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RESEARCH ARTICLE / ARAŞTIRMA YAZISI

The Effects of Mandala on the Hope Levels of Women Diagnosed with Gynecologic Cancers: A Randomized-Controlled Study

Jinekolojik Kanserli Kadınlarda Mandala Aktivitesinin Umut Düzeyine Etkisi: Randomize Kontrollü Çalışma

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Abstract:

Gynecologic cancers, which are a highly stressful and negative experience that affects womanhood, fertility, and the sex life of a woman, also cause multiple negative effects on women's health. This study was conducted to determine the effects of mandala practice on the hope levels of women diagnosed with gynaecological cancers. This randomized controlled trial was conducted between March 1 and September 1, 2021, and involved 90 inpatients in the oncology department of a private hospital in western Turkey. The study included patients diagnosed with gynaecological cancer who could read and write Turkish and had a diagnosis period of at least three months. The data were collected using the Personal Information Form and the Herth Hope Index. In the analysis of the data, the t-test for independent groups was used for numbers, percentages, means, standard deviations, and comparisons between groups. There was no significant difference between the pretest Herth Hope Index (HHI) scores of the patients in the intervention and control groups ($p>0.05$). In contrast, the posttest scores of the intervention group were significantly higher than those of the control group. While the HHI scores of the intervention group significantly increased from the pretest to the posttest, the control group scores significantly decreased from the pretest to the posttest ($p<0.05$). In this study, mandala activity was found to be effective in increasing the hope levels of women diagnosed with gynecological cancers.

Keywords: Gynaecologic cancer, Mandala, Art therapy, Hope.

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Öz:

Kadının kadınlığını, doğurganlığını ve cinsel yaşamını etkileyen son derece stresli ve olumsuz bir deneyim olan jinekolojik kanserler, kadın sağlığı üzerinde de birden fazla olumsuz etkiye neden olmaktadır. Araştırma, mandala aktivitesinin jinekolojik kanserli kadınların umut düzeylerine etkisini belirlemek üzere yapılmıştır. Randomize kontrollü deneysel tipteki çalışma, Türkiye'nin batısında hizmet veren bir özel hastanenin onkoloji servisinde yatarak tedavi gören 45 girişim ve 45 kontrol hastası ile 1 Mart-1 Eylül 2021 tarihleri arasında gerçekleştirilmiştir. Araştırmaya, Türkçe okuma yazma bilen, en az 3 aylık bir tanı süresine sahip olan jinekolojik kanser tanısı almış hastalar dahil edilmiştir. Araştırma verileri, kişisel bilgi formu ve Hearth Umut İndeksi ile elde edilmiştir. Verilerin analizinde sayı, yüzde, ortalama, standart sapma ve gruplar arası karşılaştırmada bağımsız gruplarda t testi kullanılmıştır. Araştırma kapsamında yer alan, girişim ve kontrol grupları arasında Hearth Umut İndeksi bakımından ön testte istatistiksel olarak anlamlı farklılık bulunmamakta iken ($p>0,05$); son testte girişim grubunun Hearth Umut İndeksi düzeyleri kontrol grubundan anlamlı derecede daha fazladır. Girişim grubunda son testte Hearth Umut İndeksi düzeyleri ön teste göre anlamlı derecede artarken; kontrol grubunda son testte Hearth Umut İndeksi düzeyleri ön teste göre anlamlı derecede azalmıştır ($p<0,05$). Mandala aktivitesinin jinekolojik kanserli kadınların umut düzeyini artırmada etkili olduğu saptanmıştır. Kontrol grubunda umut düzeyini azaltan etmenlere yönelik çalışmaların yapılması önerilmektedir.

Anahtar Kelimeler: Jinekolojik kanser, Mandala, Sanat terapi, Umut.

