



RESEARCH ARTICLE / ARAŞTIRMA YAZISI

# The Effects of Laughter Yoga on the Psychological Well-Being of Women Diagnosed with Gynecologic Cancer

## Jinekolojik Kanserli Kadınlarda Uygulanan Kahkaha Yogasının Psikolojik İyi Oluşa Etkisi

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### Abstract:

This study was designed as a randomized controlled trial to identify the effects of laughter yoga on the psychological well-being of women diagnosed with gynecologic cancer. The study was conducted with 70 patients (35 patients in the intervention group and 35 patients in the control group) receiving treatment at the oncology service of a research and training hospital in western Turkey from 1 October 2021 to 1 April 2022. The data were collected with a Demographic Information Form and the Psychological Well-Being Scale. It was found that the intervention and control groups had similar mean pretest Psychological Well-Being Scale scores, whereas the mean posttest score of the control group was significantly lower than its mean pretest score ( $p<0.05$ ), and the mean posttest score of the intervention group was significantly higher than its mean pretest score ( $p<0.05$ ). In light of the results of the study, it is recommended that laughter yoga be generally integrated into nursing care and practiced to enhance the psychological well-being of oncology patients. It is also recommended that settings be created for nurses with laughter yoga certification at oncology outpatient clinics in hospitals and early diagnosis, screening, and training centers providing care to cancer patients.

**Keywords:** Laughter Yoga, gynecologic cancer, psychological well-being.

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**Öz:**

Bu araştırma, jinekolojik kanser tanısı alan kadınlarda kahkaha yogasının psikolojik iyi oluşa etkisini belirlemek amacıyla randomize kontrollü olarak tasarlanmıştır. Araştırma, 1 Ekim 2021-1 Nisan 2022 tarihleri arasında Türkiye'nin batısında bir eğitim araştırma hastanesinin onkoloji servisinde tedavi gören 35 müdahale ve 35 kontrol olmak üzere 70 hasta ile gerçekleştirilmiştir. Araştırma verileri, tanıtıcı soru formu ve Psikolojik İyi Oluş Ölçeği ile elde edilmiştir. Araştırmada müdahale ve kontrol grupları arası ölçümler değerlendirildiğinde; müdahale ve kontrol gruplarının ön teste Psikolojik İyi Oluş Ölçeği puan ortalamasının benzer olduğu; kontrol grubundaki hastaların son test Psikolojik İyi Oluş Ölçeği puanlarının ön teste göre anlamlı şekilde azaldığı ( $p<0,05$ ), müdahale grubundaki hastaların ise son test Psikolojik İyi Oluş Ölçeği puanlarının ön teste göre anlamlı şekilde arttığı tespit edilmiştir ( $p>0,05$ ). Hastaların ön test Psikolojik İyi Oluş Ölçeği puanları bakımından istatistiksel olarak anlamlı farklılık bulunmamakta iken, son test Psikolojik İyi Oluş Ölçeği puanları bakımından anlamlı bir farklılık bulunmaktadır ( $p<0,001$ ). Araştırma sonucunda, kahkaha yogasının genel olarak hemşirelik bakımına entegre edilmesi ve onkoloji hastalarının psikolojik iyi oluşlarının artırılması amacıyla uygulanması önerilmektedir. Kahkaha yogası sertifikası alan hemşireler için, hastanelerde onkoloji polikliniklerinde ve kanser erken tanı ve tarama merkezlerinde alanlar oluşturulması önerilmektedir.

**Anahtar Kelimeler:** Kahkaha yogası, jinekolojik kanser, psikolojik iyi oluş.

**Introduction**

Being diagnosed with gynecologic cancers and the therapies administered to treat gynecologic cancers cause women to face several physiological and psychological problems such as depression, exhaustion, pain, and hair loss. Individuals diagnosed with cancer may experience intense physical and emotional problems due to side effects of treatments such as chemotherapy and radiotherapy, as well as symptoms related to the disease itself (Meriç & Kaya, 2018).

