



Clinical trial

Effectiveness of Music Therapy and Emotional Freedom Technique on Test Anxiety in Turkish Nursing Students: A Randomised Controlled Trial

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ABSTRACT

Introduction: Test anxiety, one of the forms of situational anxiety, is a crucial biopsychological factor negatively affecting the wellbeing and academic performance of students throughout their education. The study aimed to determine the effects of music therapy and EFT (Emotional Freedom Technique) on situational anxiety and vital signs in nursing students before they took an OSCE (Objective Structured Clinical Exam).

Methods: This study was conducted with 90 volunteer students. A computer-based random number generator was used to randomly assign the students into three groups (Music, EFT, and control), each group consisted of 30 students. Data was collected using a Student Identification Form, the Situational Anxiety Scale, and the Vital Signs Form.

Results: Before the interventions, the mean anxiety scores of the students were similar. After the interventions, however, the mean anxiety scores of those in both experimental groups were significantly lower ($p < .05$). The difference between the mean vital signs of the groups was not statistically significant, except the pulse rate in the EFT and peripheral capillary oxygen saturation (SpO₂) in the music group.

Conclusions: According to the results of the study, both music therapy and EFT led to a decrease in the nursing students' average scores before the OSCE, as measured by the Situational Anxiety Scale.

1. Introduction

Anxiety – an important concept for describing human behaviors – is a condition in which a number of physiological responses are generated, accompanied by feelings of distress, anxiety, and depression in various scenarios where one feels threatened. Situational anxiety is a temporary emotional state with varying levels of intensity over time that occurs as a result of an individual feeling threatened in a particular situation. It is characterized by unpleasant sensations, such as sadness and tension, caused by stimulation of the central nervous system [1,2]. Test anxiety, a form of situational anxiety, is an important biopsychosocial factor that affects the wellbeing and academic performance of students during their academic journeys. Although moderate anxiety may promote creativity and improvement in students, when feeling intense anxiety, students suffer from lack of attention, shorter concentration spans, and reduced learning, leading to mistakes in classroom activities and a decrease in academic success [2,3].

Typical nursing curriculum includes heavy course loads, stringent examinations, and continued pressure to attain a high-grade point

average in a competitive environment [4,5]. According to a study conducted in Turkey, 50.5 % of nursing students ($n = 584$) have low-level situational anxiety, 45 % have moderate-level situational anxiety, and 4.5 % have high-level situational anxiety [6]. A study has shown that preparing for exams, taking exams, and anxiety of being evaluated are the primary academic stressors for nursing students [7].

Throughout their nursing studies, students have to deal with a number of situations that cause anxiety at various stages, especially during clinical practice. Clinical learning is one of the foremost factors contributing to the acquisition of professional skills, but also causing anxiety in students. Monitoring a suffering patient, being criticized by an instructor, and fear of making a mistake while providing care was reported as clinic stressors by nursing students [7].

Vocational skills labs, which prepare nursing students for clinical practice, include safe care practices to close the gap between theory and practice. Today, almost all universities are using the OSCE (Objective Structured Clinical Exam), an examination testing students' level of competency in vocational skills learned at the skills labs during the academic year [8]. The OSCE covers complex practices, such as

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applying knowledge, sequencing, verbal and behavioral communication, and psycho-motor skills [9]. Although students have theoretical knowledge, they may experience fear and anxiety when transforming knowledge into skills in the OSCE. In a study, students were asked about their feelings and thoughts during the exam after taking an OSCE. The students responded that the OSCE was useful for future clinical experience, but that they felt anxiety, loss of control, and pressure during the examination [10,11].

The literature highlights the importance of stress reduction for allowing students to maximize their learning of practical skills in the vocational education process. Techniques such as music therapy, cognitive therapy, emotional freedom techniques (EFT), breathing techniques, mind cleansing, aromatherapy, and relaxation of muscles have been used to reduce the anxiety levels of nursing students [2,4,8,12–18]. However, to the best of our knowledge, no study has compared these interventions to assess whether they can reduce situational anxiety experienced by nursing students before an OSCE.

Taking these as a starting point, this paper aims to determine the effects of music therapy and EFT on situational anxiety and vital signs in nursing students before an OSCE and to compare these two methods. These techniques, which are easy, safe, and inexpensive to implement, may be used to reduce nursing students' test anxiety and thus contribute to the improvement of their exam performance.

