



## Experimental Study

# The effect of the emotional freedom technique on coronavirus disease 2019 (COVID-19) fear and anxiety levels of nurses working in the emergency department: A randomized controlled study

✉ Gülşah Okut,<sup>1</sup> ✉ Şule Ecevit Alpar,<sup>2</sup> ✉ Elif Dönmez<sup>3</sup>

<sup>1</sup>Department of Nursing PhD Student, Marmara University Institute of Health Sciences, İstanbul Türkiye

<sup>2</sup>Department of Nursing, Marmara University Faculty of Health Sciences, İstanbul Türkiye

<sup>3</sup>Department of Oncology Nursing, University of Health Sciences, Hamidiye Nursing Faculty, İstanbul, Türkiye

### Abstract

**Objectives:** The coronavirus disease 2019 (COVID-19) pandemic, which has been a significant public health problem due to its high mortality and morbidity rates, has particularly affected the fear and anxiety levels of health professionals. Thus, the aim of this study was to assess the efficacy of the Emotional Freedom Technique (EFT) on the anxiety and fear of COVID-19 levels of nurses in the emergency department.

**Methods:** This study was designed in line with a pre-and post-test, two-group methodology. A total of 88 participants (experimental group, 44; control group, 44) were included in this study. Data were collected using the following four tools: Questionnaire Form, Subjective Units of Disturbance (SUD), State-Trait Anxiety Inventory (STAI), and Fear of COVID-19 scale.

**Results:** A total of 84 nurses, 41 of whom were in the intervention group and 43 in the control group, were included in this study. After the intervention, the fear of COVID-19 ( $-4.58 \pm 2.47$ ) levels and the mean anxiety intensity (SUD) of the participants decreased ( $-5.61 \pm 1.16$ ) in the experimental group, and the difference was statistically significant ( $p < 0.001$ ) when compared to that of the control group; the state anxiety ( $-8.82 \pm 7.26$ ) and trait anxiety ( $-1.16 \pm 2.97$ ) averages decreased, the decrease in state anxiety was statistically significant ( $p < 0.001$ ), while the decrease in trait anxiety was not significant ( $p > 0.005$ ). There was no significant change in the mean scores of the control group ( $P19S = -0.09 \pm 2.47$ ;  $SUD = 0 \pm 1.15$ ;  $DDS = -0.22 \pm 7.25$ ;  $SDS = -0.04 \pm 2.97$ ).

**Conclusion:** This study showed that EFT sessions administered in a group setting reduced and helped the emergency nurses better cope with COVID-19 anxiety and fear levels.

**Keywords:** Anxiety; COVID-19 fear; Emotional Freedom Technique; nurses.

The coronavirus disease 2019 (COVID-19) pandemic, which is a significant public health problem due to its high mortality and morbidity rates, has affected both the physical and psychological health of frontline nurses.<sup>[1,2]</sup> It has been two years since the start of the pandemic, and the COVID-19 virus is constantly mutating. In addition to the high risk of transmission, discussions about the protection of vaccines are still on-

going, which is known to further increase the COVID-19 anxiety and fear levels of health professionals, especially nurses who are involved in one-to-one patient care and stay with patients for longer periods of time.<sup>[3,4]</sup>

Nurses are primary health professionals in the maintenance of health care services. It is known that their psychological health has been impaired due to many reasons such as intense

**Address for correspondence:** Gülşah Okut, Marmara Üniversitesi Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, İstanbul, Türkiye

**Phone:** +90 535 223 38 13 **E-mail:** gulsahokut23@gmail.com **ORCID:** 0000-0002-8390-347X

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**What is presently known on this subject?**

- The risk of transmission and death continues to increase as the coronavirus disease 2019 (COVID-19) virus mutates, increasing the anxiety and fear of COVID-19 levels of nurses working in the emergency department. It has been reported in many studies that practices such as cognitive behavioral therapies, meditation, yoga, and breathing exercises used in reducing the anxiety and fear of COVID-19 during the pandemic are effective. While it has been recently known that the Emotional Freedom Technique (EFT) is frequently used in anxiety disorders, its effect on fear and anxiety due to COVID-19 is unknown.

**What does this article add to the existing knowledge?**

- It has been determined that the EFT applied to nurses working in the emergency department has significant effects on the anxiety and fear of COVID-19 levels that is experienced by nurses.