The most common reaction observed in an individual diagnosed with cancer is anger, and in this regard, individuals who feel anger initially toward the disease can channel this anger later toward health workers and their relatives. Another common reaction is the feeling of guilt, and in this respect, individuals start to question what sort of mistakes they made in the past and may see the disease as a punishment. With an awareness of the psychological reactions of patients in every phase of cancer, both care and treatment should be provided to patients, and support should be given to patients in the context of strategies to enhance their quality of life and ability to cope with the disease (Eker & Arslan, 2017).

As a natural part of our lives, laughter is a natural, sincere, inborn, and universal reaction expressed as a response to a humorous stimulant. Laughter and yoga combined with breathing techniques are used today as "Laughter Yoga" in the field of complementary medicine. There is a natural two-way connection between the body and the mind. Whatever happens in the mind also takes place in the body. It is seen that individuals who are sad and depressed also have depressed bodies (Öztürk & Tezel, 2021). Numerous studies were conducted to analyze the effects of laughter yoga on health. The practice of laughter yoga by breast cancer survivors was reported to be a non-pharmacological method effective in enhancing the quality of life of these individuals and boosting their resilience (Cho & Oh, 2011). In a study conducted with women diagnosed with breast cancer, to analyze the effects of laughter yoga and laughing on depression, anxiety, and stress, a research design was planned in four sessions, each of which lasted sixty

minutes, and it was concluded that as of the first session, laughter yoga was a complementary and alternative therapy effective in alleviating the depression, anxiety, and stress of women diagnosed with breast cancer (Kim, Kim & Kim, 2015).

This study was conducted to identify the effects of laughter yoga on the psychological well-being of women diagnosed with gynecologic cancers. The hypothesis was as follows: Laughter yoga improves the psychological well-being of women diagnosed with gynecologic cancers.

**Methods****Study Design and Participants**

This study was conducted as a randomized controlled trial to identify the effects of laughter yoga on the psychological well-being of women diagnosed with gynecologic cancers. The study was carried out between 1 October 2021 and 1 April 2022 with the participation of patients receiving treatment at the oncology service of a research and training hospital in a province in western Turkey.

The population of the study included women receiving treatment for gynecologic cancers at the oncology service of the aforementioned hospital during the data collection period. The sample comprised women in this population who met the inclusion criteria of the study and agreed to participate in the study. A power analysis was conducted with the G\*Power software. In the power analysis, the effect size was calculated as 2.239. In this regard, the statistical power of the study that was carried out with 70 participants (35 in the control group and 35 in the intervention group) was found as 99.9% with an effect size of 2.239 at a statistical significance level of 0.05.

**Randomization**

The simple random sampling method was used in the selection of participants. Randomization was performed so that both the intervention and control groups would have an equal sample size, and the factors other than the one analyzed in the study would be distributed in an as homogeneous and neutralized manner as possible.

### **Inclusion criteria**

Women who volunteered to participate in the study who could read, write, speak, and understand Turkish, were diagnosed with gynecologic cancers, were in Phase II or Phase III according to gynecologic cancer phasing processes, and had internet connection were included in the sample of the study.

### **Exclusion criteria**

Patients who were in the terminal phase, had a diagnosed psychiatric disease, were using psychiatric medications, or had other physical diseases were excluded from the study.

### **Intervention Group**

The Psychological Well-Being Scale was administered to the participants in the intervention group as the pretest. As recommended in previous studies, what laughter yoga is about was once again explained to the participants to avoid any confusion and facilitate the practice of laughter yoga. Based on the timetable created in coordination with the participants in the intervention group in the first meeting, laughter yoga was scheduled to be held for five minutes twice per week for six weeks. Laughter yoga was practiced in a total of twelve sessions. In compliance with the COVID-19 measures, the laughter yoga sessions were held via Zoom. At the end of six weeks, PWBS was once again administered to the participants as the posttest. Each session of laughter yoga, as well as the exercises to be used in each laughter yoga session, was detailed with explanations. To ensure that the intervention group would not get bored with laughter yoga exercises, different exercises were introduced in between laughter yoga sessions.