Introduction

Cancer is a chronic disease with a high morbidity and mortality rate. The number of new cancer diagnoses worldwide was 19.3 million in 2020, and the number of cancer-related deaths was 10 million. While the increase in the incidence of cancer in Turkey is slow, it is still higher than the world average of 210.2 patients per hundred thousand. Among gynecological cancers, endometrial cancer ranks fifth in 5.6%, ovarian cancer ranks seventh in 3.3%, and cervical cancer ranks ninth in 2.3% of the 10 most frequently encountered cancers in women of all age groups in Turkey (Ergin, 2021).

Gynecologic cancers, which are a highly stressful and negative experience that affects the womanhood, fertility, and sex life of a woman, also cause multiple negative effects on women's health, including psychological distress, fatigue, sleep disorders, urinary/intestinal problems, lymphedema, menopausal symptoms, loss of fertility, and sexual problems. In the cancer treatment process, women may face questions regarding the concepts of life, death, and integrity. They may experience hopelessness due to reasons like changes in body image, the lack of social support, the inability to meet one's needs on time in the treatment process, negative experiences, negative beliefs about the disease, being deprived of many things due to the disease, the long duration of the treatment and limitation of social activities (Iżycki et al. 2016; Gözüyeşil et al. 2020; Rosa et al. 2020; Yaman and Ayaz 2016).

'*Hope*', which not only refers to having a dream or wanting something to happen but also is the ability to believe that there is a way out of difficulties and deal with reality, is a significant factor in life that helps the individual effectively cope with negativities caused by cancers such as pain, loss and uncertainty. Hope is a significant concept in developing a positive perspective, supporting well-being, improving physical and mental well-being, and increasing quality of life. During the long and exhausting treatment process for cancer, patients start a big fight to find meaning in life and maintain hope (Uslu Sahan et al. 2019; Lopez et al. 2019).

A mandala, which is a practice involving divergence to infinity with different numbers of circles that starts to be drawn from the central point and expands towards the outside and shapes and colours included in the circles, is an art therapy option in which individuals transfer the colours and shapes of their contemplation to paper, which is usually performed in the presence of classical and instrumental music (Malchiodi, 2013; Jung, 2017). Some studies have shown that the practice of the mandala is effective in reducing stress (Henderson, 2012), achieving concentration and psychological relaxation, reducing negative mood and anxiety (Babouchkina and Robbins, 2015; Sandmire et al., 2016), and increasing the hope levels of psychiatric patients (Kim, 2018).

Cancer, whose diagnosis and treatment process are complex and serious, can cause acute and chronic pain, social isolation, fear of stigmatisation, economic problems due to financial losses in the treatment process, psychological problems such as anxiety and depression due to the severe course of the disease, and problems arising from the treatment phase. Care is provided to improve patients' quality of life undergoing cancer treatment and solve problems that arise before and during treatment. Pharmacological methods and complementary medicine methods are used in this care (Erdoğan Yüce & Muz, 2020). Studies have examined the effectiveness of mandala activity in patients undergoing treatment for cancer. In a study in which painting was used in patients with breast cancer, it was found to reduce the fatigue and hopelessness levels of patients (Doğan & Özkan, 2022). In a study conducted in patients undergoing chemotherapy for gynaecological cancer, mandala application was found to reduce anxiety (Bell et al., 2022). In another mandala activity study conducted with breast cancer patients (Yakar et al., 2021) and breast cancer patients receiving early and first-time chemotherapy, mandala activity was found to reduce anxiety (Akbulak & Can, 2023).

For women diagnosed with gynaecologic cancer, the formation or strengthening of hope is crucial in the alleviation of the negative effects of the disease on their lives. In this sense, the mandala, seen as an effective meditation, may be a significant practice in developing and strengthening hope. The literature review in this study did not reveal any previous studies that investigated the effects of the practice of mandala on hope levels in gynaecologic cancer patients. It is believed that the results obtained in this study will contribute to the literature and that the

practice of mandala could be included in the treatment processes of women diagnosed with gynaecologic cancers.