**What are the implications for practice?**

- It is considered that the EFT will be used actively in terms of reaching and organizing a large number of nurses, given that the EFT is a technique that has no side effects during practice, shows its effect in a short time, and can be easily learned and applied. Therefore, EFT is recommended to provide the necessary trainings to make the use of EFT effective in reducing the high anxiety and fear levels experienced in the emergency department.

working conditions, being away from their families, exposure to infection, fear of infecting their families, and social isolation during the pandemic process.<sup>[5]</sup> Nurses' fear of contracting COVID-19 causes them to have a feeling of helplessness, further increasing their anxiety levels.<sup>[1,6,7]</sup> In accordance with the studies conducted in during the COVID-19 pandemic, the problems affecting the mental health of frontline health workers were reported to be mostly fear, anxiety, and depression.<sup>[8,9]</sup> Therefore, the need for applying evidence-based approaches has been realized to protect the mental health of frontline health professionals and for them to benefit from effective coping techniques.<sup>[10,11]</sup> In particular, it is very important to ensure that the mind–body health of nurses working in the emergency department remains at the same level as that before the pandemic in the face of increased exposure to the COVID-19 virus, given that they encounter more patients suspected to have COVID-19, an increase in the number of cases, and news about death of colleagues.<sup>[12]</sup> Studies have revealed that although the education of nurses includes strategies to cope with the pandemic, they have had difficulties in coping with anxiety and fear in the COVID-19 pandemic, which has had effects globally; therefore, it is necessary to teach coping methods.<sup>[13–15]</sup> It was emphasized that effective interventions should be planned and implemented to reduce the fear and anxiety levels of emergency nurses, who encounter more COVID-19 patients.<sup>[16]</sup> If effective interventions are implemented, emergency nurses can cope with anxiety and fear due to COVID-19 and, consequently, can continue to make correct and effective decisions in their care and practices without being distracted in the face of unexpected situations, decreasing the rate of malpractice through provision of quality patient care.

It is important that the anxiety brought about by the pandemic on nurses be addressed and prevented from progressing into a persistent and long-term anxiety disorder, accompanied with negative emotions such as anger, insecurity, hopelessness, and fear.<sup>[8,17]</sup> In accordance with the studies, it

has been determined that the fear of COVID-19 is one of the most important factors affecting the psychological well-being of health professionals, especially frontline nurses. It is also considered that the fear they experience cause them to have high levels of anxiety.<sup>[18,19]</sup> Nurses should have a stable mental health so that they can provide an effective care and increase their quality and performance and, consequently, maintain productivity.<sup>[20,21]</sup> It has been reported in many studies that practices such as cognitive behavioral therapies, meditation, yoga, and breathing exercises, which are used to reduce stress, anxiety, and fear, are effective in emergency nurses.<sup>[15,22]</sup> Along with these practices, it is known that the Emotional Freedom Technique (EFT) has been used frequently, especially in the management of anxiety disorders, in the recent years.<sup>[23,24]</sup>

EFT is an energy psychotherapy-derivative application, which is used in the treatment of personal negative emotions and related emotional and physical ailments and consists of the traditional psychology method of the West and the somatic components of the East.<sup>[23,25]</sup>

People have energy bodies; that is, the energy flow that provides vitality to the energy body is provided by the energy meridians/channels that surround the body like an electrical network. The energy flowing regularly through these energy channels leads to obstruction/blockage as a result of negative emotions such as stress, fear, anger, and anxiety, causing disorders in the physical body by affecting the entire energy flow of the body.<sup>[23,26,27]</sup> It causes the continuation of the release of cortisol, norepinephrine, and adrenaline hormones into the system by stimulating the hypothalamic–pituitary gland–adrenal triad in the stress response that occurs when emotional stimulus is brought to mind. This repetitive stimulation creates a threat warning especially by affecting the amygdala and causing an increase in activation.<sup>[26,28,29]</sup> With the EFT, the amygdala is prevented from being alarmed by making light touches (acupressure) on certain meridian points in our body, while this stimulus that disturbs us in our minds is active, and it provides the continuation of the energy flow by sending signals to disable the arousal pathways of the brain.<sup>[30–32]</sup> It is considered that providing and balancing the energy flow of the person ensures that the body, emotion, and mental health are at an equal level.<sup>[25,29–36]</sup> The reason for the recent interest in EFT is that it is supported by evidence-based applications, it is safe and easy to apply to oneself and others, and there are few side effects.<sup>[23,33,34]</sup> Therefore, it can be applied to everyone from different ages and groups such as pregnant women, elderly, and children.<sup>[37,38]</sup> As a result of the studies conducted with EFT, it was reported that primiparous women's anxiety about childbirth decreased,<sup>[39]</sup> the anxiety levels of the female patients diagnosed with fibromyalgia decreased,<sup>[40]</sup> and there was a significant decrease in the exam anxiety of nursing students.<sup>[24,41,42]</sup> In the meta-analysis of Clond (2016), which included 14 randomized controlled studies on EFT, statistically significant decreases were reported in anxiety, fear, and depression scores with self-administered EFT.<sup>[38]</sup>