2. Methods

2.1. Study design

A randomized controlled trial was conducted.

2.2. Participants

This study was conducted with 90 volunteer students studying at the Faculty of Health Sciences, Department of Nursing at Istanbul Medipol University. The data was collected prior to the OSCE on May 31, 2017. Students included in the study were required to meet the eligibility criteria of (a) being 18 years old or above, (b) taking the theoretical course of Nursing Principles I and II, and (c) entering the OSCE on May 31 as part of the Nursing Principles Course. All students taking the exam were included in the study ($n = 96$). Using the website random.org, a randomly ordered class list was prepared with the student numbers in the classroom list. According to the newly created list, students were notified in writing by advert one day before the exam about what time they were expected to arrive before the exam. Students who arrived on the day of the exam were assigned to the music therapy (M1 and M2) and EFT (E1 and E2) groups and the control group (C1 and C2) (Fig. 1). Six students who did not volunteer to participate in the study, who arrived late, or who did not turn up, were not included in the study. Each group consisted of 15 students for more efficiency due to the insufficient number of supervisors to monitor them. The flow diagram created by the researchers was based on the Consolidated Standards of Reporting Trials (CONSORT) Checklist (Fig. 1). The study was registered in Clinical Trials with the registration no "NCT03645811."

2.3. Ethical considerations

Approval was taken from the University's Ethics Committee (approval number: 10840098-604.01.01-E.11892) before the study commenced. After informing the students about the study, students who agreed to participate read and signed the consent forms prepared for each group. Written permission was taken from the university where the study was conducted. The study was conducted in compliance with the "Ethical principles for medical research involving human subjects" of the Helsinki Declaration.

2.4. Data collection

According to a normal exam procedure, students presented at the place where the exam was to be held according to their student numbers and at a time designated by the teacher. Before being summoned to the exam, they were required to wait in a room. During the waiting time, music therapy and EFT were used to decrease students' situational anxiety. The researchers had received training on music therapy and EFT, these two interventions were applied depending on the students' group allocation. The study had two experimental groups and one control group. According to the randomly ordered class list, all students were notified in writing about what time they were required to arrive before the exam. All students who arrived on the specified time were assigned to one of the M1, M2, E1, E2, C1, and C2 groups. The students were taken to a 90m² practice room with 15 seats. Each group was briefed for five minutes before obtaining their consent. The researchers and two assistants measured students' vital signs. Five digital blood pressure monitors were used to measure the blood pressure, and three pulse oximeters were utilized to measure pulse and peripheral capillary oxygen saturation (SpO₂). The devices were calibrated before the measurements were taken.

The students were asked to fill out the Student Identification Form and the Situational Anxiety Scale. Afterwards, the interventions (music therapy and EFT) were applied for about 15 min (Table 1). The interventions were applied by the authors, who were experts in their fields. Following the interventions, the researchers re-measured students' vital signs and asked them to fill out the Situational Anxiety Scale again. For the control group, pre-measurements were taken, 15 min of free time was given, and then post-measurements were taken.

Once each intervention was applied, the students were taken immediately to the OSCE rooms to prevent them from contacting each other. There were no disruptions to the exam flow. The whole process lasted approximately six hours for this study. No interaction was allowed between students leaving the exam and entering the exam.

2.4.1. Implementation of music therapy

For the music therapy, lecturers specializing in music therapy were consulted and accordingly a "mahur maqam," an instrumental piece of traditional Turkish music played on the saz, was chosen. The mahur maqam has a descending scale, which has a relaxing impact as it moves along a 1–2 octave sound spectrum. It elicits feelings of joy and positivity, and immediately draws the attention of the listener, helping keep the mind clear. The mahur maqam belongs to the rast maqam family. Rast maqams are usually evocative of feelings of peacefulness, surrender, tranquillity, trust, and mystical sentiments [19].

In the study, music therapy was applied in the application room. Via a portable computer, students listened to the mahur maqam for 15 min under the supervision of the researchers using an MP3 player.