In the literature, studies conducted with mandala activity have focused on pain, anxiety, stress, fatigue, and comfort. Since no studies have examined the effect of mandala activity on the hope levels of gynaecological oncology patients, it is thought that the results obtained from this study will contribute to the literature.

The purpose of this study was to determine the effects of the practice of mandala on the hope levels of women diagnosed with gynaecological cancers.

Hypotheses

H_0: There will be no significant difference in the hope levels of women in the intervention group and those in the control group after participating in the mandala activity.

H_1: Mandala activity increases women's hope levels in the intervention group.

Methods

Design

This was a prospective, randomised, single-blind clinical study.

Population and Sample

The study was conducted between March 1 and September 1, 2021, with the participation of women diagnosed with gynaecological cancers receiving treatment as inpatients at the oncology service of a private hospital located in western Turkey. Power analysis was performed using the G*Power package software, and the effect size was found to be 0.89. The power of the study, which was completed with 45 participants in the intervention group and 45 participants in the control group, was determined to be 97.4%, with an effect size of 0.89 and a significance level of 0.05.

To match the number of participants in the groups so that factors other than the studied characteristic would be homogeneously distributed and unbiased, the patients were allocated to the intervention and control groups by simple random sampling. The closed envelope method was used; 90 white and opaque envelopes were presented to each patient who agreed to participate in the study, and the patient was asked to select one. Forty-five closed envelopes included cards on which the number '1' was written, while the other 45 included cards on which the number '2' was written. The researcher opened the envelope selected by the patients to reveal their allocation (1: intervention, 2: control), and the patients were allocated to a group accordingly. The patients were randomly assigned to the intervention group (intervention group, n=45) or the routine nursing care group (control group, n=45). Subsequently, the individuals in each group were numbered from 1 to 45.

Inclusion criteria

Being literate in Turkish and able to understand Turkish

Having a diagnosis duration of at least 3 months

Having been diagnosed with a gynecologic cancer

Exclusion criteria

Having a medical device (e.g., an IV catheter) or a physical symptom (e.g., visual impairments, diseases like Parkinson's) could pose an obstacle to mandala drawing.

Being a terminal-stage patient.

Data Collection

Implementation of the Mandala Activity in the Intervention Group

After the women who were included in the study were informed clearly about the objectives and procedures of the study, they were asked to read the consent form and sign it if they agreed. Before the mandala activity, the patients were given a personal information form that included questions on their sociodemographic information and the Herth Hope Index, and they were asked to answer the questions and respond to the items. As in the case of previous studies, to prevent confusion and make the mandala drawing process easier, a few videos describing what a mandala is were shown to the patients, and information was provided. Next, each patient was given a set of felt-tip pens (in 24 different colors) and ready-to-use mandala papers, and they were asked to complete the mandala activity. The patients were given empty mandala books with enough pages for them to draw mandalas every day, they were asked to perform the mandala activity regularly in a time interval of their own choice every day, and whether they performed the activity was checked daily without them noticing (so that they would not have the feeling of being checked on or inspected). As it was stated in the literature that drawing mandalas for longer than a week may reduce the interest of the participants (Altay et al. 2017), the Herth Hope Index was applied again among the patients in the intervention group one week after the first implementation.

Implementation in the Control Group

The Herth Hope Index was applied among the patients in the control group at the first encounter (pretest) and one week after the first encounter (posttest). All routine care practices were the same for both the intervention and control groups. The primary difference in the case of the control group was that the mandala activity was not implemented in this group. The patients in the control group continued to receive routine nursing care for a week. After the study's implementation and data collection phases were completed, the patients in the control group also had the option to practice the mandala activity if they wished to do so.

