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Research

Effect of Emotional Freedom Technique Applied to Patients Before Laparoscopic Cholecystectomy on Surgical Fear and Anxiety: A Randomized Controlled Trial

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A B S T R A C T

Purpose: No studies have investigated the effect of the Emotional Freedom Technique (EFT) on the surgical fears and anxieties of patients before laparoscopic cholecystectomy. This study aimed to determine the effect of EFT on patients' surgical fears and anxieties before laparoscopic cholecystectomy.
Design: The research was conducted using a pretest, post-test, and randomized controlled experimental research design.
Methods: A total of 112 patients (56 in the intervention group and 56 in the control group) were included in the study. While routine care and treatment practices were applied to the control group, EFT was applied to the intervention group. A Patient Information Form, an Anxiety Specific to Surgery Questionnaire, a Surgical Fear Questionnaire, and Subjective Units of Disturbance (SUD) were used to collect the research data.
Findings: There was no significant difference between the groups in terms of descriptive and clinical features ($P > .05$). The post-test score averages of EFT group in the Surgical Fear Questionnaire, Anxiety Specific to Surgery Questionnaire, and SUD were significantly lower than in the control group ($P < .001$). The EFT significantly reduced the SUD scores of the patients by 54.4% ($\eta^2 = 0.544$, $P < .001$).
Conclusions: EFT was found to be useful in clinical practice in the preoperative period, reducing surgery-specific anxiety and surgical fear. EFT can be recommended for application during the preoperative period in clinics.

Patients undergoing laparoscopic cholecystectomy surgery experience pain, fear of suffering, fear that their body will be damaged, fear of loss of function after surgical intervention, fear of being disabled after the procedure, fear of being dependent on someone after the procedure, and fear and anxiety about the surgical procedure and anesthesia.[1,2] This anxiety increases the stress response, inhibits the immune response and wound healing, and increases the incidence of postoperative complications.[3,4] It can also cause nausea, vomiting, fatigue, tachycardia, and respiratory system problems,[5] making it difficult for patients to participate in care after a surgical intervention and comply with treatment, prolonging the duration of hospital stays, and increasing the risk of rehospitalization after a period of time.[6] A previous study concluded that anxiety in the preoperative period caused complications such as delayed postoperative recovery and prolonged hospital stay.[7] In another study, it was stated that patients with increased anxiety levels in the preoperative period returned to their normal lives later in the postoperative period, had inadequate self-care, and prolonged hospital stay and recovery time.[8]

In laparoscopic surgery, nurses, who are members of the multidisciplinary team, identify the negative emotions of patients, including anxiety and fear in the preoperative period, and give guidance in line with evidence-based nursing practices and in cooperation with other care team members.[9,10] Today, complementary therapies—such as holistic health, alternative medicine, energy psychology, and energy psychotherapy—are used to support care and treatment.[11] Various complementary methods are used to reduce fear and anxiety. One of these is the Emotional Freedom Technique (EFT), which is a type of energy therapy.[12,13]

EFT has been the subject of scientific research, especially in the last 10 to 15 years.[10] EFT assumes that all emotional and physical ailments are caused by a disruption in the body's energy system.[14]

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EFT is a needleless version of techniques such as acupuncture and acupressure.[15] It is a new therapy combining both cognitive and somatic elements,[16] which aims to relax the individual by regulating the energy flow through stimulations of the meridian system (by tapping, touching, and massaging) while the individual focuses on inhibitory thoughts, disturbing emotions, and memories.[15,16] If the energy flow in the meridian system is ensured without interruption, it causes relaxation in the mind, body, and emotional areas of the individual, and a long-acting radical transformation can be seen in the subject of discomfort.[17] This technique eliminates all negative feelings about the subject being studied and neutralizes the negative feelings they feel by getting to the core of the problem. As the person's feelings change as a result of the stated effect, their thoughts also change.[15] Manual stimulation of acupuncture points produces endogenous opioids, increases the production of neurotransmitters—such as serotonin and gamma-aminobutyric acid, and regulates cortisol, which is the main stress hormone.[18,19] Through these neurochemical changes, it reduces pain, heart rate, and anxiety; regulates the autonomic nervous system; and creates a feeling of calm. This relaxation response inhibits anxiety and provides rapid desensitization to traumatic stimuli.[18,19] Systematic reviews and meta-analyses have shown the effectiveness of EFT for both physiological and psychological symptoms.[20,21] EFT has been found to have positive effects, particularly on anxiety, depression, and fear.[16,22,23] It is also noted to be as effective as cognitive behavioral therapy in reducing the symptoms of anxiety, depression, and posttraumatic stress disorder.[24]

