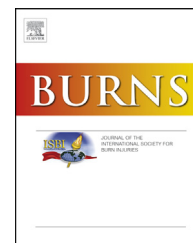


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Comparing the effects of aromatherapy massage and inhalation aromatherapy on anxiety and pain in burn patients: A single-blind randomized clinical trial

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ABSTRACT

Background: Anxiety and pain are recognized as major problems of burn patients; because pharmaceutical treatments for controlling anxiety and pain symptoms lead to complications and an increase in health costs, nonpharmacological nursing interventions were considered for this group of patients. This led to the present study aimed at comparing the effect of aromatherapy massage with inhalation aromatherapy for anxiety and pain in burn patients.

Methods: This single-blind clinical trial was carried out on 90 patients with burns <20%. Patients were randomly assigned to one of three groups, namely aromatherapy massage, inhalation aromatherapy, and control group. The patients assigned to the aromatherapy massage group received a massage for half an hour using a blend of lavender and almond oils, while a blend of rose and lavender aroma was used for the inhalation aromatherapy group. Spielberger State Anxiety Inventory was used for measuring anxiety and the visual analog scale (VAS) scale was used for measuring pain.

Results: The results showed that three groups were equal in terms of demographics, disease characteristics, and scores of anxiety and pain at the baseline. The mean decreases of anxiety scores were -0.04 ± 5.08 , 6.33 ± 12.55 , and 6.43 ± 10.60 in the control group, aromatherapy massage group, and inhalation group, respectively ($p = 0.007$). The mean decrease of pain scores were -0.10 ± 0.96 , 1.70 ± 1.84 , and 0.97 ± 1.56 in the control group, aromatherapy massage group, and inhalation group, respectively ($p < 0.001$).

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Conclusion: The study results showed the positive effect of aromatherapy massage and inhalation aromatherapy compared with the control group in reducing both anxiety and pain of burn patients. Therefore, both interventions, which are inexpensive, and noninvasive nursing tasks can be proposed for alleviating anxiety and pain of burn patients.

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1. Introduction

Burns, which constitute 5% of hospital admissions, are one of the major treatment problems in developing countries [1]. Studies show that 1.1 million burn patients in the United States and 1 million burn patients in Europe are undergoing treatment for burns. Prevalence of burns and its mortality rate are high in Iran [2], and Aghakhani's study in Western Azerbaijan estimated burn-related hospitalizations of 21.6 per 100,000 patients. Another study in southwest Iran estimated that the overall hospitalization and burn-related mortality were 13.4 and 4.6, respectively, per 100,000 people in a year [3,4].

Burn patients endure great pain while receiving treatment measures such as dressing and debridement. In addition to these painful processes, they encounter numerous chronic problems such as burn-related deformities, together with physical, mental, and social problems. These can contribute to depression, anxiety, anger, guilt, withdrawal from others, and posttraumatic stress disorder (PTSD). Therefore, pain and anxiety can be considered complications with burn patients. Pain and anxiety have a direct relationship with each other too, as increased pain leads to increased anxiety [2,5]. Anxiety has a number of detrimental physical side effects, including elevated heart rate and blood pressure. If you manage stress effectively, people can adapt to change more easily. Managing stress levels has several positive effects for patients. Increasing energy levels, becoming more tolerant of challenging circumstances, being more relaxed, and improving the quality of patient sleep [6]. An anxious patient plays a lesser role in caring for himself and needs to be cared for by others (nurses and medical staff), which prolongs hospitalization and raises costs [7]. Not only does the process of injury, treatment, and burn rehabilitation have physical effects, but they also have mental effects. This is especially true for women [8].

Tranquilizers are generally used for alleviating anxiety and pain in patients who have complications such as bleeding, nausea, drowsiness, or respiratory disorders. These treatments are time-consuming and increase healthcare costs [9,10]. Nonpharmaceutical treatment is useful for patients who do not respond well to medication or who suffer from side effects from the medication and are reluctant to take them [9]. Nonpharmaceutical treatments are also preferred by some patients, as they have no side effects or problems associated with physical and mental addiction [11].

Aromatherapy is one of the major nonpharmaceutical methods available. It is considered a holistic nursing intervention and can help meet the objectives of nurses [12,13]. It is also suitable for these patients as it reduces complications and costs [10,13]. Mechanism of action of aromatherapy: Aromatherapy

is based on the theory that inhalation or absorption of essential oils triggers changes within the limbic system, the part of the brain associated with memory and emotion. This can, in turn, stimulate physiological responses of the nervous, endocrine, or immune systems, affecting heart rate, blood pressure, breathing, brain wave activity, and the release of various hormones throughout the body [6,14]. Herbal essential oils are absorbed by the body in different ways such as massage, inhalation, compress, aroma tub, and shower bath [13,15].

Aromatherapy massage: In this therapy, different essential oils are blended and used by an expert masseur. Massage combined with essential oils provides relaxation, as well as relief from pain, muscle stiffness, and spasms [6,14]. **Aromatherapy inhalation:** In this type of therapy, diffusers and vaporizers are used to evaporate the essential oil in the atmosphere. The molecules in the air are quickly absorbed by the blood stream where they take effect. When the limbic system is stimulated by aromas, it releases brain-enhancing neurochemicals that helps reduce pain. It also creates a feeling of well-being and calmness. Aromatherapy is a potentially relaxing and therapeutic remedy, which has proven to be especially helpful in alleviating stress and anxiety. It has been shown to lower heart and breathing rates, reduce blood pressure, and restore hormonal balance [6].

Lavender is a plant with sedative, emotionally calming, antiseptic, analgesic, and antispasmodic healing properties, and it is effective in elevating moderate depression [6,7,12,16,17]. The main constituents of lavender are linalool, linalyl acetate, 1,8-cineole B-ocimene, terpinen-4-ol, and camphor. Linalool and linalyl acetate from this plant can stimulate the parasympathetic system. In addition, linalyl acetate has narcotic effects and linalool acts as a sedative [16,18]. The use of lavender oil is controversial in early pregnancy. It is advisable not to use it before the 36th week of pregnancy. It is best avoided by hay fever, asthma, and allergy sufferers [6]. Furthermore, the use of herbal oils is not advisable in some conditions, including pregnant women, patients with epilepsy (oil with camphor), children under 5 years of age, and patients with sensitive skin [6,13].

Rose has positive effects on headache, nervous tensions, palpitations, insomnia, dermatitis, and depression [11]. Rose is a tonic to the whole body and assists the circulation, which in turn encourages deep and calm breathing. It is renowned for its antidepressant properties. Rose has a lovely, uplifting aroma, which helps to calm nervous feelings. Rose contains Citronellal and 2-phenyl ethyl alcohol, which have analgesic and antianxiety effects [6,19].

Babashahi [12], Cooke [14], Taavoni [20], O'Flaherty [21], and Yeganeh Khah [22] pointed out the positive effects of aromatherapy on alleviating anxiety and pain, whereas Wilkinson et al. showed that massage aromatherapy had no

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