Data collection method

The data were collected using the Personal Information Form and the Herth Hope Index. Herth Hope Scale (HHS) was developed by Kaye Herth, who determined Cronbach/coefficient as 0.89 for people with cancer, 0.94 for older people, and 0.92 for healthy people in his confidence analysis performed on people applying the scale. Confidence and validity analysis of the Turkish adaptation of HHS were made by Aslan, Sekmen, Kömürcü, and Özet (2007). The scale consisted of 30 items. Each item is rated on the four-point Likert scale: "never applies to me," "rarely applies to me," "sometimes applies to me," and "always applies to me," scored as 0, 1, 2, and 3, respectively. Participants were asked to select one choice for each item. Items containing negative expressions are 6, 10, 13, 17, 22, and 26, of which the scores are reversed in the calculation. The scale's total score is calculated by summing the points of all subscales, and the scores of subscales are computed by summing the points of answers to items of each subscale. The total hope score changes between 0 and 90. The higher scores indicate a higher level of hope. Cronbach's coefficient of the scale was determined to be 0.84 (Aslan et al., 2007). In

this study, Cronbach's coefficient of the scale was found to be 0.89.

Ethical Considerations

Before the data collection process, ethical approval for the study was obtained from the Ethics Committee of Istanbul Okan University in Turkey (Date: January 11, 2021, No: 131/12), and permission to perform the study was received from a private hospital located in western Turkey (Date: February 24, 2021, No: 21/141). After being given information about the study, women who met the inclusion criteria and volunteered to participate signed and submitted the "Informed Consent Form".

Results

Table 1: *Demographic characteristics of the patients*

Variables	Intervention (n=45)		Control (n=45)		t	p
	X	**SD**	**X**	**SD**		
Age	47.62	9.51	47.73	12.24	-0.048	0.962
Duration of hospital stay (Days)	7.29	3.84	6.53	3.53	0.972	0.962
	Freq.	**Perc.**	**Freq.**	**Perc.**	χ^2	**p**
Education Level						
Primary-Secondary School	14	31.1	15	33.3	0.450	0.798
High School	13	28.9	15	33.3		
University or Higher	18	40.0	15	33.3		
Marital Status						
Married	40	88.9	43	95.6	1.394	0.238
Single	5	11.1	2	4.4		
Has Children						
Yes	36	80.0	38	84.4	0.304	0.581
No	9	20.0	7	15.6		
Diagnosis						
Ovarian cancer	11	24.4	10	22.2	0.194	0.908
Endometrial cancer	18	40.0	17	37.8		
Cervical cancer	16	35.6	18	40.0		
Duration of Diagnosis						
3-6 Months	7	15.6	4	8.9		
7-12 Months	9	20.0	5	11.1	3.982	0.263
3-18 Months	6	13.3	12	26.7		
19 Months or Higher	23	51.1	24	53.3		
Stage						
Does not know	2	4.4	0	0.0		
Stage 1	3	6.7	2	4.4	2.242	0.585
Stage 2	6	13.3	5	11.1		
Stage 3	34	75.6	38	84.4		
Status of Receiving Chemotherapy Treatment						
Receiving	42	93.3	41	91.1	0.000	1.000
Not receiving	3	6.7	4	8.9		

t: Independent-Samples t-Test X: Mean SD: Standard Deviation

As seen in Table 1, while the mean age of the intervention group was 47.62±9.51 years, the mean age of the control group was 47.73±12.24 years. The mean duration of hospital stay in the intervention group was 7.29±3.84 days,

and the mean duration of hospital stay in the control group was 6.53±3.53 days. The rates of those with an education level of university or higher were 40% in the intervention group and 33.3% in the control group. The married patients comprised 88.9% of the intervention group and 95.6% of the control group. Eighty percent of the intervention group and 84.4% of the control group had children. The rates of the diagnosis of endometrial cancer were 40% in the intervention group and 37.8% in the control group. The diagnosis durations of 51.1% in the intervention group and 53.3% in the control group were 19 months or longer. The stage of the disease among 75.6% in the intervention group and 84.4% in the control group was stage 3. The rates of those receiving chemotherapy treatment were 93.3% in the intervention group and 91.1% in the control group.