Various studies have found that EFT provides a significant reduction in anxiety, even in a single-session application.[25–27] The fact that it is a self-applied method allows the individual to manage the disease.[14,16] The positive physiological and psychological changes achieved by EFT make it an effective and safe method for various groups and conditions.[16] In Baker's[28] study on breast cancer patients, EFT resulted in statistically significant improvements in mood disorders, anxiety, depression, and fatigue. Dinçer and İnangil[27] found that a single 20-minute online group treatment was effective in reducing stress, anxiety, and burnout in nurses working with COVID-19 patients. In a study conducted by Dinçer et al,[29] EFT was applied to nursing students with public speaking anxiety, and their scores were analyzed to assess the effect. Similarly, Cici and Özkan[12] found that EFT applied before a lumbar disc hernia surgery reduced patients' anxiety and was more effective than music. In another study, the authors found that patients' anxiety levels decreased after a 15-minute EFT session applied before percutaneous coronary intervention.[30]

Vural and Aslan,[31] applied breathing exercises and EFT was applied to reduce the fear of childbirth. They found that EFT was more effective and lasted longer is reducing the fear of childbirth. Since EFT is reliable and cost-effective, its application uses are multifaceted. It does not have side effects, and studies have recommended that the use of EFT be spread across different clinical areas and to conduct further evidence-based research. No studies have investigated the effect of EFT on the surgical fears and anxieties of patients before laparoscopic cholecystectomy. We believe that the results of this study to determine the effect of EFT before laparoscopic cholecystectomy will make an important contribution to both the literature and practice.

Hypotheses

H1: EFT applied to patients before a laparoscopic cholecystectomy reduces patients' fear levels.

H2: EFT applied to patients before a laparoscopic cholecystectomy reduces patients' anxiety levels.

Materials and Methods

Type of Study

The study was conducted using a pretest, post-test, and randomized controlled experimental research design.

Location and Timing

The research was conducted between September 2021 and April 2022 at the General Surgical Clinics of the Malatya Training and Research Hospital.

Study Population and Sampling

The study population consisted of patients undergoing laparoscopic cholecystectomy in the General Surgical Clinics of a training and research hospital between September 2021 and April 2022. A sample size of 82 participants was calculated using the G*Power 3.1 program (Franz Faul, Universität Kiel, Germany) with a 95% confidence interval, a 5% margin of error, an effect size of 0.81%, and 95% power to represent the study population.

Considering the possibility that patients might drop out of the study or be excluded from the study during the research, a total of 116 patients who met the inclusion criteria were included in the study (Figure 1). During the data collection process, a total of four patients were excluded from the study. Two patients had previous training on coping with anxiety and fear, and two patients had previously attended the course on energy therapy. The study was completed with 112 patients (56 each in the intervention and control groups). The power of the study was 99%.

Research Inclusion Criteria

The following were the research inclusion criteria: patients between the ages 18 and 65, patients undergoing elective laparoscopic cholecystectomy, patients whose anxiety level was 3 or above on the Subjective Units of Disturbance (SUD) scale, patients with no hearing or speech problems that would hinder communication, patients with no cognitive or mental problems, patients with no psychiatric illness, patients with no infections, wounds, or scars at the touching (tapping) areas, patients who voluntarily agreed to participate in the research, patients with no received previous training on coping with anxiety and fear, and patients with no previously participated in a course on energy therapy.

Dependent Variables

The average Surgical Fear Questionnaire (SFQ), Anxiety Specific to Surgery Questionnaire (ASSQ), and SUD scores were the dependent variables.

Independent Variables

The application of EFT was the independent variable.

Control Variables

Demographic characteristics were the control variables.

Randomization and Blinding

The control and intervention group patients were determined by a simple randomization method (www.randomizer.org). Participants were included in the study according to the randomized order. Participants were asked to choose a number from a bowl