Nurses working in the emergency department usually have the ability to anticipate the unknown and think about the unanticipated due to the busy work environment. During the COVID-19 pandemic, emergency nurses had to simultaneously manage the care process of pandemic patients and patients who required emergency care and treatment.<sup>[1,2]</sup> Emergency nurses, who are active and race against time in the crisis process, need help to protect their mental, physical, and mental health.<sup>[3]</sup>

Although the EFT technique is used in many different areas today, its effect on the level of anxiety in nurses during the COVID-19 process is not known yet. In this context, the aim of this study was to determine the effect of EFT applied to nurses working in the emergency department on the anxiety and fear of COVID-19 levels.

### Hypotheses

*H1:* The Emotional Freedom Technique (EFT) reduces the anxiety levels of nurses working in the emergency department during the COVID-19 pandemic.

*H2:* The Emotional Freedom Technique (EFT) reduces the COVID-19 fear levels of nurses working in the emergency department during the COVID-19 pandemic.

## Materials and Method

### Design of the Study

This study was designed in line with a pre-and post-test, two-group methodology (Fig. 1).

### Place and Process of the Study

This study, in which the pretest-posttest control group design was used, was conducted in a tertiary care hospital in a crowded city of Turkey. Due to the limited number of health centers in the region where the study was conducted, an average of 35,000 patients present to the emergency department in a month. The emergency department consists of the red, yellow, and green areas, resuscitation room, observation room, triage room, and COVID-19 polyclinics. The study was conducted on nurses working in the emergency department between 09 April and 01 June 2021. One-hundred and ten nurses working in the emergency department constituted the population of the study, nurses who met the inclusion criteria and agreed to participate in the study constituted the sample. In this study, among the mean and standard deviation values given for the Subjective units of distress scale SUD) from the data in the study of Vural et al.<sup>[42]</sup> (2019) entitled "Emotional Freedom Techniques (EFT) to reduce exam anxiety in Turkish nursing students". Using the MedicRes "E-PICOS AI Smart Biostatistics Software version 21.3 (New York, NY, USA) program with a power of 80%, a margin of error of 0.05, and an effect level of 0.5 for the sample size, it was determined that it was necessary to conduct the study with 40 nurses in the experimental group and 40 nurses in the control group. Considering a data loss of 10% in the con-

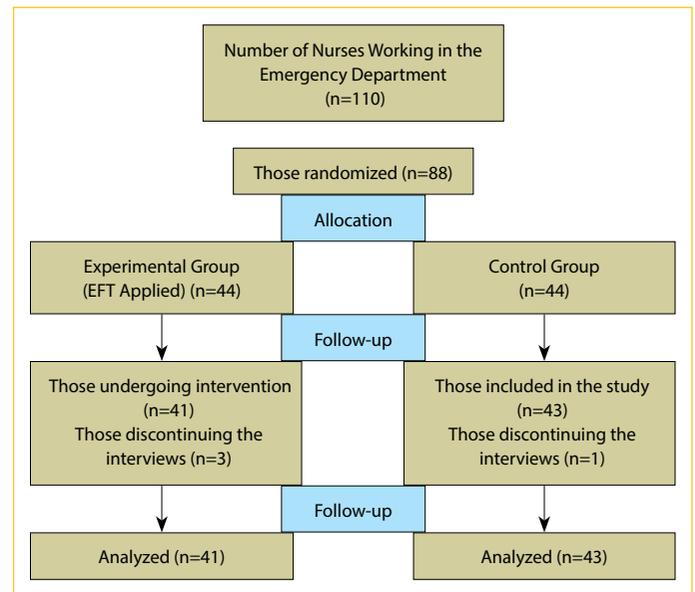


Figure 1. CONSORT flow chart.



Figure 2. EFT tapping points.<sup>[2]</sup>

control and experimental groups, it was planned to be 44 nurses in the experimental group and 44 in the control group. Accordingly, study groups were assigned by using the randomization table created using the MedicRes "E-PICOS AI Smart Biostatistics Software version 21.3" (New York, NY, USA) program. During the study process, two nurses in the experimental group were excluded from the study due to the positive COVID-19 test of one nurse and the change of duty of one nurse; and one nurse in the control group was excluded from the study due to a positive COVID-19 test. As a result, three nurses in the experimental group and one nurse in the control group were excluded from the study, and the study was completed with 84 emergency nurses who met the criteria for the study (Fig. 1). The Clinical Trial Registration number is "NCT04910516."