There was no statistically significant difference between the patients in the intervention and control groups regarding their age, duration of hospital stays, education level, marital status, status of having children, type of diagnosis, duration of diagnosis, disease stage, or status of receiving chemotherapy treatment (p>0.05). These results showed that the groups were homogeneously distributed.

Table 2: *Comparison of pretest and posttest Herth Hope levels of experimental and control groups*

	Intervention (n=45)		**Control (n=45)**		**t**	**p**
	X	**SD**	**X**	**SD**		
Herth Hope - Pretest	68.40	6.19	69.24	5.99	-0.658	0.512
Herth Hope - Posttest	71.22	4.86	66.16	6.41	4.223	**<0.001***
t; p	-6.907;**<0.001***		3.910;**<0.001***			

*t: Independent-Samples t-Test (Intragroup pretest-posttest differences) *: p<0.05*

While the mean pretest Herth Hope Index score of the intervention group was 68.40±6.19, the mean posttest score of the group increased to 71.22±4.86. The mean pretest and posttest Herth Hope Index scores of the control group were determined respectively as 69.24±5.99 and 66.16±6.41. There was no significant difference between the pretest Herth Hope Index scores of the intervention and control groups (p>0.05). In contrast, the posttest mean score of the intervention group was significantly higher than that of the control group. The mean Herth Hope Index score of the intervention group increased significantly from the pretest to the posttest (p<0.01). On the other hand, the mean Herth Hope Index score of the control group decreased significantly from the pretest to the posttest (p<0.01) (Table 2).

Discussion

Hope is an important factor that increases an individual's inner motivation and prevents feelings like pessimism and hopelessness in sickness. Patients with higher hope levels display more efficient coping skills, cope with the disease more easily, regularly fulfill their daily life activities, enjoy life more, and become more productive (Ehsani et al., 2009; Özen et al., 2020).

In this study, conducted to determine the effects of the practice of mandala on the hope levels of women diagnosed with gynecologic cancers, the mean pretest Herth Hope Index score of the intervention group was found to be 68.40±6.19, while the mean posttest score of the group was 71.22±4.86. The mean pretest and posttest Herth Hope Index scores of the control group were determined as 69.24±5.99 and 66.16±6.41, respectively (Table 2). These results showed that the hope levels of the intervention group increased, but those in the control group decreased. The increased levels of hope in the intervention group may have been caused by concentration and psychological relaxation provided by the mandala activity and a reduction in negative mood and anxiety levels as a result of the activity. It was considered that, as the patients in the control group that received routine nursing care did not take part in a psychologically distracting activity, their hope levels may have decreased due to psychosocial affectivities brought about by the treatment process. Nevertheless, the hope levels of the patients in both groups were found to be high in general. Turkish society has a more fatalist approach to the events, in other words, a more subservient approach because of their religious belief. According to the religious belief of Turks, 'everything comes from Allah and one should never give up hope of Allah's mercy' (Nural et al. 2019; Kavradım et al, 2013). This belief could be a reason for the high scores of hope found in this study. In the studies implemented by Aslan et al. (2007), Kavradım et al. (2013), Nural et al. (2019), Özen et al. (2020), Çelik et al. (2021), and Sabancıoğulları and Taşkın Yılmaz (2021) on people with cancer, patients were found to be highly hopeful. A systematic review of 11 studies by Zhang et al. (2024) found evidence that mandala activity can improve negative symptoms and hope in patients, relieve pain, and reduce some physiological stress indicators.