2.4.2. Implementation of EFT

The EFT application protocol was explained to the students with the help of the image in the picture (Fig. 2) for 5 min. The EFT was provided by the second author, who was certified in EFT. The method was applied as follows: first, the researcher tapped on different parts of students' bodies and the students repeated the steps for three sessions. Each of the treatment sessions took approximately three minutes, nine minutes in total. Each EFT session was performed by following the steps below.

The content of each EFT session was as follows:

1 Preparation

- Focusing (determining the main problem causing anxiety)
- Assessment (the level of anxiety is assessed)
- Affirmation "I forgive myself, I accept myself, and I love myself despite my fear of..." (the karate chop point is rubbed while

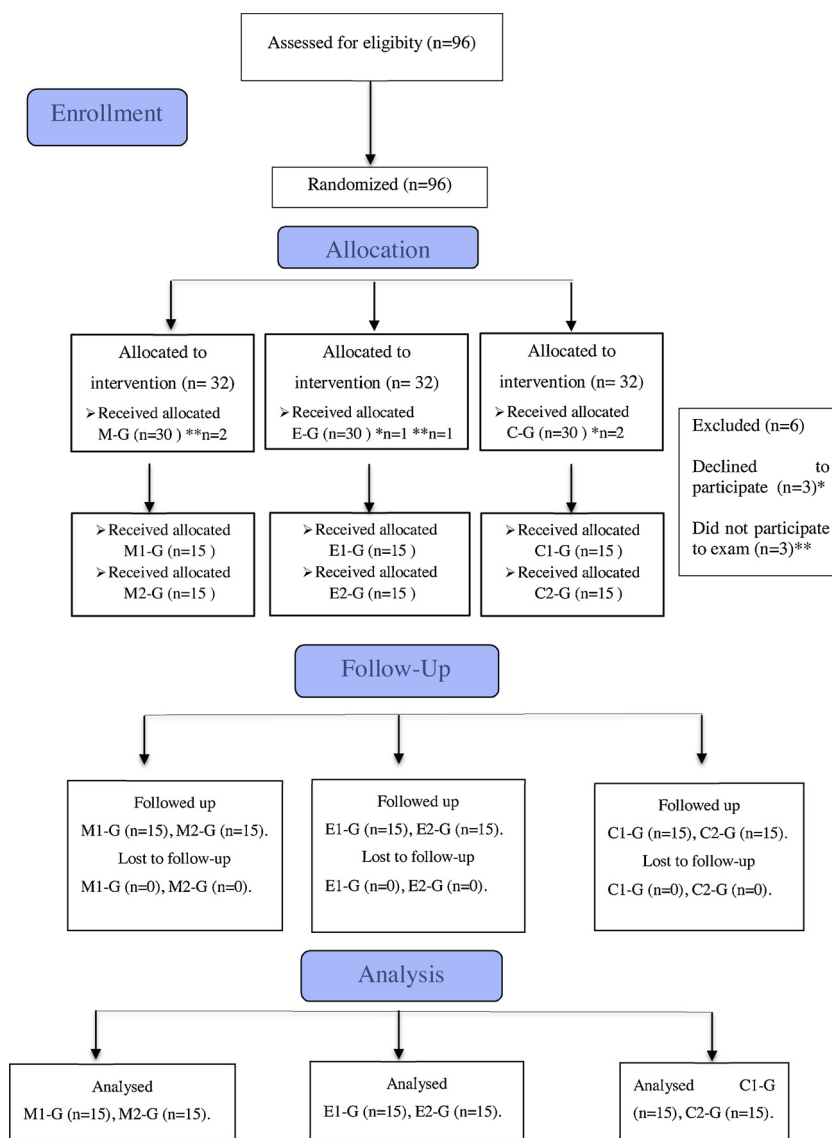


Fig. 1. Study Flow Chart.

Note. n: Number of participants, M-G: Music therapy group, E-G: EFT (Emotional Freedom Techniques) Group C-G: Control group.

Table 1 Application activities and measurement before OSCE.