Inclusion criteria for the study were determined as;

- (1) Working as a nurse in the emergency department;
- (2) Having not previously attended a course on different ways of coping with COVID-19 fear and anxiety;
- (3) Having not received any psychological support between the dates of the study; and
- (4) Volunteering to participate in the study (Fig. 2).

First, the data were collected from nurses in the control group to reduce the interaction in the experimental and control groups.

## EFT Intervention

EFT is a psychophysiological intervention that combines the elements of Cognitive Behavioral Therapy, Exposure Therapy, and somatic stimulation.<sup>[35,38]</sup> While different points are used for certain psychological conditions in the Thought Field Therapy developed by Callahan (1985), in the EFT application developed by Gary Craig, energy tapping point is used in the same order to treat every emotional problem, which is called "Basic Recipe" (Fig. 3).<sup>[30,43,44]</sup>

The following steps are followed while applying the basic recipe;

1. *Determining the Subjective Units of Disturbance (SUD)*: The individual rates the level of distress he/she feels regarding an anxiety or problem he/she has identified between 0–10 on the SUD, a Likert-type scale represented by 10 as the highest amount of distress and 0 for no distress.<sup>[35,45,46]</sup>

2. *Setup Statement*: The setup statement involves both the problem and self-acceptance of the individual.<sup>[45]</sup> While the first half of the setup statement emphasizes exposure, the second half frames the traumatic event or emotion that is troubling them within the context of self-acceptance.<sup>[45]</sup> In our study, the participants were studied with the statement, "Even though I am worried/anxious that I will infect myself and my loved ones during the COVID-19 pandemic, I deeply and completely accept myself."

3. *Sequential Tapping on Acupuncture Points*: While participating in the somatic tapping process by tapping the meridian points on the body with the tips of the index and middle fingers, the participant repeats an abbreviated reminder phrase that stimulates the traumatic memory to stay engaged with the problem.<sup>[23,34,35,47]</sup> Starting from the starting point of the eyebrows, light strokes are made seven times each on the temple point, under the eyes, under the nose, chin, collarbone, armpit, thumb, index finger, middle finger, little finger, and karate point<sup>[30]</sup> (Fig. 3).

This practice is called an EFT round.<sup>[31,46]</sup> After completing such round, the participant considers the problem again and scores with the SUD scale, the EFT rounds are repeated until 0 points or close to 0 points are obtained.<sup>[34,35]</sup> A total of four EFT rounds were conducted in the study to avoid bias.

4. Controlling the difference between pre- and post-application of the repeated SUD scale<sup>[25,30,48–50]</sup>

## Data Collection Tools

In this study, the data were collected using the Questionnaire Form, SUD, STAI, and P19-S.

*Questionnaire Form*: The socio-demographic characteristics of the participants were evaluated using questions about gender, age, marital status, educational level, and years of working in the profession and in the emergency department. Anxiety and fear of COVID-19 levels were evaluated through the questions "Do you feel anxious while practicing your profession?" and "Does the uncertainty of treatment during the pandemic increase your fear of COVID-19?"

