



INVESTIGATION OF THE EFFECT OF EMOTIONAL FREEDOM TECHNIQUE ON STRESS AND ANXIETY IN NURSING STUDENTS IN THE COVID-19 PANDEMIC

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Abstract: COVID19 pandemic has caused nursing students studying in the clinical field to stay away from the clinic for a long time due to the interruption of education. This process affected the anxiety levels of nursing students, causing them to feel inadequate and experience stress. This study aims to investigate the effect of the emotional freedom technique on nursing students' styles of coping with anxiety and stress. In the experimentally designed study with a pretest-posttest control group, the emotional freedom technique was applied to the experimental group in 4 sessions. In addition, the state anxiety scale, coping styles scale, subjective discomfort level scale was applied during the pre-application phase and after the emotional freedom technique session. As a result, it was determined that the students in the experimental group had higher mean scores of coping with stress inventory, seeking social support, optimism, self-confidence, and submissive approach measurement scores in the post-test, and state anxiety scale measurement scores measured in the post-test. Therefore, alternative approaches such as the emotional freedom technique that nursing students can apply to reduce their anxiety levels and increase their coping with stress should be encouraged.

Keywords: Emotional freedom technique, Anxiety, Stress, Complementary therapies

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1. Introduction

Anxiety is an essential concept for describing human behavior; it is a situation in which a series of physiological responses are produced, accompanied by feelings of distress, anxiety, and depression, in various situations in which the person feels threatened. State anxiety is a temporary emotional state with varying intensity levels over time (Torabizadeh et al., 2016; İnangil et al., 2020). Today, all countries are battling COVID-19, which commonly presents with mild symptoms but causes significant mortality in the world population (Velavan and Meyer, 2020). This process has affected nursing education as well as affected all humanity. The distance education process in Türkiye started on March 23, 2020, and some of the theoretical and practical courses in nursing education were continued with distance education methods (Vatan et al., 2020). In addition to routine changes developing due to the pandemic, integrating more technology also increased students' anxiety about learning. In recent years, non-pharmacological techniques have been widely used to reduce anxiety and stress. While the role of non-

pharmacological complementary therapies on stress and anxiety is not new, there is increasing interest in the role of energy or biofield therapies in reducing anxiety and enhancing feelings of well-being (Patterson, 2016). The National Institutes of Health's National Center for Complementary and Alternative Medicine (2012) defines energy or biofield therapy as "manipulation of various energy fields to influence health." The emotional freedom technique (EFT), a type of energy that has been applied recently, is a technique applied by touching meridian points to provide anxiety, depression, burnout, stress management, and desensitization to fear (Patterson, 2016). The basic principle of EFT is to send activation and deactivation signals to the brain by stimulating the points on the skin with different electrical properties, usually by touching them (Dincer and İnangil, 2021). FT, which is a technique that can be easily taught and that individuals can apply on their own, can provide improvement in various psychological and physical conditions (Rancour, 2017). Studies show that this approach is optimistic in coping with stress when considered in a wide range (Ghamsari and Lavasani,



2015; Chatwin et al., 2016; Sezgin, 2017; Vural and Aslan, 2019). Church et al. revealed that self-administered EFT improves anxiety, depression, pain, and craving scores (Church and Brooks, 2010). In the meta-analysis of 14 randomized controlled trials in which the EFT technique was applied for anxiety disorders, a significant therapeutic effect was reported for EFT ($d=1.23$, 95% CI 0.82, 1.64, $P < 00.001$) (Clond, 2016). Studies have shown that the emotional freedom technique effectively reduces anxiety and stress. During the pandemic process, non-pharmacological techniques have been used to reduce the anxiety levels of individuals by using online platforms (Ozamaz-Etxebarria et al., 2020; Eraydin and Alpar, 2022). However, no studies have been found regarding the application of EFT online, so methodological studies are needed to confirm the effectiveness of the therapy. The current study protocol was designed to evaluate the effect of online EFT practice on anxiety and stress coping styles in nursing students during the COVID-19 pandemic.

1.1. Hypothesis of the Study

The hypotheses of this research are given below.

H1: Emotional freedom technique affects the anxiety and subjective discomfort levels of nursing students.

H2: Emotional freedom technique affects nursing students' styles of coping with stress.

2. Materials and Methods

2.1. Design

This study was conducted as a randomized controlled study with the pretest-posttest control between February 2021 and June 2021 in the Nursing Department of the Faculty of Health Sciences of a university in Türkiye's Western Black Sea region.