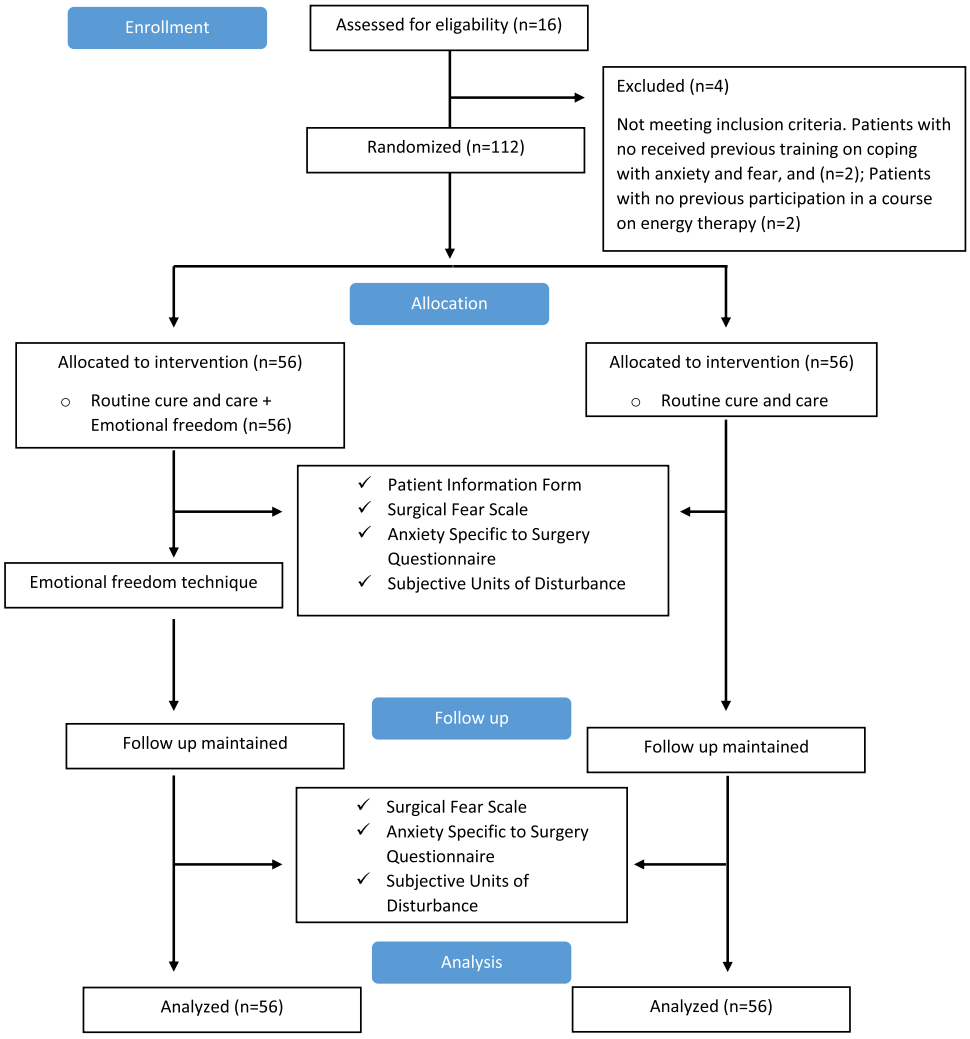

Figure 1. CONSORT (Consolidated Standards of Reporting Trials) flow diagram. This figure is available in color online at www.jopan.org.

containing the numbers 1 to 112, and their groups were determined according to the number on the paper. According to the groups of patients who would undergo surgery, the procedure steps for the respective groups were applied. It was not possible for the researcher collecting data to be blind. Data entry was made by the author, who was not involved in data collection. Furthermore, data analysis was done independently by an experienced statistician who was not involved in our study.

Patient Information Form

This form was prepared by the researcher in line with the literature to determine the demographic and disease-related characteristics of the patients.[12,32] This form, prepared by the researcher, consisted of 11 questions evaluating the patient's age, gender, marital status, education level, economic status, presence of chronic disease, previous surgery, duration of hospital stay before surgery, and presence of preoperative pain.

Data Collection Instruments

The Patient Information Form, ASSQ, SFQ, and SUD were used to collect the research data.

Anxiety Specific to Surgery Questionnaire

This 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree) was developed by Dirik and Karancı.[33] The scale consists of 10 items about the fears that patients may experience regarding surgery. The highest possible score is 50 points. A high score on the scale reflects greater concerns about pain, dying during surgery, and postoperative complications and restrictions. The scale has a Cronbach's alpha coefficient of 0.79.[33] The ASSQ Cronbach's alpha coefficient was 0.89 in this study.

Surgical Fear Questionnaire

The SFQ consists of eight items and was developed by Theunissen et al[34] and validated by Bağdigen and Özlü.[35] The scale is a Likert-type scale scored between 0 and 10 (0 = not at all afraid, 10 = very afraid). The scale includes two subscales, each consisting of four items related to the source of fear. Items 1 to 4 measure the fear of the short-term outcomes of surgery (SFQ-S), while items 5 to 8 measure the fear of the long-term outcomes of surgery (SFQ-L). The lowest and highest scores on the scale are 0 and 80, respectively. A higher score indicates a greater level of fear. Cronbach's alpha coefficient was 0.76 to 0.92 for the original scale and 0.93.[35] In this study, Cronbach's alpha coefficient was 0.97 for the overall SFQ, 0.96 for the SFQ-S, and 0.95 for the SFQ-L.