### **Control Group**

PWBS was administered to the participants in the control group in the first meeting (pretest phase) and then at the end of 12 laughter yoga sessions held solely with the intervention group (posttest phase). Both the intervention group and the control group had the same care practices. However, unlike the intervention group, the control group did not practice laughter yoga, rather, the participants in the control group solely had routine nursing care. After the data of the intervention group were completed, and the posttests of both groups were applied, laughter yoga was also practiced with the participants in the control group.

### **Measurements**

The data were collected with a Demographic Information Form and the Psychological Well-Being Scale (PWBS).

### **Demographic Information Form**

The form contained parametric questions designed to find out each participant's age, education status, marital status, number of children, diagnosed disease, disease duration, disease phase, status of having chemotherapy, and duration of hospitalization.

### **Psychological Well-Being Scale (PWBS)**

PWBS is an eight-item measurement tool developed by Diener et al. to identify important components of human functioning such as positive relationships, the feeling of

self-efficacy, and the ability to sustain a meaningful and purposeful life. PWBS was adapted to Turkish by Telef (2013). The Turkish form of PWBS is a seven-point Likert-type scale (1: Strongly Disagree, 7: Strongly Agree). All PWBS items are positively worded. The minimum and maximum scores to be obtained from PWBS are 8 and 56. A high PWBS score indicates that the respondent has abundant psychological resources and strengths. Cronbach's alpha coefficient of the scale as a measure of its internal consistency was found as 0.697 in the pretest and 0.866 in the posttest results reported by Telef (2013).

### **Data collection**

Before the data collection process, the researcher attended a Laughter Yoga Leadership Training program. Women receiving treatment at the gynecologic oncology service were evaluated for eligibility based on the inclusion criteria, and those who failed to satisfy the inclusion criteria were excluded from the study. By using the face-to-face interview technique, the researcher collected the data from women who agreed to participate in the study. The interview with each participant lasted about twenty minutes on average.

### **Data Analysis**

The data were analyzed with the Statistical Package for the Social Sciences (SPSS) 26.0. Descriptive statistics are presented as frequencies and percentages for the categorical variables and mean and standard deviation values for the numeric variables. It was discerned that the numeric variables were normally distributed. The relationships between two categorical variables were interpreted with the chi-squared test. Differences between two dependent groups of numeric variables were analyzed with the paired-samples t-test, while the differences between two independent groups were evaluated with the independent-samples t-test.

### **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: 11 August 2021, No: 140/21), and permission to perform the study was received from the İzmir Provincial Directorate of Health, Turkey (Date: 4 October 2021, No: E-42056799-619). After being given information about the study, women who met the inclusion criteria and volunteered to participate in the study signed and submitted the "Informed Consent Form". During the research process, the Clinical Trial number (NCT05843058) was obtained by applying for a clinical trial number on ClinicalTrials.gov.

### **Results**

Table 1 shows the results of the comparison of the sociodemographic and disease-related characteristics of the participants. According to the results of the independent samples t-test, it was discerned that control and intervention groups were similar in terms of sociodemographic and disease-related characteristics, and in this regard, there was no statistically significant difference between the two study groups ( $p>0.05$ ).