2.2. Participants

The study's population is composed of 524 first, second, third, and senior nursing students studying at the Faculty of Health Sciences, Department of Nursing. After a descriptive features question form was applied to the whole population, a total of 54 students who did not meet the inclusion criteria and 180 students who did not want to participate in the study were not included in the evaluation ([Supplementary Figure 1](#)). Power analysis was performed to determine the sample size. The sample size was determined as 40 students in each group, the effect size was 0.5 and the power was 0.80.

2.3. Randomization

Students were randomly assigned to either control or intervention groups with a 1:1 allocation per a computer-generated randomization schedule. A total of 72 participants completed the study (intervention group $n = 38$ and control group $n = 34$) ([Supplementary Figure 1](#)).

2.4. Inclusion and Exclusion Criteria

Being able to use the internet and the ZOOM program actively and have internet access, not having been diagnosed with a psychiatric diagnosis, not having received any therapy including coping with stress, not

being diagnosed with COVID-19, not being in the treatment care process, not having applied the emotional freedom technique before, and volunteering to participate in the study constitute the inclusion criteria of our study. Not participating in any of the emotional freedom technique sessions and being diagnosed with COVID-19 during the application of therapy constitute the exclusion criteria of our study.

2.5. Data Collection Instruments

The data of the study were collected using the "Personal Information Form" consisting of 13 questions including demographic characteristics of students (gender, age, income status), "State Anxiety Inventory," "The Ways of Coping with Stress Inventory(WCI)," "The subjective units of distress scale (SUD)."

2.5.1. Personal information form

The personal information form prepared by the researcher consists of 13 questions that will determine the demographic characteristics of the students (age, education, income level), whether they have any health problems, and "anxiety and fear about learning during the pandemic process."

2.5.2. State-Trait anxiety inventory (STAI)

State-Trait Anxiety Inventory (STAI) was developed by Spielberger et al. (1970). It was adapted to Turkish society by Öner and Le Compte (1985). The STAI is a scale that separately measures state and trait anxiety levels, with 20 items scored by a Likert scale. The expressions in the scale range from "rarely" to "almost always." There are two types of expressions in the State-Trait Anxiety scales. Direct expressions express negative feelings, and inverted expressions express positive feelings. Reversed expressions in the state anxiety scale (SAS) are items 1, 2, 5, 8, 10, 11, 15, 16, 19, and 20. Reversed expressions in the trait anxiety scale (TAS) are 21, 26, 27, 30, 33, 36, and 39. The total score obtained from both scales varies between 20 and 80. High scores indicate a severe form of anxiety, whereas low scores indicate a mild form of anxiety (Öner ve Le Compte, 1983).

2.5.3. Ways of coping with stress inventory (WCI)

The ways of coping with stress inventory (Appendix 5) was developed by Şahin and Durak (1995) based on the Ways of Coping Inventory developed by Folkman and Lazarus (1984) to measure the level of coping skills with stress. The 30-item scale has five sub-dimensions: Self-Confident, Optimistic, Submissive, Helpless styles, and Seeking Social Support. The averages obtained by dividing the scores obtained by the number of questions give information about the coping strategy levels. For example, a score between 0-3 can be obtained from a sub-dimension. While self-confident, optimistic, and seeking social support are active coping strategies, the self-blaming, and submissive approach is one of the passive coping strategies (Şahin and Durak, 1995).

2.5.4. The subjective units of distress scale (SUD)

The cognitive element of EFT involves self-rating of distress severity and pairing of an abbreviated exposure

statement and a self-acceptance statement. The severity of distress is evaluated by subjects on an 11- point Likert scale. 0 corresponds to absolutely no distress, while ten corresponds to the maximum possible distress. This situation is considered as the subjective units of distress scale (SUD) and provides clinicians and patients with the measurement of the severity of symptoms experienced by the latter in addition to a repeated measure by which the progress of treatment can be evaluated (Church and Brooks, 2010; Both et al., 2013; Sezgin, 2013).

2.6. Data Collection

The study data were gathered via the online survey form. Information was given to the participants (n: 72) about the study via ZOOM by the researcher. Identity information was not included in the forms filled out by the students, and a code system was created to determine the relationship between the forms completed before and after the EFT. Personal characteristics questionnaire, State Anxiety Scale (SAS), and Ways of Coping with Stress Inventory (WCI) were applied to the intervention and control groups at the pretest stage. In addition, the subjective units of distress scale (SUD) was applied to the intervention group before the EFT application. After four sessions of EFT, "SAS," "WCI," and "SUD" were applied again to the intervention group in the post-test phase. To avoid interaction between the groups, the pretest was applied to the control group before starting the EFT application in the intervention group, and the post-test was applied two weeks later. Afterward, the intervention group was pretested, and EFT therapy was started.