SUD Scale

This scale was developed by Wolpe[36] to measure the severity of the discomfort caused by energy therapy issues. It has been previously used in energy therapy studies in Turkey.[12,37,38] During this subjective evaluation, the client marks the discomfort they feel on a scale ranging from 0 to 10, with 0 indicating no discomfort and 10 indicating that there is an unbearable level of discomfort.[36] Through this scoring, the discomfort experienced by the individual at that moment can be instantly evaluated.[21]

Ethical Considerations

Before beginning the study, approval was obtained from the Ataturk University Faculty of Medicine Ethics Committee (Ethics Committee no: B.30.2.ATA.0.01.00/322). Before the surgical intervention, the patients were informed about the research, and their written and verbal permission was obtained prior to their participation in the research.

Data Collection

Data were collected at Malatya Training and Research Hospital General Surgery Clinics via a face-to-face interview method on the day of surgery. In the studied clinics, the necessary information was provided to the health care professionals, and the surgical lists were followed. Data were collected during the preoperative period. In addition, the researcher received 32 hours of theoretical and practical EFT training before starting the data collection.

The researcher visited the surgery unit on a daily basis to identify the patients who met the study sample criteria and collect data from the intervention and control groups. In the hospital where the research was conducted, laparoscopic cholecystectomy operations were performed on a planned basis (except for emergency surgeries), and patients were given appropriate training on the day of surgery. Patients underwent surgery according to the operation list created the day prior. The control and intervention group patients were determined by a simple randomization method (www.randomizer.org). Participants were included in the study according to the randomized order. Participants were asked to choose a number from a bowl containing the numbers 1 to 112, and their groups were determined according to the number on the paper. According to the groups of patients who would undergo surgery, the procedure steps for the respective group were applied.

The Patient Information Form and additional measurement scales (pretest) were first administered to the patients in the intervention group on the morning of surgery. The patients were asked to wait for 30 minutes in a quiet and calm environment. At the end of this period, the data were collected by reapplying the scales (post-test) by the researcher. “Patient Information Form” and scales (pretest) were first applied to the patients in the intervention group before laparoscopic cholecystectomy. Afterward, information was given about EFT, and EFT was performed in three rounds. The implementation of EFT took approximately 25 to 30 minutes. The scales (post-test) were readministered by the researcher immediately after EFT was administered.

Nursing Interventions: EFT

As a nursing intervention, EFT was applied to the patients in the intervention group who were hospitalized for laparoscopic cholecystectomy surgery in the general surgery clinic. EFT was applied by the researcher in a quiet and calm environment with the patient in a comfortable position. EFT was performed in three rounds. EFT rounds were made without a break. After the three rounds were completed, patients were asked to assume the heart-healing posture and focus on the surgical fear and anxiety felt by taking three deep breaths. Patients were asked to assess the level of surgical fear and anxiety felt on the SUD scale. Patients’ scores were recorded by the researcher.

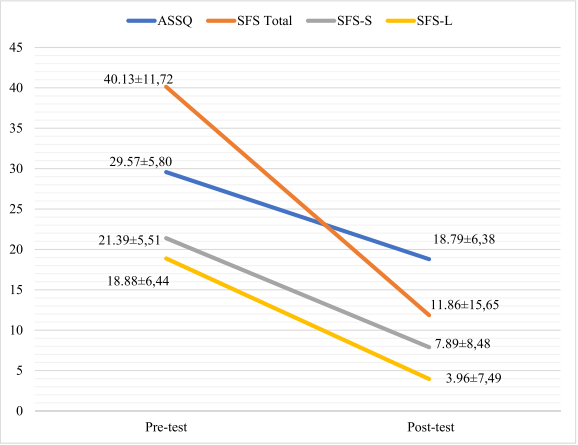

Figure 2. Graph of change in the ASSQ and SFQ scores averages of the intervention group patients according to measurement time. ASSQ, Anxiety Specific to Surgery Questionnaire. This figure is available in color online at www.jopan.org

EFT was performed according to the following steps:

