantly compared to the score before the painting activity (p=0.001) (Table 3). No significant difference was found between the mean pretest and posttest scores of the patients in control group (p=0.585) (Table 3).

Table 3. Comparison of Patients' Intragroup and Intergroup Mean Fatigue Scores

	Experimental Group (n=55)	Control Group (n=55)	p value
Follow-up times	Mean ± sd	Mean ± sd	
Pretest	6.02±0.99	4.72±1.64	<0.01[a]
Posttest	5.23±0.87	4.78±1.18	0.025[a]
p value	<0.01[a]	0.585[a]	

a: t test

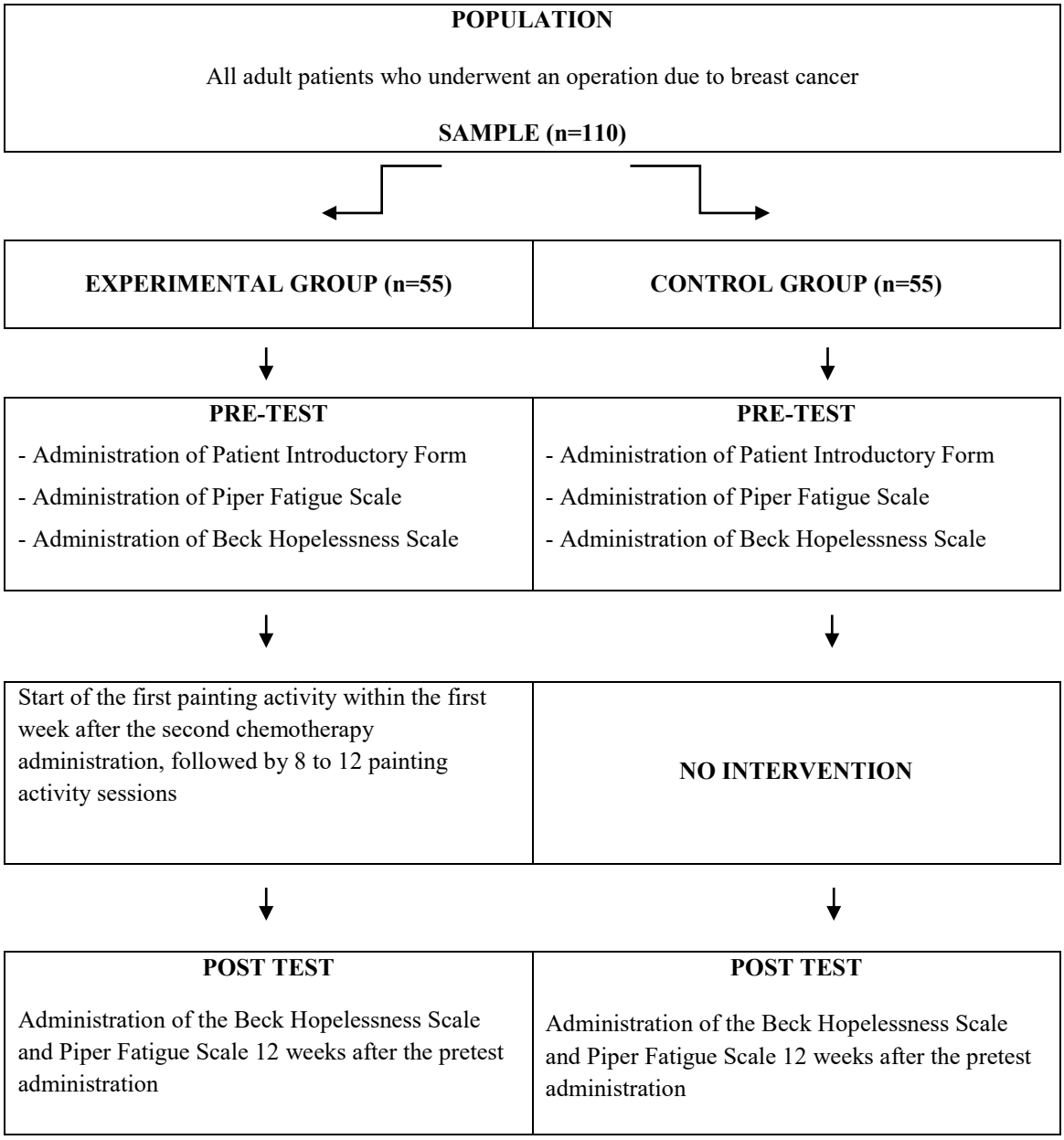
Table 4 indicates that painting 9 to 12 times did not cause a statistically significant difference on hopelessness (p=0.151) (Table 4) and fatigue (p=0.218) (Table 4).

Table 4. Comparison of Hopelessness and Fatigue Scores of the Patients According to Their Number of Painting Activities

Variables	Number of paintings		
	8 times (n: 33, 60%)	9 to 12 times (n: 22, 40%)	
	Mean± sd	**Mean ± sd**	**p value**
Hopelessness	4.03±1.94	3.27±1.80	0.151[a]
Fatigue	5.35±0.89	5.05±0.83	0.218[a]

a: t test

Flow Chart of the Study



4. DISCUSSION

Psychosocial support interventions, such as art activities, for the control of symptoms in women with breast cancer have great importance. Art can be used as a psychosocial support means through art-making activities that do not involve the company of a therapist or through art-therapy, which does involve the presence of a therapist. Studies have shown art to have a positive effect on many problems, including depression, fatigue, anxiety, hopelessness, and low quality of life (4, 9, 25–27, 33).