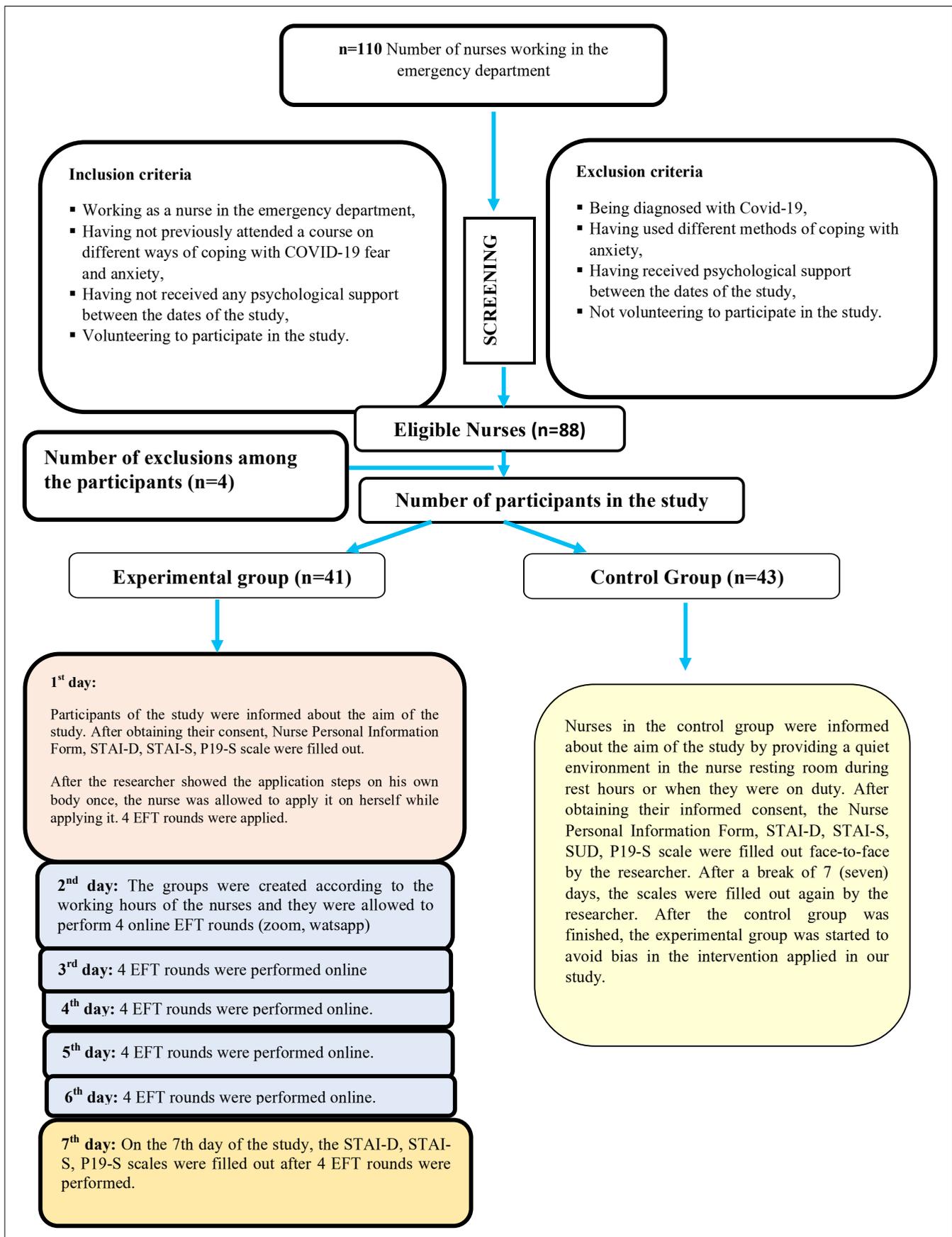
*State-Trait Anxiety Inventory (STAI)*: The anxiety state of nurses was measured using the STAI, which was developed in 1964 by Spielberger, Gorsuch, and Lushene<sup>[51]</sup> to determine how an individual feels at a certain moment and under certain conditions. In the Turkish adaptation, validity and reliability studies of the scale were performed by Öner and Le Compte.<sup>[52]</sup> The STAI consists of the subscales of state anxiety and trait anxiety. The reliability coefficients determined by the alpha correlations in the Turkish version of the scale ranged from 0.94 to 0.96 for the state anxiety subscale and between 0.83 and 0.87 for the trait anxiety subscale. While the state anxiety inventory (STAI-D) is used to determine how an individual feels in a situation that develops at a certain moment and under certain conditions, the trait anxiety inventory (STAI-S) determines how one feels regardless of the circumstances he/she is in.<sup>[53]</sup> Each test consists of 20 Likert-type of questions. The scores obtained from each form are 20–80 cutoff scores. Higher scores indicate an increased level of anxiety. In our study, the reliability of the State Anxiety Inventory was found to be high, with a Cronbach's alpha value of 0.909, and the reliability of the Trait Anxiety Inventory was found to be high, with a Cronbach's alpha value of 0.854.

*COVID-19 Phobia Scale (P19-S)*: Nurses' fear of COVID-19 was measured using the P19-S developed by Ahorsu et al.<sup>[54]</sup> to evaluate the fear of COVID-19 in 2020. The scale, which was adapted to the Turkish language by Bakioğlu et al.,<sup>[55]</sup> consists of seven items and is collected in one dimension. The scale is answered in a five-point Likert type (1=strongly disagree; 5=strongly agree). The total score is used to evaluate the scale. The total score to be obtained from the scale varies between 7–35. The fear of COVID-19 increases as the total score on the scale increases.<sup>[55]</sup> While Ahorsu et al. (2020) found that the Cronbach's alpha value was 0.88, Bakioğlu et al. (2020) who adapted it to Turkish found that the Cronbach's alpha value was 0.88. In our study, the Cronbach's alpha value of the COVID-19 Phobia Scale was found to be 0.870.