1. The researcher briefly explained basic information about EFT, body energy, blockages, acupressure (meridian) points, and how they are applied.
2. The patients included in the study were shown pictures of the acupressure points[39] (Figure 2), and how to lightly tap these points using their index and middle fingers. Patients applied the basic steps of EFT together with the researcher.
3. Patients were asked about their fear and anxiety specific to the surgery.
4. While in the heart healing position, patients were asked to close their eyes, take three deep breaths, and focus on their feelings of fear and anxiety. Patients were asked to indicate on the SUD scale the level of fear and anxiety felt or how uncomfortable these negative emotions were. This measurement was recorded by the researcher.
5. The researcher asked, “What do you need to cope with this fear? What emotion do you need to feel better?”
6. The researcher offered example setup statements, such as “I release my fear of surgery right now. I release all my fears and anxiety. I want the confidence energy. I want the health energy. I want the courage energy.” Patients were asked about the energy and emotion he or she needed to create a similar setup statement.
7. Patients were asked to speak aloud the setup statement while tapping the 14 meridian points, from top to bottom, under the supervision of the researcher. While performing the application, patients were asked to feel this energy at their fingertips, imagine the energy passing through the body, and visualize it. Patients were instructed to breathe deeply at each meridian point, repeat the setup statement, and perform each tap an average of 10 times.
8. If the patients became tired or if the setup statement was long, patients were informed that they could use “this fear, this anxiety, the healing energy, the health energy, the courage energy, the confidence energy” as a setup statement in the next round.

9. These procedures were performed in three rounds. After the third round was completed, patients were asked to assume the heart-healing posture and focus on the surgical fear and anxiety felt by taking three deep breaths. Patients were asked to assess the level of surgical fear and anxiety felt on the SUD scale. Patients' scores were recorded by the researcher.

Data Analysis

Data analysis was performed using SPSS 22.0 (SPSS Inc) and G-power 3.1 statistics package programs. In the evaluation of the introductory characteristics of the intervention and control groups, the percentage distribution was used together with the χ^2 test for categorical variables and the independent samples *t* test for continuous variables. The Cronbach's alpha values of the scales were calculated. The Mann-Whitney U test and Wilcoxon test were used for ASSQ and SFQ variables (not normally distributed), while the independent samples *t* test was used for the SUD variable (normally distributed). Comparison of the change in pretest and post-test measurements in terms of SUD scores among the intervention and control groups was evaluated by two-factor analysis of variance for mixed measurements. A *P* value of less than .05 was accepted as the level of statistical significance for the data.

Results

The differences between the groups on age, gender, marital status, educational status, presence of chronic disease, and economic status were not statistically significant ($P > .05$). Thus, the groups were found to be similar in terms of these characteristics (Table 1). Additionally, no statistically significant differences were found between the groups in terms of clinical characteristics ($P > .05$; Table 2).

Table 1
The Comparison of Descriptive Characteristics of the Patients in the Intervention and Control Groups

Characteristics	Intervention Group (n = 56)		Control Group (n = 56)		Test and *P* Value
	n	%	n	%	
Gender					
Female	29	51.8	32	57.1	$\chi^2 = 0.324$*
Male	27	48.2	24	42.9	$P = .705$
Marital status					
Married	45	80.4	52	92.9	$\chi^2 = 3.772$*
Single	11	19.6	4	7.1	$P = .094$
Education status					
Literate	6	10.7	8	14.3	$\chi^2 = 2.741$*
Primary education	14	25.0	20	35.7	$P = .454$
High School	19	33.9	17	30.4	
Undergraduate/ Graduate	17	30.4	11	19.6	
Economic status					
Income is lower than expenses	13	23.2	15	26.8	$\chi^2 = 1.304$*
Balanced income	39	69.6	34	60.7	$P = .542$
Income is higher than expenses	4	7.1	7	12.5	
Presence of chronic diseases					
Yes	13	23.2	19	33.9	$\chi^2 = 1.575$*
No	43	76.8	37	66.1	$P = .296$
	X̄ ± SD		X̄ ± SD		
Age (years)	47.26 ± 13.94		49.01 ± 14.14		t = −0.659 $P = .511$

n, number; %, percentage; X̄, average; SD, standard deviation; t, independent-samples *t* test.
* Pearson χ^2 test.

Table 2
The Comparison of Clinical Characteristics of the Patients in the Intervention and Control Groups

Characteristics	Intervention Group (n = 56)		Control Group (n = 56)		Test and *P* Value
	n	%	n	%	
Hospitalization experience					
Yes	24	42.9	33	58.9	$\chi^2 = 2.894$*
No	32	57.1	23	41.1	$P = .130$
Surgery experience					
Yes	16	28.6	18	32.1	$\chi^2 = 0.169$*
No	40	71.4	38	67.9	$P = .837$
The status of having informed about the disease and surgery					
I have not been informed	1	1.8	3	5.4	$\chi^2 = 1.317$†
I have been informed by a nurse	10	17.9	12	21.4	$P = .525$
I have been informed by the physician	45	80.4	41	73.2	
Presence of preoperative pain					
Yes	9	16.1	15	26.8	$\chi^2 = 1.909$*
No	50	83.9	41	73.2	$P = .167$
	X̄ ± SD		X̄ ± SD		
Preoperative duration of hospital stay (days)	1.28 ± 0.45		1.30 ± 0.68		t = −0.162 $P = .871$

n, number; %, percentage; X̄, average; SD, standard deviation; t, independent-samples *t* test.
* Pearson χ^2 test.
† Fisher-Freeman-Halton test.

