The Results of Progressive Muscle Relaxation and Aromatherapy with Rosemary Oil on Preoperative Anxiety in General Surgery Candidates

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Received: 2022-02-01  Accepted: 2022-03-22  Published: 2022-04-29

ABSTRACT

Introduction: Therefore, based on studies on the high prevalence of preoperative anxiety reactions and the negative impact of these disorders on the patient and the lack of research in this field in the available databases, we decided to study of Progressive Muscle Relaxation and Aromatherapy With Rosemary Oil on Preoperative Anxiety in General Surgery Candidates. Material and Methods: This study, which was a clinical experience, was conducted in 2018 in Imam Reza Hospital [Tabriz University of Medical Sciences] with the participation of patients who are candidates for general surgery. For patients, progressive relaxation and aromatherapy techniques were used to control their anxiety and their anxiety was compared. Results: According to Duncan's post hoc test, the mean scores of anxieties after the intervention in the two groups of aromatherapy and relaxation are not significantly different from each other [P = 0.142]. Conclusion: Muscle Relaxation and Aromatherapy leads to a reduction in Preoperative Anxiety in General Surgery Candidate and is recommended.

Keywords: Muscle Relaxation, Aromatherapy, Rosemary Oil, Anxiety, General Surgery
Introduction

The main purpose of preoperative care is to improve the physiological and mental health of the patient and helping the patient to adapt to the situation and the resulting anxiety is one of the serious responsibilities of nurses [1-3]. In general, two types of pharmacological and non-pharmacological methods are used to reduce the level of anxiety in patients. Today, the acceptance of the use of complementary and non-pharmacological therapies in the health system has increased and much emphasis has been placed on it [4-6]. These therapies have long been used to delay the aging process and reverse disease progression in maintaining health, prevention, diagnosis, recovery, or treatment of physical and mental illness [7-9]. The technique of progressive muscle relaxation was introduced and used in 1983 by Edmund Jacobson. Relaxation is a type of intervention that uses the principles of psychoneuroimmunology to regulate physiological activity in various systems of the body [10-12]. This technique requires the active involvement of the patient in the care and treatment plan and this principle is considered as a constant in Klinginger nursing. In addition, the educational and caring role of the nurse will become more apparent with the teaching of this technique. Learning the technique and doing it is very convenient and easy, it does not cost patients and it can be used for all age groups [13-15]. The technique of progressive muscle relaxation stems from the theory that a biological biological state called increased neuromuscular pressure is the basis for negative emotional states and psychosomatic illnesses [16]. Aromatherapy is one of the non-pharmacological methods and the second complementary medicine treatment among nurses that is most used in the clinic. Today, this treatment is introduced by the State Board of Nursing as part of holistic nursing. Nurses in more than 30 countries are licensed to use this treatment [17]. In aromatherapy, aromatic oils are used, which are taken directly from the roots, flowers, bark and bark of the fruit, leaves and fruits of various plants. One of the aromatherapy methods is inhaling the desired essential oil by applying the essential oil on a person’s clothes or pillows. The aroma of aromatherapy can increase the feeling of calm in patients by affecting the limbic part of the brain. Because the limbic system also affects the nervous system, odors can stimulate and release neurotransmitters and endorphins in the brain, which makes us feel good. One of the most widely used fragrances is Aromatherapy with Rosemary Oil [18]. In a study, researchers investigated the effects of aromatherapy with lavender essential oil on the anxiety of patients admitted to the intensive care unit. The results showed that aromatherapy reduces the level
of anxiety in patients. In their study, other researchers examined the effect of aromatherapy and relaxation on physiological characteristics and anxiety of patients undergoing coronary angiography [19-21]. The results of the study showed that both aromatherapy and relaxation interventions reduce patients' anxiety, but the two methods are not superior to each other in reducing patients' anxiety. Because nurses spend more time with patients in clinical settings than other members of the treatment team, they are in the best position to alleviate patients' anxiety and can easily use non-drug therapies to reduce patients' anxiety before surgery [22-24]. The researchers did not find a study comparing the effect of progressive muscle relaxation and aromatherapy techniques with Aromatherapy with Rosemary Oil on the anxiety level of candidates for general surgery. Therefore, based on studies on the high prevalence of preoperative anxiety reactions and the negative impact of these disorders on the patient and the lack of research in this field in the available databases, we decided to study of Progressive Muscle Relaxation and Aromatherapy with Rosemary Oil on Preoperative Anxiety in General Surgery Candidates.