**Table 1:** Sociodemographic and disease-related characteristics of the participants

	Control group (n=35)		Intervention group (n=35)		Total (n=70)		t	p
	Mean	SD	Mean	SD	Mean	SD		
<b>Age</b>	52.37	6.941	54.97	5.501	53.67	7.249	2.943	0.258
	Number	Percent age	Number	Percent age	Number	Percent age	Chi- squared	p
<b>Education status</b>								
Elementary school graduate	19	54.3	15	42.9	34	48.6		
Middle school graduate	2	5.7	7	20.0	9	12.9	5.523	0.137
High school graduate	10	28.6	12	34.3	22	31.4		
University graduate	4	11.4	1	2.8	5	7.1		
<b>Marital status</b>								
Married	29	82.9	22	62.9	51	72.9	3.540	0.060
Single	6	17.1	13	37.1	19	27.1		
<b>Has children</b>								
Yes	31	88.6	30	85.7	61	87.1	0.128	0.721
No	4	11.4	5	14.3	9	12.9		
<b>Diagnosis</b>								
Ovarian cancer	4	11.4	9	25.7	13	18.6		
Endometrial cancer	5	14.3	4	11.4	19	27.1	3.322	0.400
Cervical cancer	24	68.6	22	62.9	36	51.4		
Vulvar/vaginal cancer	2	5.7	-	0.0	2	2.9		
<b>Diagnosis duration</b>								
2-6 months	3	8.6	5	14.3	18	25.7		
7-12 months	12	34.3	12	34.3	14	20.0	2.704	0.110
13-18 months	3	8.6	1	2.9	4	5.7		
19 months or above	17	48.5	17	48.5	34	48.6		
<b>Disease phase</b>								
Stage 2	25	71.4	23	65.7	48	68.6	0.265	0.607
Stage 3	10	28.6	12	34.3	22	31.4		
<b>Underwent chemotherapy</b>								
Yes	17	48.5	24	68.6	41	58.6	2.885	0.089
No	18	51.5	11	31.4	29	41.4		
<b>Stayed at the hospital</b>								
Yes	30	85.7	26	74.3	56	80.0	1.429	0.232
No	5	14.3	9	25.7	14	20.0		
<b>Duration of stay at the hospital</b>								
1 week or less	20	66.7	23	88.5	43	76.8	3.712	0.054
More than 1 week	10	33.3	3	11.5	13	23.2		

SD: Standard Deviation, t: independent-samples t-test

There was no statistically significant difference between the mean pretest PWBS scores of control and intervention groups ( $p>0.05$ ), whereas there was a statistically significant difference between mean posttest PWBS scores of the groups ( $p<0.001$ ).

A statistically significant difference was found between the mean pretest and posttest PWBS scores of the control

group, and the mean posttest score of the control group was significantly lower its mean pretest PWBS score (Table 2) ( $p<0.05$ ). A statistically significant difference was identified between the mean pretest and posttest PWBS scores of the intervention group, where, the mean posttest score of the intervention group was significantly higher than its mean pretest score (Table 2) ( $p<0.05$ ).

**Table 2:** Intragroup and intergroup comparisons of the pretest and posttest PWBS scores of the participants

PWBS	Control group (n=35)		Intervention group (n=35)		t <sup>a</sup>	p
	Mean	SD	Mean	SD		
Pretest	41.80	6.333	41.89	4.831	-0.064	0.949
Posttest	41.03	5.818	50.97	2.358	-9.370	<b>0.000**</b>
t <sup>b</sup>	2.714		-14.177			
p	<b>0.010*</b>		<b>0.000**</b>			

t<sup>a</sup>: Independent-samples t-test (intergroup differences) t<sup>b</sup>: Paired-samples t-test (intragroup differences between pretest and posttest measurements) SD: Standard deviation \*\*: p<0.001 \*: p<0.05

## Discussion

In this study, which was conducted to analyze the effects of laughter yoga on the psychological well-being of women diagnosed with gynecologic cancers, the posttest scores of participants in the control group were found to be lower than their pretest scores, while the posttest scores of the intervention group were higher than their pretest scores (Table 2). Although no studies in the literature were found to address psychological well-being in women with gynecological cancers in particular, there are studies addressing psychological resilience in women with cancer. It is known that psychological resilience affects psychological well-being. Therefore, studies on psychological resilience are used here to discuss them along with the findings of this study. In the study performed by Atalay (2018) to analyze feelings of resilience and well-being in individuals diagnosed with cancer, the mean Resilience Scale and PWBS scores of the participants were compared. In their comparisons, the authors reported a mean PWBS score of 47.83±7.32. Accordingly, the participants of the study carried out by Atalay (2018) had high levels of resilience and psychological well-being, and as their resilience levels increased, their psychological well-being levels also increased. In the study conducted by Özdemir (2019) to examine the effects of chemotherapy on the self-esteem and psychological well-being of individuals diagnosed with breast cancer, the psychological well-being scores of the participants were 71.93±7.26 in the chemotherapy group, 70.60±7.26 in the radiotherapy group, and 69.44±7.61 in the healthy control group. Along with these results, a statistically significant relationship was identified between the self-esteem and psychological well-being levels of these three study groups.