2.7. Emotional Freedom Technique

2.7.1. Intervention group

One of the researchers received the "Intervention Advanced Energy EFT Trainer" certificate at the end of the 5-day program, which included 9 hours of face-to-face basic training one day and 36 hours of training four days within the scope of the Internationally Certified Intervention Energy EFT application, and the researcher made the application. First of all, the researcher created a WhatsApp group with the students' information to ensure the continuity of the application. Then, before starting the application, the researcher had the students in the intervention group download the ZOOM program to their phones or computers. After completing the personal characteristics questionnaire online, an hour was determined for the interview.

Sessions were planned according to the days and hours that students could attend. Sessions were held between 18:00 and 21:00 on Sunday-Wednesday. The researcher talked with students about the importance of their participation in each session and kept in touch with the students (WhatsApp, phone) to avoid interruptions. In addition, the researcher instructed the students to keep their cameras on during the therapy and carefully watch the researcher's strokes on the acupuncture points. In addition, they were asked to be as relaxed and comfortable as possible during the session. The 40

students in the EFT group were divided into four subgroups of 10 participants each. EFT was applied to each student group in four sessions of approximately 80 minutes.

Before starting the EFT session, the participants were asked to identify the problem that aroused their anxiety. After the common point of the problems was determined, the ORDS level of all participants was determined. Next, the EFT session explained traditional acupuncture meridian points on the head, face, neck, chest, and hands. Next, they were asked to repeat the phrase, "Even though I have this feeling of stress and anxiety, I accept myself deeply and completely," while gently applying to the acupuncture points with their index and middle fingers. While using this expression, the participants hit each acupuncture area seven times. After the first round of hits accompanied by this phrase, participants were asked to abbreviate "this feeling of anxiety, stress" with another short phrase. The participants then repeated rounds of this process until they noticed that their anxiety had decreased (Church et al., 2012; Patterson, 2016).

2.7.2. Control Group

Participants in the control group (n= 34) received no intervention throughout the study. However, it will be applied to students in the control group after the research and accept the EFT application.

2.8. Statistical Analysis

IBM SPSS 26 Software was used for statistical analysis. Shapiro-Wilk test and Levene test were used to evaluate the distribution normality of quantitative data. Independent samples t-test was used for the evaluation of quantitative variables between groups. Paired samples t-test was employed to test the change in quantitative variables over time. Descriptive statistics such as arithmetic mean (\bar{X}) and standard deviation (SD) are also included in hypothesis testing. Statistical significance was accepted as $P < 0.05$.

3. Results

According to the results of the study, it was determined that 93.1% of the students whose average age was $20,389 \pm 1,606$ were female, 86.1% had nuclear family structure, 98.6% lived with their family, 2.8% worked, 90.3% had no health problem. During the pandemic, 91.7% of the students stated that they followed the news about COVID-19, and 93.1% of the students stated that they had anxiety about learning nursing education (Table 1).

Table 2 shows the comparison of the intervention and control groups in terms of the measurement scores of the participants' SAS, WCI, and sub-dimensions. It is seen that the self-confident approach measurement averages measured in the pretest in the intervention group were higher than in the control group ($P < 0.05$). In addition, it is seen that the submissive approach measurement averages measured in the pretest in the intervention group were lower than the students in the control group.

After the intervention, it was observed that the optimistic and self-confident approach measurement averages in the intervention group were higher than in the control group and the state anxiety scale measurement scores

were lower than in the control group. In addition, the helpless approach measurement averages measured in the intervention group after the intervention was lower than the students in the control group (Table 2).

Table 1. Sociodemographic characteristics of intervention and control groups

Variable		n	%
Group	Intervention	38	52.8
	Control	34	47.2
Gender	Female	67	93.1
	Male	5	6.9
Family type	Nuclear family	62	86.1
	Extended family	8	11.1
	Seperated family	2	2.8
Education status(Father)	Primary school	34	47.2
	Secondary school	16	22.2
	High school	14	19.4
	University	8	11.1
Place of residence	With family	71	98.6
	Alone in student house	1	1.4
Employment status	Yes	2	2.8
	No	70	97.2
Health problem	Yes	7	9.7
	No	65	90.3
The state of experiencing anxiety about learning in nursing education during the pandemic process	Yes	67	93.1
	No	5	6.9
	Age	20.389 ± 1.606*	

Table 2. Comparison of students' stress coping styles scale and its sub-dimension's measurement mean scores and state anxiety scale measurement scores according to the intervention and control groups