*Subjective Units of Disturbance Scala (SUDS)*: The SUDS, which was developed by Wolpe in 1973, is used in energy therapy and is used to evaluate the severity of the discomfort it causes to the individual. The commonly used SUDS scores the individual's subjective units of disturbance between 0 and 10. A score of "0" indicates no disturbance, a score of "10" indicates unbearable disturbance, and the higher the score, the more severe the disturbance experienced by the person. This score provides concrete and basic data about the subjective state of the person during the application and reflects the change at the end of the application. In this study, the Cronbach's alpha value for the SUD scale was 0.89.

## Procedure

Before participating in the study, nurses were randomized to the intervention or control groups. Nurses working in the emergency department who participated in the study were informed about the aim of the study by providing a quiet en-



**Figure 3.** Flow chart of the study.

vironment in the resting rooms during rest hours or before starting the shift, and their consent was obtained. After the completion of the study, EFT was also applied to the participants in the control group.

### Control Group

Nurses in the control group were informed about the aim of the study by providing a quiet environment in the nurse resting room during rest hours or when they were on duty. After obtaining their informed consent, the Nurse Personal Information Form, STAI-D, STAI-S, SUD, and P19-S scales were filled out face-to-face by the researcher. After a break of 7 d, the scales were filled out again by the researcher. After the control group was finished, the experimental group was started to avoid bias in the intervention applied in our study (Fig. 2).

### Application of EFT

The EFT was applied by the first author with an EFT certificate. The nurses in the experimental group were informed about the function, meridian points, and application of EFT with the EFT Guide in a quiet room during the resting time. The application steps of the EFT were shown practically by the researcher, and then the nurse was allowed to apply it on herself. After EFT was applied face-to-face on the first day, a total of seven sessions of EFT were applied online (Zoom, WhatsApp) for the following 6 d (Fig. 2). In the EFT conducted online, six groups were created

according to the working hours of the nurses. There were seven groups, and only one of our groups continued, with six people in line with those who left the experimental group. A total of four EFT rounds were applied to all experimental groups without expecting the SUD to reach a value of "0" or close to "0" in order to give equal time to all study groups.

### Analysis of Data

For statistical analyses R vers. 2.15.3 program (R Core Team, 2013) was used. Minimum, maximum, mean, standard deviation, frequency, and percentage were used for reporting the data of the study. The conformity of the quantitative data to the normal distribution was tested through the Shapiro–Wilk test and graphical examinations. Independent groups t-test was used for the comparison of normally distributed quantitative variables between two groups. Dependent groups t-test was used for intragroup comparisons of normally distributed quantitative variables. Cronbach's alpha coefficient was used to determine the internal consistency levels of the scales. Statistical significance was considered as  $p < 0.05$ .

### Ethical Aspect of the Study

Due to the pandemic process, research approval from the Ministry of Health Scientific Study Commission and approval number B.10.1.TKH.4.34.H.GP.01/120 from the Clinical Research Ethics Committee of a Training and Research Hospital

**Table 1. Education and professional characteristics of nurses working in the emergency department (n=88)**

Variables	Control group (n=44)	Experimental group (n=44)	Total (n=88)	Test value, p-value
Age (Mean±SD)	29.26±5.25	29.10±6.64	29.18±5.93	<sup>a</sup> t=0.122 p=0.904
Working time in the profession (Mean±SD)	7.12±6.25	6.78±7.94	6.95±7.08	<sup>a</sup> t=0.216 p=0.830
Working time in emergency department (Mean±SD)	3.91±3.15	2.12±2.46	3.04±2.96	<sup>a</sup> t=2.882 p=0.005*
Gender				<sup>b</sup> χ <sup>2</sup> =0.728 p=0.394
Female (%)	60.5	51.2	56	
Male (%)	39.5	48.8	44	
Marital status				<sup>b</sup> χ <sup>2</sup> =0.002 p=0.962
Married (%)	39.5	39	39.3	
Single (%)	60.5	61	60.7	
Educational level				<sup>b</sup> χ <sup>2</sup> =0.467 p=0.494
High School+Associate Degree (%)	14	19.5	16.7	
Undergraduate+graduate (%)	86	80.5	83.3	

<sup>a</sup>Independent samples t-test; <sup>b</sup>Pearson chi-square test; <sup>c</sup>Fisher's exact test; \*p<0.05.

on the Anatolian side of Istanbul were obtained. Verbal consent was obtained from the participants after interviewing them. EFT was also applied to the participants in the control group at the end of the study.

### Limitations of the Study

- The study was conducted in a single center.
- Due to the risk of transmission of the COVID-19 virus, the EFT was applied online.