Material and Methods

Study design:

In this study, which was the result of a clinical experience, the study population included all patients who were candidates for general surgery referred to the surgery department of Imam Reza Hospital [Tabriz University of Medical Sciences] in 2018. The sample size was calculated based on previous studies and according to the first type error of 0.05 and test power of 0.80, ninety people. To determine the sample size, the sample size estimation formula was used. The number of samples after placing the values in the formula for each group was 24 people, which was considered for each group with a 20% drop in the number of thirty samples. Samples were divided into three groups of relaxation [n = 30], aromatherapy [n = 30] and control [n = 30] using a random six-block. In this method, sampling of different cases from three groups was written on six cards and each was placed in a package in a package. These envelopes were placed in a box, and the researcher did not know in which group the research units would be located until the card was selected. Before encountering the research units, the ward nurse removed one of the envelopes from the box without knowing the study and the groups determined which group the three patients who would enter the study belong to, respectively.
Inclusion / Exclusion Criteria
After obtaining written permission from the Vice Chancellor for Research of Tabriz University of Medical Sciences, the researcher went to the hospital on weekdays and according to the list of surgery and considering the inclusion criteria, selected the research units by easy sampling. Inclusion criteria included: the patient should be on the list of general elective surgery [hernia and cholecystectomy], having at least 18 and at most 60 years of age, no history of surgery, willingness to cooperate in research, no history of psychological problems such as depression and self-reported psychologically active disease, the patient or companion has no medical education in order to be unfamiliar with methods of reducing anxiety [pharmacological, non-pharmacological]. Lack of hearing and smell problems, able to understand and speak Persian, has not previously used the methods used in the present study, literacy of the patient or patient, no use of benzodiazepines, sedatives and narcotics and no allergies to plants. Exclusion criteria were acute pain at the time of completing the questionnaire and patient death.

Methodology
Data collection tools in this study included demographic characteristics questionnaire [age, sex, marriage, level of education, occupation and place of residence], 21-item anxiety scale. The 21-Item Questionnaire [DASS-21] was first developed by Lewiband in 1995. This questionnaire is a set of three self-report scales to assess negative emotional states of anxiety, depression, and stress. Each of the subscales includes a question. Questions 3, 5, 10, 13, 16, 17 and 21 Depression, questions 2, 4, 7, 9, 15, 19 and 20 anxiety and questions 1, 6, 8, 11, 12, 14 and 18 about patients' stress Puts the measurement. A higher score on this scale indicates anxiety, depression, and higher stress in the subject. Scores were determined based on the Likert scale of four options: general, low, medium and high. The lowest score for each question is zero and the highest score is 3. The highest score in each of the subgroups is 21. A score of normal 0-4, moderate anxiety 5-11 and more than 12 severe anxiety is considered. After introducing himself, the researcher provided the necessary explanations about the manner and purpose of the research, the right to participate freely, the right to leave the study at any stage, and the confidentiality of information, and informed consent was obtained from the samples. Then, the research units were assigned to the relevant
groups and the Cognitive Demographic Questionnaire and the DASS questionnaire to measure the level of anxiety were completed by the researcher in the form of interviews with the samples immediately after admission. In the relaxation group, technical training was performed on each patient in a face-to-face and practical manner. Then, one hour before the patient enters the operating room, by providing a completely calm environment and minimizing environmental stimuli, such as low room light and restricting movement to the patient's room, the patient hands-on the progressive muscle relaxation audio file. The researcher listens. After listening to the audio file, the patient performed relaxation exercises in the presence of the researcher as follows. The patient lay in a completely comfortable position in bed, focusing all his attention on his breathing. After this stage, the patient performed muscle contraction and expansion according to the audio file he listened to for 14 muscle groups, including facial muscles [forehead, eyelids, jaws and lips], neck muscles, fingers and palms, forearm, arm, shoulder, Back, waist, chest, abdomen, seat, thighs, legs and soles of the feet. It took 5 seconds for each muscle to contract and 10 seconds to expand. Eventually the patient relaxed his entire body, took five deep breaths, opened his eyes slowly, and returned to normal. The patient performed this technique for 20 minutes. In the aromatherapy group, on the day of the operation, one hour before going to the operating room, three drops of 10% essential oil of Aromatherapy with Rosemary Oil [prepared by Kashan Barij Essential Oil Company] were poured on a paper towel and pinned next to the patients' pillows. Inhale for minutes. According to previous studies, paper towels impregnated with three drops of 10% rose essential oil can produce fragrance for 12 hours.