No significant differences were found for the mean ASSQ, SFQ total, SFQ-S subscale, and SFQ-L subscale pretest scores between the intervention and control groups ($P > .05$). Significant differences were found between the mean post-test ASSQ, SFQ total, SFQ-S subscale, and SFQ-L subscale scores, with the intervention group scoring lower than the control group ($P < .001$; Table 3).

Significant differences were found for the mean ASSQ, SFQ total, SFQ-S subscale, and SFQ-L subscale scores between the pretest and post-test for the patients in the intervention group, with lower post-test than pretest scores (***P* < .01**; Table 4; Figure 2). No significant differences were found between the mean pretest and post-test ASSQ, SFQ total, SFQ-S subscale, and SFQ-L subscale scores for the patients in the control group ($P > .05$; Table 4; Figure 3).

The difference between the mean SUD pretest scores of the patients in the intervention and control groups was not significant ($P = .058$). However, the difference between the mean post-test SUD scores was significant, with the intervention group scoring lower than the control group ($P < .001$; Table 5). Two-factor analysis of variance was performed for mixed measurements to determine the statistical significance of these intragroup changes (Table 6).

When the difference between pretest and post-test SUD scores of the control and intervention groups was analyzed, a significant group by time interaction was found, $F = 136.908$, $P < .001$. It was found that EFT significantly reduced the SUD scores of the patients by 54.4% ($\eta^2 = 0.544$, $P < .001$).[40,41]

Discussion

Nonpharmacological strategies have been developed in recent years to reduce anxiety and fear before surgical intervention. One nonpharmacological method is EFT. This study was the first research

Table 3
Inter-Group Comparison of the Pretest and Post-test ASSQ and SFQ Mean/Median Scores of the Groups (n = 112)

Measurements	Scale	Intervention Group (n = 56)		Intervention Group (n = 56)		Test and *P* Value
		X̄ ± SD	Median (Min-Max)	X̄ ± SD	Median (Min-Max)	
Pretest	ASSQ	29.57 ± 5.80	30 (16-44)	29.70 ± 5.50	29.5 (18-44)	U = 1566.50 *P* = .993
	SFQ total	40.13 ± 11.72	40 (22-70)	40.14 ± 10.31	40 (20-68)	U = 1590.00 *P* = .898
	SFQ-S subscale	21.39 ± 5.51	22 (9-35)	21.50 ± 5.56	22 (9-35)	U = 1598.50 *P* = .859
	SFQ-L subscale	18.88 ± 6.44	18.5 (8-33)	18.73 ± 7.39	17.5 (7-35)	U = 1509.50 *P* = .733
Post-test	ASSQ	18.79 ± 6.38	16 (13-44)	28.82 ± 6.30	29 (14-44)	U = 2737.50 ***P* = .000**
	SFQ total	11.86 ± 15.65	6 (0-58)	37.68 ± 15.52	37.5 (0-70)	U = 2665.50 ***P* = .000**
	SFQ-S subscale	7.89 ± 8.48	5 (0-32)	20.64 ± 7.80	22 (0-35)	U = 2601.00 ***P* = .000**
	SFQ-L subscale	3.96 ± 7.49	0 (0-26)	17.04 ± 9.35	16 (0-37)	U = 2736.00 ***P* = .000**

n, number; X̄, average; SD, standard deviation; min-max, minimum-maximum; ASSQ, Anxiety Specific to Surgery Questionnaire; SFQ, Surgical Fear Questionnaire; SFQ-S, Surgical Fear Questionnaire-Short-Term; SFQ-L, Surgical Fear Questionnaire-Long-Term; U, Mann-Whitney U test.