Groups (n = 90)	Time	Intervention Activities
M1 (n = 15)	11.15	Informing, taking consent, Student Identification Form Pre-measurements: Situational Anxiety Scale, vital signs
	11.45	Music therapy
	12.00	Post-measurements: Situational Anxiety Scale, vital signs
M2 (n = 15)	12.30	Informing, taking consent, Student Identification Form Pre-measurements: Situational Anxiety Scale, vital signs
	13.00	Music therapy
	13.15	Post-measurements: Situational Anxiety Scale, vital signs
EFT1 (n = 15)	13.45	Informing, taking consent, Student Identification Form Pre-measurements: Situational Anxiety Scale, vital signs
	14.15	EFT
	14.30	Post-measurements: Situational Anxiety Scale, vital signs
EFT2 (n = 15)	15.00	Informing, consent, Student Identification Form Pre-measurements: Situational Anxiety Scale, vital signs
	15.30	EFT
	15.45	Post-measurements: Situational Anxiety Scale, vital signs
Control (n = 30)	16.15	Informing, consent, Student Identification Form Pre-measurements: Situational Anxiety Scale, vital signs
	16.45	Free time
	17.00	Post-measurements: Situational Anxiety Scale, vital signs

Note: OSCE: Objective Structured Clinical Exam, M1,2: Music Therapy Group 1,2, E 1,2: Emotional Freedom Techniques Group1,2, C1,2: Control Group, n: Number of participants.



Fig. 2. EFT tapping points [36].

repeating this three times).

2 Tapping Series

The tip of the eyebrows, the corner of the eyes, the under-eye area, the under nose point, the chin, the collarbone point, the underarm point, the thumb, the index finger, the middle finger, the little finger, and the karate chop points are tapped using two fingers (the affirmation statement is repeated while tapping these points seven times).

3 The Nine Gamut Sequence and Eye Movements

- Open your eyes.
- Close your eyes.
- Open your eyes and look to your bottom right.
- Look to your bottom left.
- Following a straight line up from where you are seated, look at the top of your head.
- Draw the largest circle you can with your eyes clockwise. Imagine that your nose is stuck to the center of a large clock and you are trying to see each number.
- Repeat the same step counter-clockwise.
- Hum “Happy Birthday” for two seconds.
- Count from 1 to 5 quickly.
- Hum “Happy Birthday” for two seconds [19–24].

Data collection was carried out using (a) the Student Identification Form prepared by the authors, (b) the Situational Anxiety Scale, and (c) the Vital Signs Form.

a The Student Identification Form

This form contains questions about the students’ socio-demographic characteristics, including their age, sex, economic situation, and place of residence.

b Situational-Continuous Anxiety Inventory

The Situational-Continuous Anxiety Inventory includes two separate scales with a total of 40 items. This study employed the Situational Anxiety Scale. The Situational Anxiety Scale consists of a total of 20 items. Its reliability coefficient varies between 0.83-0.96. The participants were expected to respond to the items according to their feelings and thoughts at that moment. In this study, the Cronbach’s alpha value of the Situational Anxiety Scale was 0.92.

The items of the Situational Anxiety Scale are scored on a scale of 1–4 depending on the level at which the mentioned emotions or behaviors were experienced. The total score obtained from the scale can vary between 20 and 80. Higher scores indicate higher levels of anxiety [1].

c Vital Signs Form

This form was prepared by the researchers and includes the students’ blood pressure, heart rate, and SpO₂ measurements before and after the intervention. The students’ blood pressure was measured manually. The pulse and SpO₂ values were measured with a pulse oximetry device, which had been calibrated just before the study.

2.5. Objective structured clinical exam

All students who take the Nursing Principles lab course were assessed with the OSCE. Students were selected by lots on two questions on the nursing practices taught throughout the semester. The exam flow was as follows: students entered the exam area in the order of their student number, select by lot a question on nursing practice, prepared their materials and practiced on a model/patient care mannequin, removed the materials, and left the exam area. The application steps performed by the student were marked as correct, incorrect, or missing by the supervisor in charge and graded accordingly. Students leaving the exam area were not allowed to interact with other students waiting to take the exam.

In this OSCE exam, there were psycho-motor skills in nursing interventions such as medication preparation (ampoule, flacon, etc.), medication administration (skin, eye intramuscular, etc.), urinary catheterization, oxygen therapy, gastrointestinal intubation, collecting the sample (fecal, urinary, etc.) [25].