### Results

A total of 84 nurses, including 41 nurses in the intervention group and 43 nurses in the control group, were included in this study. The average working year of the nurses participating in the study was  $6.95 \pm 7.08$ , and 83.3% of them had undergraduate and graduate degrees. While 56% of the nurses working in the emergency department were female, 60.7% of them were single, and the mean number of years of working in the emergency department was  $3.04 \pm 2.96$  (Table 1).

While 89.3% of nurses working in the emergency department during the COVID-19 pandemic indicated that they had anxiety while practicing their profession, 36.9% of them indicated that they performed the application to reduce their anxiety, 96% (n=15) of them indicated that they listened to music, 53% (n=8) of them indicated that they had video calls with their loved ones, 32% (n=5) of them indicated that they did not listen to the news about COVID-19, and 19% (n=3) of them indicated

that they prayed. Moreover, 29.8% of them reported that they always thought positively about the events that went wrong. It was reported that the reason for the increased anxiety and fear of COVID-19 levels during the time they worked in the emergency department was the high risk of transmission by 94%, the continuous increase in the number of cases by 85.7%, the lack of effective treatment by 79.8%, and the thought that they would carry it to their families by 70.2% (Table 2).

In the study, after the intervention, the fear of COVID-19 ( $-4.58 \pm 2.47$ ), and the mean anxiety intensity (SUD) of the individuals decreased ( $-5.61 \pm 1.16$ ) after the intervention in the experimental group, and the difference between them was statistically significant ( $p < 0.001$ ) when compared to that of the control group; state anxiety ( $-8.82 \pm 7.26$ ) and trait anxiety ( $-1.16 \pm 2.97$ ) averages decreased, wherein the decrease in state anxiety was statistically significant ( $p < 0.001$ ), while the decrease in trait anxiety was not significant ( $p > 0.005$ ). There was no significant change in the mean scores of the control group (P19S= $-0.09 \pm 2.47$ ; SUD= $0 \pm 1.15$ ; DDS= $-0.22 \pm 7.25$ ; SDS= $-0.04 \pm 2.97$ ) (Table 3).

### Discussion

This study was conducted to investigate the effect of EFT on the anxiety and fear of COVID-19 levels of nurses working in the emergency department during the COVID-19 pandemic. The results revealed that EFT had significant effects on anxiety and fear of COVID-19 levels. The scores achieved by applying the SUD scale before EFT function as a concrete and basic

**Table 2. COVID-19 fear and anxiety state of emergency department nurses and the associated factors (n=88)**

Variables	Control n (%)	Experimental n (%)	Total n (%)	p-value
Do you feel anxiety while practicing your profession during the pandemic?	37 (86)	38 (92.7)	75 (89.3)	<sup>c</sup> p=0.484
Are there any applications you do to reduce the anxiety you experience during the pandemic?	17 (39.5)	14 (34.1)	31 (36.9)	<sup>b</sup> $\chi^2=0.262$ p=0.609
If your answer to the previous question is "Yes", what applications do you use?				
Listening to music	8 (46)	7 (50)	15 (96)	<sup>b</sup> $\chi^2=0.009$ p=0.923
Making video phone calls with loved ones	4 (24)	4 (29)	8 (53)	
Not listening to news about COVID-19	3 (18)	2 (14)	5 (32)	
Praying	2 (12)	1 (7)	3 (19)	
Do you always think positively in the face of things that do not go well?	13 (30.3)	12 (29.3)	25 (29.8)	
What do you think are the factors that cause the COVID-19 fear and anxiety factors?				
High risk of transmission of COVID-19	39 (90.7)	40 (97.6)	79 (94)	<sup>c</sup> p=0.360
Continuous increase in the number of cases	34 (79.1)	38 (92.7)	72 (85.7)	<sup>b</sup> $\chi^2=3.176$ p=0.075
Lack of effective treatment during the pandemic	32 (74.4)	35 (85.4)	67 (79.8)	<sup>b</sup> $\chi^2=1.558$ p=0.212
High risk of transmitting the virus to the family	27 (62.8)	32 (78)	59 (70.2)	<sup>b</sup> $\chi^2=2.337$ p=0.126

<sup>a</sup>Independent samples t-test; <sup>b</sup>Pearson chi-square test; <sup>c</sup>Fisher's exact test; \*p<0.05.