Table 4
Intragroup Comparison of the Pretest and Post-test ASSQ and SFQ Mean/Median Scores of the Groups

Groups	Scale	Pretest		Post-test		Test and *P* Value
		X̄ ± SD	Median (Min-Max)	X̄ ± SD	Median (Min-Max)	
Intervention group	ASSQ	29.57 ± 5.80	30(16-44)	18.79 ± 6.38	16 (13-44)	z = −5.876 ***P* = .000**
	SFQ total	40.13 ± 11.72	40 (22-70)	11.86 ± 15.65	6 (0-58)	z = −6.127 ***P* = .000**
	SFQ-S subscale	21.39 ± 5.51	22 (9-35)	7.89 ± 8.48	5 (0-32)	z = −5.941 ***P* = .000**
	SFQ-L subscale	18.88 ± 6.44	18.5 (8-33)	3.96 ± 7.49	0 (0-26)	z = −6.047 ***P* = .000**
Control group	ASSQ	29.70 ± 5.50	29.5 (18-44)	28.82 ± 6.30	29 (14-44)	z = 2737.50 *P* = .136
	SFQ total	40.14 ± 10.31	40 (20-68)	37.68 ± 15.52	37.5 (0-70)	z = 2665.50 *P* = .125
	SFQ-S subscale	21.50 ± 5.56	22 (9-35)	20.64 ± 7.80	22 (0-35)	*z* = 2601.00 *P* = .190
	SFQ-L subscale	18.73 ± 7.39	17.5 (7-35)	17.04 ± 9.35	16 (0-37)	z = 2736.00 *P* = .122

X̄, average; SD, standard deviation; min-max, minimum-maximum; ASSQ, Anxiety Specific to Surgery Questionnaire; SFQ, Surgical Fear Questionnaire; SFQ-S, Surgical Fear Questionnaire-Short-Term; SFQ-L, Surgical Fear Questionnaire-Long-Term; z, Wilcoxon test.

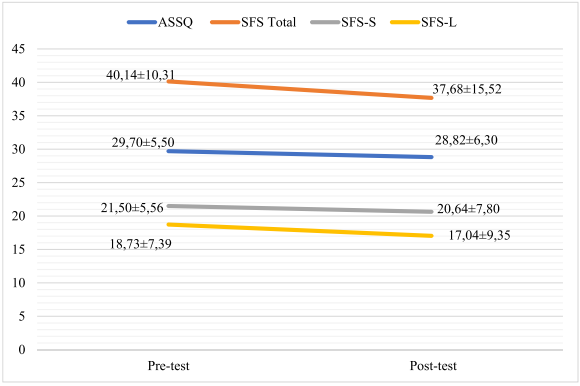

Figure 3. Graph of change in the ASSQ and SFQ scores averages of the control group patients according to measurement time. ASSQ, Anxiety Specific to Surgery Questionnaire. This figure is available in color online at www.jopan.org.

conducted to determine the effect of EFT on surgical fear and anxiety when applied to patients before laparoscopic cholecystectomy. The findings of this study are interpreted and discussed in line with similar research findings and related literature.

In this study, it was found that the intervention and control groups had similar characteristics in terms of age, gender, marital status, educational status, presence of chronic disease, economic status, hospitalization experience, surgical experience, information about the disease and surgery, the presence of preoperative pain, and the duration of preoperative hospital stay, all of which could alter the effects of EFT on the patient (Tables 1 and 2). It is important for the research groups to have similar characteristics in terms of the effectiveness of the application.

One of the important outcome criteria in determining the effect of EFT in the study was the ASSQ score. The preapplication ASSQ scores of the patients in both the intervention and control groups were high, and the postapplication ASSQ scores were significantly lower in the patients in the intervention group compared to the

Table 5
Comparison of the SUD-Pretest and SUD-Post-test Mean Scores of the Groups

Measurements	Intervention Group	Control Group	Test and *P* Value	
	X̄ ± SD	X̄ ± SD		
SUD-pretest	4.94 ± 0.99	4.50 ± 1.42	t = 1.918	*P* = .058
SUD-post-test	3.32 ± 1.34	4.48 ± 1.47	t = −4.341	*P* = .000

X̄, average; SD, standard deviation; SUD, Subjective Units of Disturbance Scale; *t*, independent-samples *t* test.

patients in the control group. In line with this result, it can be concluded that EFT has a positive effect on reducing patients' surgery-specific anxiety. The decreased level of surgical anxiety in the intervention group confirms the hypothesis that EFT applied to patients before a laparoscopic cholecystectomy reduces the level of surgical anxiety in patients.