**Ethical considerations:** This study was conducted in the ethics committee of Tabriz University of Medical Sciences [IR.TBZMED.REC.1398.278] and after obtaining informed and written consent from patients.

**Data analysis**

Data were analyzed using SPSS software version 21 at a significance level of less than 0.05. In order to homogenize the groups, Chi-square test was used to compare the studied variable before and after the intervention in each group, paired t-student test and to compare the studied variable before and after the intervention, one-way analysis of variance was used.
Results

For this study, 90 patients were selected as candidates for general surgery. No one was excluded from the study during the study. According to the results of the study, the demographic characteristics of patients in terms of age, sex, marriage, level of education, occupation and place of residence using the chi-square test did not show a statistically significant difference \( P < 0.05 \). Therefore, all three groups were homogeneous in terms of the mentioned variables. Regarding determining and comparing the mean changes of anxiety scores before and after the study in the progressive muscle relaxation group, the results of paired t-student test showed that the anxiety score before the relaxation intervention was 16.97 and after it was 16.03. Also, the significance level of the test was zero [25-27]. Therefore, it can be concluded that progressive muscle relaxation is significantly [at the level of one percent] in reducing preoperative anxiety in patients. Regarding determining and comparing the mean changes of anxiety scores before and after the study in the aromatherapy group with Aromatherapy with Rosemary Oil, the results of paired t-student test showed that the anxiety score before the aromatherapy intervention was 16.80 and after that it was 15.03 [28-30]. Therefore, it can be concluded that aromatherapy is significantly effective in reducing preoperative anxiety in patients. Regarding determining and comparing the mean changes of anxiety scores before and after the study between the groups, a significant level was obtained according to the one-way analysis of variance test before the intervention equal to 0.954 [31-33]. Therefore, the mean score of anxiety before the intervention was not significantly different in the three groups. But the significance level after the intervention was equal to 0.003. Therefore, the score of anxiety after the intervention is different in at least one of the three groups. Also, since the anxiety scores of the groups did not differ significantly before the intervention, it can be concluded that the difference was due to the intervention [34]. Duncan's post hoc test was used to find different group or groups. According to Duncan's post hoc test, the mean scores of anxieties after the intervention in the two groups of aromatherapy and relaxation are not significantly different from each other \( P=0.142 \), but these two groups are significantly different from the control group.

Discussion

The researchers performed a study to evaluate the effect of inhaling jasmine essential oil on the level of some physiological parameters in patients before laparotomy [35-37]. The results of their
study showed that aromatherapy is effective in reducing the level of anxiety in patients before laparotomy, which is consistent with the results of the above study. The results of another study that examined the effect of progressive muscle relaxation and guided imagery on stress, anxiety and depression in pregnant women showed that relaxation has a positive effect on reducing anxiety and stress in pregnant women referred to medical centers during six sessions. In other studies, various factors and methods have been used to reduce patients' anxiety before surgery. In this study, Aromatherapy with Rosemary Oil essential oil was used. While other researchers in their study examined the effect of aromatherapy using three drops of lavender essential oil diluted with grape seed oil on patients' anxiety [38-40]. The results of their study showed that the effect of aromatherapy on changes in physiological parameters due to anxiety in both experimental and control groups was not statistically significant, which contradicts the results of our study on the effect of aromatherapy on reducing anxiety in surgical candidates. The above study differs from our study in terms of method, type of fragrance used, amount and duration of fragrance use.

**Conclusion**

Muscle Relaxation and Aromatherapy leads to a reduction in Preoperative Anxiety in General Surgery Candidate and is recommended.

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How to Cite This Article