**Table 3. Comparison of anxiety and fear of COVID-19 in the experimental and control groups**

		Control (n=43)	Experimental (n=41)	Test value, p-value
		Mean±SD	Mean±SD	
P19S	UÖ	20.44±5.53	24.66±5.53	t=-3.417, p=0.001*
	US	20.34±5.04	20.08±5.04	t=0.237, p=0.813
	Fark (US-UÖ)	-0.09±2.47	-4.58±2.47	t=8.144, p<0.001*
	Test value, p value	t=-0.251, p=0.802	t=-11.892, p<0.001*	
SUD	UÖ	7.80±1.28	9.07±1.28	t=-4.440, p<0.001*
	US	7.79±1.20	3.46±1.20	t=16.166, p<0.001*
	Fark (US-UÖ)	0±1.15	-5.61±1.16	t=21.695, p<0.001*
	Test value, p value	t=-0.024, p=0.981	t=-31.051, p<0.001*	
STAI-D	UÖ	47.58±10.52	53.95±10.53	t=-2.707, p=0.008*
	US	47.36±11.55	45.13±11.56	t=0.863, p=0.390
	Fark (US-UÖ)	-0.22±7.25	-8.82±7.26	t=5.305, p<0.001*
	Test value, p value	t=-0.200, p=0.842	t=-7.782, p<0.001*	
STAI-S	UÖ	48.17±8.86	45.99±8.87	t=1.102, p=0.272
	US	48.14±9.15	44.83±9.16	t=1.616, p=0.108
	Difference (US-UÖ)	-0.04±2.97	-1.16±2.97	t=1.688, p=0.095
	Test value, p value	t=-0.082, p=0.935	t=-2.493, p=0.014*	

P19s: COVID-19 Fear Scale; SUD: Subjective units of disturbance; STAI-D: State anxiety inventory; STAI-S: Trait anxiety inventory.

starting point that includes the individual's own subjective evaluation of how his/her mood is when the application is started. Thus, it gives the opportunity to obtain an indicator reflecting the change provided by the application at the end of the application.<sup>[45-58]</sup> In the present study, nurses working in the emergency department evaluated that they experienced a 5.61-point decrease in the mean score of the SUD scale after EFT and that their subjective disturbance from anxiety decreased, which is an important result regarding the benefit of the EFT application. Similar results were also found in similar studies.<sup>[24,41,42]</sup> In the study conducted by Vural et al.<sup>[42]</sup> (2019), it was determined that nursing students significantly reduced the high anxiety they had before the exam with EFT.

While there was a statistically significant decrease in the level of state anxiety (STAI Tx-1) with the EFT applied to the nurses in the emergency department during the COVID-19 pandemic, it was found that there was no decrease in trait anxiety (STAI Tx-2). The study showed that EFT was not effective in reducing the level of trait anxiety, which is a personality trait, however, it was effective in the level of state anxiety that occurs suddenly according to the environment. In the study conducted by Dinçer and İnançil (2020), it was found that there was a significant decrease in the level of state anxiety experienced by nurses working in the COVID-19 pandemic with EFT.<sup>[57]</sup> In line with the literature reviews, it was indicated that there was a significant decrease in the high level of anxiety experienced by adolescents and students in the school environment with the EFT applied and that academic success was achieved as a result of reduced anxiety.<sup>[29,41,36,37,42,58]</sup> In conclusion, the person can reach the

problem-solving process in a short time by using an effective coping method such as EFT.

At the end of the EFT applied to the nurses working in the emergency department during the pandemic process, it was found that there was a significant decrease in the mean scores of the COVID-19 fear scale. In the studies, it was observed that there was decrease in the fear of childbirth,<sup>[48]</sup> the fear of small animals,<sup>[35]</sup> and the fear of failure of the students in the school environment<sup>[37]</sup> with EFT.

According to the results of our study, teaching EFT to nurses will make it easier for them to cope with the anxiety they have. It is considered that the use of this technique will positively affect the effective decision-making process in places where problem solving needs to be done quickly, such as in the emergency department. A study on the effect of EFT on nurses was found in the literature review, and it was found to be effective on anxiety.<sup>[57]</sup>

## Conclusion

In this study, it was found that EFT applied to nurses working in the emergency department during the COVID-19 process had significant effects on the level of fear and anxiety they had. The extension of the COVID-19 pandemic process further increased the concerns and fears of nurses. It is necessary to support nurses in protecting their mental health, especially by applying high-evidence techniques such as EFT to nurses who work actively during the pandemic. The nurses who participated in this study were emergency department nurses. Therefore, it can be recommended to apply it to all nurses and

to include it in-service trainings. Thus, nurses can learn to cope with their anxiety and fear of COVID-19.

In accordance with the results obtained from the study, it can be recommended to investigate the effect of EFT applied in a single session and EFT applied for a long time in nurses working in specialized units such as intensive care and palliative care, to investigate the long-term effect of EFT on decision making in nurses working in specialized units such as intensive care and palliative care, and to include EFT in in-service training topics.

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