2.6. Data analysis

Licensed SPSS 16.0 (Statistical Package for the Social Sciences for Windows, Version 16.0) was used for the data analysis. The results were evaluated using a significance level of $\alpha = 0.05$. Nominal variables were rated for frequency and percentage; ordinal variables were rated for the mean, and standard deviation. Baseline demographic information among the groups was analyzed using the Chi-squared test. Due to the non-normal distribution, the Kruskal Wallis H test was used to compare pre-post intervention (or free time for control groups) anxiety, separately, between the three groups and the Wilcoxon Signed-Rank test was used to compare pre/post anxiety and vital signs within groups. When the Kruskal-Wallis test was significant, pairwise Wilcoxon Rank Sum tests were conducted to compare the groups at a significance level of $\alpha = 0.05$.

3. Results

At baseline there were no statistically significant differences between the groups in terms of the descriptive characteristics of the students randomly assigned to the different groups. The groups were therefore similar/homogeneous. The mean age of the students was 19.27 (min. = 18, max. = 22) and 17 % were male. The majority of the students lived with their families, and their economic situation was moderate-good (Table 2).

Table 3 shows that there was no statistically significant difference in the anxiety levels among the groups before the intervention ($p = .712$). However, a statistically significant difference was obtained after the application of the intervention ($p < .05$). The pairwise comparisons revealed that this difference was caused by the control group ($p < .05$). There was no statistically significant difference in the anxiety levels between music therapy and EFT groups ($p = .459$). Besides, the interventions caused a statistically significant difference in anxiety levels before and after each application ($p < .05$). In addition, there was no statistical difference between M1 and M2 ($p = .604$) and E1 and E2 ($p = .285$) groups after the intervention.

There was a statistically significant decrease in pulse rate in the EFT group and an increase in the SpO₂ rate in the music therapy group ($p < .05$). Except for these, there was no statistically significant

Table 2
Distribution of descriptive characteristics of students by group.

Groups Characteristics	Music Therapy (n = 30)		EFT (n = 30)		Control (n = 30)		χ^2 p*
	n	%	n	%	n	%	
Age							
Mean \pm SD	18.9 \pm 0.88		19.1 \pm 0.88		19.5 \pm 1.07		5.226 .733
Gender							
Female	27	90.0	23	76.7	24	80.0	1.976 .372
Male	3	10.0	7	23.3	6	20.0	
Place of Residence							
With parents	23	76.7	24	80.0	24	80.0	4.171 .654
Student dormitory	4	13.3	5	16.7	5	16.7	
With relatives	3	10.0	1	3.3	1	3.3	
Alone	-	-	-	-	-	-	
Economic status							
Poor	-	-	1	3.3	-	-	4.911.297
Average	19	63.3	12	40.0	15	50	
Good	11	36.7	17	56.7	15	50	
Very good	-	-	-	-	-	-	
Total	30	100	30	100	30	100	

Note: *Chi-squared test, n: Number of participants, %: Percentage, SD: Standard Deviation, EFT: Emotional Freedom Techniques, $p < .05$.

Table 3
Comparison of score averages from the Situational Anxiety Scale Pre- and Post applications according to groups.

Groups	Music Therapy (n = 30)	EFT (n = 30)	Control (n = 30)	Test	
	Median, 25 th / 75 th percentile	Median, 25 th / 75 th percentile	Median, 25 th / 75 th percentile	χ^2 *	P
Before	55,00 49,75/60,75	56,5 49,5/61,25	55,00 41,75/59,00	.284	.868
After	44,50 41,75/49,00	43,00 34,75/51,25	56,00 44,75/59,25	8.328	.016
Z** p	-3.850 .000	-3.212 .001	-.733 .464		

Note: *: Kruskal-Wallis H test, **: Wilcoxon Signed Rank test, n: Number of participants, SD: Standard Deviation, $p < .05$.

Table 4
Comparison of vital signs pre- and post applications of groups.

Groups	Music Therapy (n = 30)	EFT (n = 30)	Control (n = 30)
	Pre / Post Median	Pre / Post Median	Pre / Post Median
Systolic BP	110 / 110	116.5 / 110	110 / 114
Z*	-1.782 ^a	-.257 ^a	-.415 ^a
p	.075	.797	.678
Diastolic BP	70 / 65	69.5 / 70	70 / 72
Z*	-.811 ^a	-.876 ^a	-.787 ^a
p	.417	.381	.431
Pulse	89.5 / 88.5	86 / 83	89.5 / 89
Z*	-1.540 ^b	-2.493 ^b	-.530 ^b
p	.124	.013	.596
SpO₂	98 / 98	98 / 98	98 / 98
Z*	-2.360 ^b	-.717 ^b	-.180 ^b
p	.018	.473	.857

Note: *: Wilcoxon Signed Rank test, a: Based on positive ranks, b: Based on negative ranks, n: Number of participants, EFT: Emotional Freedom Techniques, BP: Blood Pressure, $p < .05$.

difference between systolic and diastolic blood pressure, pulse rate, and SpO₂ findings for pre-post intervention (or free time for control groups) ($p > .05$) (Table 4).