In the literature review conducted for this study, there were no studies found specifically examining the effect of painting on post-operative fatigue and hopelessness in cancer patients. Therefore, the results derived from this study were discussed by comparing them with the data from studies conducted on art-making and art therapy. Hopelessness is one of the most common symptoms in breast cancer patients, and it continues to exist from the time of diagnosis and thereafter, including during treatment and therapy (13, 34). Öztunc et al. (2013) reported that patients diagnosed with breast cancer within the previous three months experienced hopelessness, and Avci et al. (2009). found that patients who had a mastectomy in the previous three to 24 months experienced hopelessness. Likewise, the patients in the present study also experienced hopelessness (35, 36).

Art helps cancer patients to overcome negative feelings such as hopelessness (26, 30). No studies were found on the effect of art and art therapy on hopelessness. Lawson et al. (2017) determined that after an art-making activity, some of the cancer patients experienced a higher sense of hope for the future (30). Puig et al. (2016) reported that 12% of the patients felt more hopeful after participating in art therapy that involved painting, while Utaş Akhan et al. (2015) reported that hopelessness levels decreased from moderate levels to mild levels in epilepsy and stroke patients after they participated in art therapy with clay (26, 30, 37).

This study found that the hopelessness level of the experimental group decreased significantly after they had participated in a painting activity. No statistically significant difference was found in the hopelessness level of the control group (Table 2). This result verifies the hypothesis that "painting after breast cancer operation reduces hopelessness levels". The result of the present study, in addition to those reported in other studies, indicate that painting is an effective method for increasing patients' hope.

Fatigue is a common, yet serious problem experienced by breast cancer patients (19, 38). Various studies have assessed fatigue in breast cancer patients in different period of times, such as in the post-operative period, during radiotherapy and chemotherapy, and several years after the diagnosis (39–42). Jacobsen et al. (1999) determined that fatigue increased after adjuvant chemotherapy and continued to exist six months after the treatment was completed (40). Aghabarari et al. (2008) reported that breast cancer patients who were undergoing chemotherapy experienced fatigue at a moderate level (41). Furthermore, Kim et al. (2008) analyzed patients who underwent a breast operation within the previous nine years and reported that their fatigue scores were at a moderate level (38).

This study determined that the experimental and control groups experienced moderate levels of fatigue. This result was in agreement with the literature, but it was further found that the fatigue continued not only in the early pre-operative or post-operative periods, but also in the following period.

Art has been shown to be effective in the management of symptoms, such as cancer-related fatigue, and an increasing number of cancer patients have started to show an interest in engaging in art activities or participating in art therapy (4, 9, 27, 41, 42). Lawson et al. (2017) reported a decrease in the cancer-related symptoms in 7.3% of the patients in their painting study involving cancer patients (30). Koom et al.(2016) determined that painting notably reduced fatigue in their study,

which largely included breast cancer patients (42). In contrast to the above, Puig et al.(2016) found that there was no significant difference in fatigue scores after patients participated in art therapy with painting (37). However, the majority of the studies show that painting art has a positive impact on reducing fatigue.

This study determined that the fatigue level of the experimental group decreased significantly after the painting activities. No significant difference, however, was found in the fatigue level of the control group (Table 3). The study result verifies the hypothesis that "painting after breast cancer operation reduces the fatigue level of patients".

The literature shows that cancer patients are not the only ones to have benefitted from artistic activities; many other groups of patients, including neurological patients, depressive mothers and children, and children and adolescents who have been subjected to sexual abuse, have profited from these activities (26, 43, 44). Studies have shown that interventions with cancer patients are generally performed between 1 and 60 times (11, 12, 25, 27, 30). To cite some examples, in a study by Nainis et al. (2006), painting and art therapy activities with breast cancer patients were carried out in one session, in studies by Puig et al. (2016) and Koom et al. (2016), these activities were done 4 times, and in a study by Öster et al. (2006), they were performed 5 times. Some of the patients in this study participated in 8 painting activities, while others participated in 9 to 12 painting activities (37, 42, 45, 46). Painting activities carried out more than 9 times did not make a significant difference in hopelessness and fatigue ($p>0.05$) (Table 4). The results from this study shall shed light on similar studies to determine the number of applications.

4.1. Limitations of the Research

This study was conducted only on patients who underwent breast cancer operation surgery in a hospital. Therefore, the results cannot be generalized to all breast cancer surgery patients.

5. CONCLUSION

The study determined that hopelessness and fatigue levels decreased in patients who painted. Based on this result**,** it is recommended that nurses gain awareness of the positive effect of painting on hopelessness and fatigue and include painting in their practices. Additional studies should be conducted with different patient groups to further assess the effect of painting art on fatigue and hopelessness.

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