Dimension	Intervention		Control		t	P
	\bar{X}	SD	\bar{X}	SD		
Seeking Social Support.	2.711	0.656	2.897	0.519	-1.327	0.189
Optimistic	2.537	0.544	2.371	0.480	1.367	0.176
Self-Confident	2.793	0.563	2.143	0.409	5.647	<0.001
Submissive	1.890	0.382	2.623	0.435	-7.605	<0.001
Helpless styles	2.563	0.529	2.618	0.430	-0.482	0.631
WCI	2.531	0.299	2.590	0.253	-0.893	0.375
SAS	42.868	4.101	38.588	4.106	4.419	<0.001
Seeking Social Support.	3.079	0.494	2.934	0.520	1.215	0.229
Optimistic	3.011	0.522	2.665	0.588	2.644	0.010
Self-Confident	3.233	0.512	2.966	0.521	2.190	0.032
Submissive	2.047	0.471	1.894	0.475	1.373	0.174
Helpless styles	1.993	0.457	2.307	0.626	-2.450	0.017
WCI	2.651	0.271	2.540	0.333	1.560	0.123
SAS	38.974	4.010	40.206	3.732	-1.345	0.183

\bar{X} = mean, SD= standard deviation, WCI= ways of coping with stress inventory total measurement score average, SAS= trait anxiety scales total measurement score average

In Table 3, the measurement point averages of the WCI and sub-dimensions are measured based on the experimental and control groups of the students participating in the research, and the SAS measurement scores are given. After the intervention, WCI, seeking social support, optimistic, self-confident, and submissive approach measurement mean scores were higher than the pretest mean scores, and SAS mean scores were lower than the pretest mean scores ($P < 0.05$). In addition, it is seen that the mean scores of helpless approach measurement in the intervention group were lower after the intervention than in the pretest. The

control group observed that the submissive and helpless approach measurement averages measured in the post-test were lower than those in the pretest (Table 3).

Table 4 shows the paired t-test results according to the changes in the pre-and post-test of the subjective discomfort levels of the students participating in the research measured based on the experimental group. The changes in the subjective discomfort levels of the students in the experimental group according to the pre-and post-test were statistically significant ($P < 0.05$). In addition, the mean SUD score decrease in the post-test for the EFT group was highly significant ($P < 0.001$).

Table 3. Comparison of students' stress coping styles scale and its sub-dimensions mean scores and changes in state anxiety scale measurement scores according to the pre-test and post-test

Dimension	Pre- test		Post- test		t	P	
	\bar{X}	SD	\bar{X}	SD			
Intervention	Seeking Social Support.	2.711	0.656	3.079	0.494	-3.471	0.001
	Optimistic	2.537	0.544	3.011	0.522	-4.839	<0.001
	Self-Confident	2.793	0.563	3.233	0.512	-6.387	<0.001
	Submissive	1.890	0.382	2.047	0.471	-2.246	0.031
	Helpless styles	2.563	0.529	1.992	0.457	7.372	<0.001
	WCI	2.531	0.299	2.651	0.271	-3.003	0.005
	SAS	42.868	4.101	38.974	4.010	-4.341	<0.001
Control	Seeking Social Support.	2.897	0.519	2.934	0.520	-0.286	0.777
	Optimistic	2.371	0.480	2.665	0.588	-2.172	0.037
	Self-Confident	2.143	0.409	2.966	0.521	-6.298	<0.001
	Submissive	2.623	0.435	1.894	0.475	6.110	<0.001
	Helpless styles	2.618	0.430	2.307	0.626	2.355	0.025
	WCI	2.590	0.253	2.540	0.333	0.785	0.438
	SAS	38.588	4.106	40.206	3.732	1.865	0.071

\bar{X} = mean, SD= standard deviation, WCI= ways of coping with stress inventory total measurement score average, SAS= trait anxiety scales total measurement score average

Table 4. Comparison of the changes in the subjective discomfort levels of the students in the intervention group according to the pre- and post-test

Dimension	Test time	\bar{X}	SD	t	P
SUD	Pre-test	8.184	1.249	12.145	<0.001
	Post- test	5.026	1.747		