4. Discussion

Test anxiety has been shown to be a concept that transcends cultural and geographical boundaries, according to studies conducted in many countries. Likewise, test anxiety experienced by nursing students around the world is one of the most significant problems that hinder the acquisition of professional skills [2,4]. It has been found that students in most nursing programs show poor exam performance in OSCEs due to their test anxiety [4,8,11]. Studies on test anxiety also show a negative relationship between test anxiety and academic performance [12,13]. On the other hand, the effects of anxiety-reducing techniques on nursing students' test anxiety have also been demonstrated by previous studies. A study conducted with nursing students found that using anxiety-coping strategies resulted in lower anxiety scores than at baseline [26].

Since academic performance may be affected by many factors and these factors could not be neutralized in the study, we did not consider students' OSCE scores. Instead, only the effects of the implementation of music therapy and EFT on situational anxiety and vital signs were examined. Before the interventions, no difference was detected among the groups regarding the level of situational anxiety. However, in music and EFT groups, an approximately 10-point drop was determined in students' average scores from the Situational Anxiety Scale. In the control group, on the other hand, the free time the students were allowed also resulted in a drop, albeit insignificant, in students' average scores. According to these results, the two interventions we applied had a positive effect on situational anxiety. But, it must be noted that the effects on neither intervention groups were superior to each other. On the other hand, the music therapy group obtained the greatest average scores from the situational anxiety scale implemented before the intervention. Therefore, the average scores of this group from the situational anxiety scale after the intervention yielded the greatest drop compared to the other two groups. It is assumed that playing "mahur maqam" positively affected the situational anxiety levels of Turkish students.

Positive effects of music have led to music being used in many areas today. For instance, the use of music has recently begun to play a more prominent role in reducing students' test anxiety. In our study, students listened to music for 15 min just before the exam. The purpose of applying it just before the exam was to evaluate its effects on students' test anxiety. It was assumed that in this way, students' situational anxiety levels would immediately drop, which, in turn, would positively affect

their exam performance. In fact, our study results have shown that music therapy was effective in reducing students' test anxiety. In one study, listening to music during the OSCE was shown to have positive effects on situational anxiety [17]. Results of another study suggest that lento music was effective at reducing anxiety levels of nursing students. Moreover, some other studies have shown that long-lasting music therapy positively influences anxiety in students. In a study by Barber and Barber (2005), music was broadcast in areas frequented by new university students (canteen, dormitory, etc.) and it was seen that their positive feelings increased while negative feelings decreased [27]. In a study conducted with university students, Wu (2002) reported that after 20 h of music therapy, students' anxiety, depression, and stress levels decreased, feelings of self-efficacy increased, and that these changes persisted even after two months [28]. Sezer (2011) stated that after a total of eight sessions of music therapy, including two sessions per week for four weeks, high school students had improved levels of test anxiety, anger, and psychological symptoms [29].

Music therapy dampens the hormonal effects that occur with stress and at the same time, reduces blood pressure, heart rate, and respiratory rate by affecting the autonomic nervous system [29,30]. In this study, music therapy reduced, albeit not significantly, the systolic and diastolic blood pressure and pulse average of students after the procedure. Besides, a statistically significant increase was determined in the SpO2 rate in the music therapy group. In a study conducted with nursing students, Lai et al. (2008) reported that listening to lento music reduced pulse rates and increased finger temperatures of students [31]. Besides, many studies conducted with patients have shown that listening to music improves patients' systolic and diastolic blood pressure, heart rate, and blood oxygen saturation [32–35].