EFT is a clinical intervention in which patients focus their awareness on a specific issue, either physically or psychologically, while simultaneously stimulating the selected acupuncture points along the meridians in the body, especially in the head and upper body, by tapping them with the fingertips.[14] In their study on the effect of EFT on nurses' stress, anxiety, and burnout levels during the COVID-19 pandemic, Dinçer and İnangil[27] found that a single 20-minute online group treatment was effective in reducing stress, anxiety, and burnout in nurses working with COVID-19 patients. Similarly, Cici and Özkan[12] found that EFT applied before a lumbar disc hernia surgery reduced patients' anxiety and was more effective than music. In another study, the authors found that patients' anxiety levels decreased after a 15-minute EFT session applied before percutaneous coronary intervention.[30] The findings of the above-mentioned studies support these findings that EFT reduces preoperative anxiety. Thus, it can be concluded that EFT is effective in reducing preoperative anxiety by regulating the deteriorated energy flow.

Another important outcome criterion in determining the effect of EFT in this study was the SFQ score. The SFQ total and subscale scores were high for both the intervention and control groups before the application. After the application, SFQ total and subscale scores were significantly lower for the patients in the intervention group compared to the control group. These results suggest that EFT is effective in reducing patients' fear of surgery. The decrease in the level of surgical fear in the intervention group confirms the hypothesis that EFT applied to patients before laparoscopic cholecystectomy reduces the level of surgical fear in patients.

Looking at the literature, no previous studies have investigated the effects of EFT on surgical fear. The findings of the current study are supported by previous studies investigating the effects of EFT on fear. EFT can be used to reduce fear as it allows individuals to relax and reduces the stress response.[42–45] This technique reduces some negative emotions by getting to the core of the problem. It is believed that an individual's thoughts can alter their feelings, resulting in the specified effect.[15] In a study by Vural and Aslan,[31] breathing exercises and EFT were applied to reduce the fear of childbirth. They found that EFT was more effective and longer lasting at reducing the fear of childbirth.[31] In a study on reducing animal phobias, Wells et al[46] found that EFT decreased the fear level from the first session. In addition, Salas et al[47] found that EFT reduced the anxiety associated with the phobia from the first session and significantly increased the ability to approach the feared stimulus. In another study, it was found that EFT reduced individuals' fear of dental treatment.[48] The results of these studies conducted with different sample groups are in line with the results of this study.

In this study, the SUD score averages were high for both the intervention and control groups before the application. It was found that SUD scores were significantly decreased in patients in the intervention group after the application compared to the patients in the control group. In addition, for the patients in the intervention group, post-test SUD scores decreased by 55.4% compared to the pretest scores. This result shows that EFT is highly effective in reducing SUD scores.

EFT reduces amygdala activity in the brain, regulates the stress response through the hypothalamic-pituitary-adrenal axis, and reduces cortisol levels.[22,48] The hippocampus records the safe activation of the stimulus before a stress response occurs, and the neural pathways that initiate the corresponding stress response are permanently altered.[14] Thus, the discomfort caused by the triggering emotion decreases or disappears. In a study by Boath et al,[26] EFT was applied to college students to reduce their anxiety, and SUD scores were analyzed to assess its impact. At the end of the research, the SUD scores had decreased. In a study conducted by Dinçer et al,[27] EFT was applied to nursing students with public speaking anxiety, and their SUD scores were analyzed to assess the effect. At the end of the research, a decrease in SUD scores was observed. The results of the current study are in line with the above-mentioned research results.

Linking Evidence to Action

- EFT, opioids, serotonin, and gamma-aminobutyric acid are associated with lowering fear and anxiety levels.[18,19]
- Following taps on an acupuncture point used in EFT, positive changes occur in brain wave activity.[49]

Table 6
Comparison of the SUD Scores by Groups and Time

Group	Time	X ± SD	Significant Difference	Test Statistics (Group × Time)		
				F	η^2	*P*
Intervention group	SUD-pretest	4.94 ± 0.99	Post-test < Pretest	136.908*	0.554	< .001
	SUD-post-test	3.32 ± 1.34				
Control group	SUD-pretest	4.50 ± 1.42	-			
	SUD-post-test	4.48 ± 1.47				

X̄, average; SD, standard deviation; $\eta^{2,}$ Eta square (effect size); SUD, Subjective Units of Disturbance Scale.
* Pillai's trace test.

- EFT application does not require any equipment, is easily applied and taught, and positively affects care outcomes.[17,49]
- It can be used in the preoperative period to reduce fear of and anxiety about surgery.

Conclusion

The results obtained from this study reveal the effectiveness of EFT application before laparoscopic cholecystectomy in reducing surgery-specific anxiety and surgical fear in patients. This practice supports the holistic implementation of modern health care. In line with these results, the following are recommended: providing training to nurses on EFT, applying EFT in clinics to reduce anxiety and fear during the preoperative period, and conducting further studies on EFT with different patient groups.

Declaration of Competing Interest

None to report.

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