\bar{X} = mean, SD= standard deviation, SUD= subjective units of distress scale

4. Discussion

4.1. Anxiety and Subjective Discomfort Levels of Students Who Applied the Emotional Freedom Technique

Today, the COVID-19 epidemic, which affects the whole world, has also shown its effect on the education system and has led to significant changes. Especially in nursing education, where clinical applications are intense, it has caused skill teaching to be given through distance education. This situation has affected nursing students' high anxiety levels and adaptation to their daily lives. This study was planned to investigate the effect of the

emotional Freedom Technique (EFT) application on nursing students' coping styles with anxiety and stress. After the intervention, it was observed that the state anxiety scale measurement scores in the intervention group were lower than the control group. Thus, our H¹ hypothesis was confirmed. In addition, the mean subjective discomfort levels (SUD) score decreased in the post-test for the EFT group was found to be highly significant. Studies in the literature were similar to our study. It was found that applying the EFT technique to nurses during the COVID-19 pandemic effectively reduced the subjective discomfort level (SUD), anxiety,

and burnout levels of nurses (Dinçer and İnangil, 2020). In the study examining the effect of the EFT technique on exam anxiety in nursing students, it was found that EFT significantly reduced exam anxiety and subjective discomfort levels (SUD) (Vural et al., 2019). In the study investigating the effect of music therapy and EFT, it was determined that the mean anxiety scores of the experimental group were significantly lower after the EFT intervention (İnangil et al., 2020). In a study in which EFT was applied to university students to increase academic performance and reduce anxiety, a significant decrease was found in anxiety levels and subjective discomfort levels (SUD) (Boath et al., 2013). When we look at these studies, it is revealed that there is a significant difference in the effect of the EFT technique on students' stress and anxiety (Benor et al., 2009; Sezgin, 2013; Gaesser andKaran, 2016; Patterson, 2016). EFT, which is used within the scope of complementary therapies in bioenergy, has positive effects on human life, especially when it is considered that pandemics such as COVID-19 affect education and health and many other areas. In reducing anxiety and stress, bringing the factor that creates anxiety to the fore by expressing feelings and thoughts has effectively reduced the stress and anxiety that people experience due to that situation.

4.2. Styles of Coping with Stress of Nursing Students Who Applied Emotional Freedom Technique

Our study observed that the ways of coping with stress scale, seeking social support, optimistic approach, and self-confident approach measurement scores were higher than the mean scores measured in the pretest after EFT application in the intervention group. Thus, our H² hypothesis was confirmed The literature is similar to our study. In a study examining the application of EFT together with Breath Therapy on public speaking anxiety and coping with stress in nursing students, it was determined that students who underwent EFT with Breath Therapy were effective methods in reducing stress, anxiety, and public speaking anxiety (Dinçer et al., 2020). A study examining the effect of EFT on stress biochemistry found that EFT is an efficient and effective short treatment in reducing stress biomarkers (Zimba et al., 2020). Another study found that EFT reduces stress factors in couples exposed to high-stress levels and with depressive and post-traumatic stress disorder (Wiebe and Johnson, 2016). The COVID-19 pandemic, which has led to increased uncertainties and future anxiety, has led to the experience of self-insufficiency, anxiety, and stress in nursing students who have not yet started their professional lives due to staying away from the clinical area. This technique, which is a psychotherapeutic technique and provides cognitive restructuring, has been shown to significantly improve the management of psychological problems (Rancour, 2017). Students can adopt the idea that they can benefit from alternative techniques in coping with anxiety and stress, self-confidence in managing stress, and displaying an optimistic approach. Emotional freedom technique will

provide important gains in managing anxiety and coping with stress in situations where uncertainties such as the COVID-19 pandemic are experienced.

5. Conclusion

It was found that after EFT, anxiety levels decreased, and stress coping styles increased in the students. Therefore, alternative approaches such as the EFT that nursing students can apply on their own should be encouraged to reduce their anxiety levels and increase their coping with stress. In addition, the methods applied through online platforms will positively contribute to students' lives, especially when students are far from each other and cannot be together due to the pandemic.

Author Contributions

Percentages of the author(s) contributions is present below. All authors reviewed and approved final version of the manuscript.

%	CE	BÇ	ÜD	HÜ	EY
C	25	25	25	25	
D	100				
S	25	25	25	25	
DCP	50	50			
DAI	20	20	20	20	20
L	20	20	20	20	20
W	100				
CR	100				
SR	100				
PM	100				
FA		25	25	25	

C= concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management, FA= funding acquisition.

Conflict of Interest

The authors declared that there is no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval/Informed Consent

Approval was taken from the Human Research Ethics Committee of the Foundation University. Institutional permissions were obtained from the Bülent Ecevit University Human Research Ethics Committee (20/11/2020-935 numbered). Research ethics principles established by the Declaration of Helsinki were followed throughout the study. The study was registered at Clinical Trials.gov (NCT05227560). The participating students were provided with information about the study, and their informed consent was obtained.

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