EFT combines the tapping of meridian points with a focus on the feared object or negative emotion to provide desensitization to the fear. In addition, there is a repetition of a statement of self-acceptance, which is suggested to contribute to cognitive restructuring, a well-known psychotherapeutic technique, where the individual identifies and corrects negative thoughts [36]. EFT includes taps, nine gamut sequences, and eye movements on the meridian system, focusing on the individual's inhibiting thoughts, disturbing emotions, or memories. It regulates the flow of energy in the meridian system of the individual, causing relaxation in the mind, body, and emotions [23].

EFT treatment is a relatively new concept in the literature. A meta-analysis of 14 studies revealed that EFT treatment was associated with a significant decrease in anxiety scores [37]. A pilot study reported that EFT reduced anxiety levels of nursing students [4]. This study was conducted in a country that is different from those where the EFT originated, adding to increasing evidence that the approach may have international applications. One study on the effects of EFT on induced stress situation was conducted with Turkish students. The study found that while single-session EFT caused a significant decrease in situational anxiety [38]. On the other hand, the authors applied EFT to 80 nursing students before the written exam in a school different from the school where this study was conducted. EFT significantly reduced exam anxiety in this study [39]. After this study, the idea of determining the effects of EFT application on situational anxiety and vital signs in nursing students before the OSCE was put forward. The methodology was strengthened in this study. Comparative with music therapy, a randomized controlled trial design was conducted. Each group consisted of 15 students for applying EFT.

In a study by Church et al. investigating the effect of EFT on high school students' depression levels, it was found that students practicing EFT had lower depression scores [24]. In keeping with the findings in these studies, it has been found that EFT is effective in reducing nursing students' pre-exam situational anxiety. Also, the test anxiety-reducing effects of EFT reported in this study are consistent with the findings of previous research that has used EFT to reduce exam stress and presentation anxiety in students [38–41].

During an EFT session, the acupuncture points are tapped to create

sensations. After tapping, the beta-endorphin released from the hypothalamus activates receptors located on the endothelial surface and nitric acid is released, which results in vasodilatation in the veins [42]. This study showed non-significant decreases in systolic and diastolic blood pressure and a non-significant increase in oxygen saturation levels in the EFT group following the sessions. The decrease in pulse rates of the EFT group before and after the intervention was statistically significant in our study.

Unfortunately, there is limited information about the physiological effects of EFT in the literature. One study (n = 31) assessed resting heart rate and blood pressure after the EFT treatment. The study found significant decreases in resting heart rate, systolic blood, and diastolic blood pressure [43]. Also, a few studies supported that the stimulations on acupuncture points decreased the blood pressure [44,45].

4.1. Study limitations and strengths

Due to time constraints and the fact that we had only one practitioner trained in EFT, the intervention groups consisted of a high number of (15) students, which can be regarded as a limitation of the study. On the other hand, the random assignment of students to the groups, the presence of a control group, measurements both before and after the therapies, ensuring that there were no differences in terms of descriptive characteristics between the groups, and administration of the therapies by professionals are the strengths of the study.

5. Conclusion

In conclusion, it was observed that music therapy and EFT were effective in reducing nursing students' test anxiety before the OSCE. Also, it was found that the methods had no superiority over one another. After the music therapy and EFT session, systolic and diastolic blood pressure and pulse averages of the students decreased, and the SpO2 rate increased. Therefore, we can say that these interventions, which are easy and safe to apply, can reduce test anxiety, which, in turn, can lead to an increase in students' test performance. However, it must also be noted that there is a need for larger randomized controlled trials comparing music therapy with EFT as an intervention to reduce physiological parameters. We believe that the results of this study will contribute to the determination of effective methods for reducing test anxiety. Finally, we recommend that nursing educators acquire competency in integrative methods and apply these methods to help their students suffering from test anxiety.

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CRediT authorship contribution statement

Demet İnangil: Conceptualization, Data curation, Formal analysis, Methodology, Project administration, Validation, Writing - review & editing. **Pınar İrmak Vural:** Conceptualization, Data curation, Methodology, Validation, Writing - review & editing. **Sibel Doğan:** Data curation, Methodology, Writing - review & editing, Supervision, Validation, Visualization. **Gülşah Körpe:** Data curation, Formal analysis, Methodology, Validation, Writing - review & editing.

Declaration of Competing Interest

The authors would like to declare that there is no issue related to conflict of interest for this study.

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Appendix A. Supplementary data

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