There was no statistically significant difference between the mean PWBS scores of the control and intervention groups before the laughter yoga practice in this study (p>0.05). On the other hand, after the laughter yoga practice, the mean PWBS score of the participants in the intervention group was significantly higher than that of those in the control group (Table 2). According to these results, while it is seen that laughter yoga had a positive effect on psychological well-being, it is thought that unforeseen variables such as the course of the disease and social support received from the family in the control group may have also been effective in the results of the study. Throughout the six-week process (12 sessions) during which laughter yoga was practiced, a setting where the participants could socialize and exchange information, and negative and positive emotions could be freely shared was created, and the patients felt secure and realized that they were not alone. Besides, as the release of endorphins, dopamine, oxytocin, serotonin, and melatonin is stimulated by the practice of laughter yoga, the pain felt by

the individual decreases, happiness increases, and the onset of sleep is accelerated (Doğan, 2020). As a consequence, it is considered that the individual feels relaxed both physically and psychosocially along with the fall in the level of their stress hormones and the increase in their sleep quality. Laughter yoga is a unique form of exercise that enables us to burst into laughter for no reason without any sense of humor in view and is created by the combination of laughter and yoga breathing techniques. In the relevant literature, there is a limited number of studies analyzing the effects of laughter yoga on the psychological well-being of women, whereas in the study conducted by Cho and Oh (2011) on the effects of laughter yoga on survivors of breast cancer and in the study performed by Kim et al. (2015) on the effects of laughter yoga on women diagnosed with breast cancer, it was found that as of the first session, laughter yoga was effective in reducing depression, anxiety, and stress in these individuals. It was stated that laughter yoga was a complementary and alternative therapy (Kim et al., 2015). In the relevant literature, there are studies where laughter yoga was administered to different samples. In a study in which laughter yoga was practiced for one month by volunteer public care workers dealing with families affected by HIV, it was concluded that care workers experienced positive feelings such as joy, happiness, relaxation, and hope (Hatzipapas et al., 2017). In a study performed with old individuals living in nursing homes, it was discerned that the depressive symptoms of the group that practiced laughter yoga decreased, and their quality of life increased (Heidari et al., 2020). Furthermore, Park (2013) aimed to test the effects of laughter yoga on old individuals who were depressive and had sleep disorders, and at the end of eight weeks of laughter yoga practice, laughter yoga was determined to be effective in alleviating depression and insomnia. Again, in a study conducted with individuals aged 60 years and over, it was concluded that six weeks of laughter yoga reduced the anxiety levels of the participants (Ghodsbin et al., 2015). In the study performed by Zhao et al. (2019) with adults, it was found that long-term laughter interventions were effective in reducing depression levels. A variety of studies were performed to test the effects of laughter yoga on postpartum women (Skiin, Ryu & Song., 2011), patients undergoing hemodialysis (Bennett et al., 2020), patients diagnosed with Parkinson's disease (Memarian et al., 2017), and patients undergoing chemotherapy (Nia et al., 2019; Farifte et al., 2014). In the meta-analysis conducted by Doğan (2020) to explore the effects of laughter yoga on anxiety, it was found that the use of laughter yoga was a method effective in alleviating anxiety in patients.