No significant difference was identified between the mean pretest Herth Hope Index scores of the intervention and control groups (p>0.05). In contrast, the posttest score of the intervention group was significantly higher than that of the control group. It was observed that the hope levels in the intervention group increased significantly based on their pretest and posttest Herth Hope Index scores (p<0.01). This result demonstrated that the mandala activity was effective in improving the hope levels of the patients. Studies have suggested that art therapy leads to increased awareness of self and improved ability to cope with symptoms, stress, and traumatic experiences. Tang et al. (2019) reported that art therapy benefited female breast cancer patients with respect to relieving anxiety and depression (Tang et al., 2019). Wood et al. (2011) found a positive effect of art therapy on psychological symptoms in adults with cancer (Wood et al., 2011). A review by Geue et al. (2010) demonstrated that art therapy benefits cancer patients in various ways, including improvements in their mental health (Geue et al., 2010). Lee et al. (2017) found that art therapy based on famous painting appreciation and creative artwork significantly improved cancer-related anxiety and depression. Hammer et al. (2013) indicated that drawing and later interviews might be a tool in understanding the hope of newly diagnosed gynecologic oncological patients. This research showed

that art therapy benefited gynecologic cancer patients concerning psychological outcomes, such as anxiety, depression, and cancer-related concerns. In addition, there was evidence suggesting that art therapy was helpful in improving subjective overall health conditions (Elimimian et al., 2020). The other studies reporting the benefit of art therapy in cancer (Cohen et al., 2019), on emotions in women with breast cancer (Prioli et al., 2017), and as a form of mindfulness that can reduce the amount of stress, anxiety, and depression among patients with breast cancer (Monti et al., 2012; Monti et al., 2013). Art therapy has been noted to provide patients with cancer the opportunity for self-development and optimistic reflection on life (Kirshbaum et al., 2017), and as a means to relax, develop a self-narrative, or visually express and elaborate on complex emotions (Forzoni et al., 2010). Mengqin et al. (2024) found that mandala activity was not effective at the level of hope in patients with gynaecological cancer in the perioperative period. The high anxiety of the patients due to uncertainties in the preoperative period may have affected their level of hope. In this process, the mandala activity may not have been effective in increasing the patients' hope levels.

Conclusion

As a result of this study, it was concluded that the practice of mandala is effective in increasing hope levels among gynecologic cancer patients. Art therapy could be used to improve mood and hope among all patients with cancer. The implementation of art therapy is a cost-effective and culturally appropriate measure for all cancer patients. Since art-making is universal, this form of treatment may also help overcome language and cultural barriers between patients and their therapeutic care providers. It may facilitate optimal healing of the patient's mind and body.

Discovering simple, effective, and therapeutic interventions to aid in distress relief for cancer patients is crucial for ensuring the clinical efficacy of treatment and improving their hope levels. The nursing interventions aim to help patients cope with illness and its suffering and find the meaning of life in this specific situation. Nurses' behaviors have an important role in inspiring and provoking hope in different ways. The most important roles of nurses include active listening, providing emotional support to patients, demonstrating caring behaviors, imparting knowledge and information about therapeutic options and recovery, promoting awareness of life, identifying the cause of illness, providing comfort, and helping patients set realistic goals. Additionally, nurses can facilitate the rehabilitation process and assist patients in adapting to the disease and its progression.

Strengths and Limitations

Although there are studies in the literature that have examined variables such as stress, depression, and hopelessness in gynecologic cancer patients, studies examining the effects of interventions on the hope levels of gynecologic cancer patients are limited. Additionally, as no study on this topic was found in the Turkish literature, it is believed that the findings of this study will inform future research. The findings of the study were based on the self-reports of the patients who were included.

Declarations

Ethics Approval and Consent to Participate

Approval was received from the Ethics Committee of Istanbul Okan University of Turkey (Decision No:131/12, Date: 13.01.2021).

Publication Permission

Not applicable.

Availability of Data and Materials

Not applicable.

Conflict of Interest

The authors declare that they have no conflict of interest.

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Author Contributions

KDB contributed to the conceptualization, writing of the method, data collection, analysis, interpretation of data, editing, and proofreading of the article. NAD contributed to the conceptualization of the research, data analysis, translations, editing, and proofreading of the article. Both authors have read and approved the final version of the article.

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