Moreover, there was a statistically significant difference between the mean pretest and posttest PWBS scores of the control group, and the mean posttest score of the group was significantly lower than its mean pretest score (p<0.05). It is considered that the symptoms of cancer and

the side effects of chemotherapy during the six-week period (12 sessions) after the first meeting with patients, such as pain, nausea-vomiting, loss of appetite, weakness, fatigue, and worry, made patients feel physically unwell and accordingly led to a fall in their quality of life. It is thought that the self-esteem of patients decreases as patients have no activity to draw their attention to another direction during the disease process, and they even do not want to do or have difficulty in doing the things that they used to do in their daily lives. It is considered that the participants of this study felt hopeless due to their dependency on other individuals during the treatment process, being unable to fulfill their responsibilities in the family, receiving inadequate psychological support from their families and social circles, being unable to foresee the future as a consequence of the uncertainty of the treatment process, and coming to terms with death. It is thought that these feelings of hopelessness, uncertainty, and helplessness gradually led to chronic anxiety in the participants and would negatively affect their treatment processes and adaptation to the disease. The patients in the intervention group may have experienced adverse effects related to chemotherapy during this process, but laughter yoga may have made them feel better during this process. In the study performed by Ndeti et al. (2018) to analyze the psychological well-being and social functions of cancer patients during cancer phases, it was discerned that an increase in the severity of cancer during the process experienced by individuals after being diagnosed with cancer damaged their personal psychological integrity. In a study conducted by Zimmermann et al. (2017), it was concluded that mindfulness-based interventions were beneficial to adults diagnosed with advanced cancer, improved their quality of life, made them accept their condition, and lowered their depression and anxiety levels. In a study that analyzed the effects of social website use on the psychological well-being of cancer patients, cancer patients who felt socially attached and supported and had opportunities to obtain information about treatment options and coping strategies had higher levels of psychological well-being (Erfan, et al., 2016).

Furthermore, there was a statistically significant difference between the mean pretest and posttest PWBS scores of the intervention group, and the mean posttest score of the group was significantly higher than its mean pretest score ( $p < 0.05$ ). It was observed that after practicing laughter yoga, the participants felt happy, developed a more positive emotional state instead of negative emotions such as tension, anxiety, and anger, had a vivid body language, their communication increased due to chatting with each other in meetings starting with the first laughter yoga session, and thus, they felt more self-confident. The majority of the participants practicing laughter yoga stated that they noticed that they did not use to burst into laughter very often before, and after the laughter yoga practice, they

laughed more frequently while doing their daily work, their viewpoints changed, and they became more social and active and had better communication skills than they used to before the practice.

At the end of the study, while the mean PWBS score of the control group that did not practice laughter yoga was significantly lower, the mean PWBS score of the intervention group that practiced laughter yoga was significantly higher. In summary, laughter yoga practiced by women diagnosed with gynecologic cancers had positive effects on their psychological well-being.

## Conclusion

In the study that was conducted to analyze the effects of laughter yoga on the psychological well-being of women diagnosed with gynecologic cancers, it was found that the psychological well-being of women in the control group decreased whereas the psychological well-being of women in the intervention group significantly increased. As a result of the research, it is recommended that spreading the use of laughter yoga as a nursing intervention by integrating it into nursing care. In addition, it is recommended that creating settings and making necessary arrangements in oncology (or gynecologic oncology) outpatient clinics and cancer early diagnosis centers for nurses, who hold laughter yoga certificates, to perform laughter yoga interventions.

## Declarations

### Ethics Approval and Consent to Participate

Approval was received from the Ethics Committee of Istanbul Okan University of Turkey (Decision No: 140/21, Date: 11.08.2021).

### Publication Permission

Not applicable.

### Availability of Data and Materials

Not applicable.

### Conflict of Interest

The authors declare that they have no conflict of interest.

### Financing

Not applicable.

### Author Contributions

ZKİ contributed to the conceptualization, writing of the method, data collection, analysis, and interpreted data.

KDB contributed to the conceptualization of the research, analysis of data, translations, editing, and proofreading of the article.

Both authors have read and approved the final version of the article.

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