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A Systematic Review of Clinical Trials on Aromatherapy with Rose Essential Oil in Patients Undergoing Surgery

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Abstract

Aromatherapy or aromatherapy refers to the use of volatile oils or aromas extracted from aromatic plants for therapeutic purposes. This study aims to systematically review the effects of aromatherapy with rose essential oil in patients undergoing various types of surgery. The work was based on the to the 06-PRISMA guideline through the English databases such as Google Scholar, PubMed, Scopus, Web of Science, and ScienceDirect for finding papers related to the the effects of aromatherapy with rose essential oil in patients undergoing surgery with no time limitation. Keywords used in this work were "Rose", "Rosa damascene", "aromatherapy", "surgery", "anxiety", and "stress". From 2364 papers, 80 articles up to January 2022, met the inclusion criteria for analysis in the current systematic review. The most studies were carried out on the effect of aromatherapy with rose essential oil in patients with surgery were open heart (25%), abdominal (25%), inguinal hernia repair (12.5%), otorhinolaryngology (12.5%), percutaneous nephrolithotomy (12.5%), and rhinoplasty (12.5%), respectively. The results of the present systematic review showed that aromatherapy with rose essential oil reduces the anxiety and pain in patients with surgery, and therefore, due to the convenience of using this method and the lack of reports of any complications and also the stability of hemodynamic status of patients in this method, it is recommended to use it before surgery procedure.

Keywords: Aromatherapy; Damask Rose; Anxiety; Pain

Introduction

Surgery is an intentional change in the anatomical structures of the body in order to create comfort, relief, or eliminate pathological processes and repair traumatic injuries. One of the most common problems before surgery is anxiety [1]. In the United States of America, 23 million patients undergo surgery every year and most of them experience anxiety [2]. Anxiety is the most common mental disorder that occurs in 15-20% of patients is seen in medical clinics [3]. Prevalence of preoperative anxiety in adults varies between 11-80% [4].

Anxiety in the pre-operative stage is caused by worrying about post-operative problems such as pain and discomfort, changes in the perception of the body or performance, increased dependence, family worries or possible changes in the way of life [5,6]. Previous studies show shows that high pre-operative anxiety can prevent postoperative recovery [6,7]. High pre-operative anxiety with a high prevalence of post-operative pain reduces the ability to resist infection, increases the use of analgesics after the operation, the delay in wound healing has negative effects on the patient's mood and increases the length of stay in the hospital [8,9].

In fact, the benefits of reducing anxiety and the effect of this reduction in better recovery, faster recovery, reducing the use of drugs during anesthesia, better pain tolerance, and earlier discharge from the hospital, which ultimately leads to a reduction in costs and postoperative complications [10].

The main period before surgery is to maximize the physiological and psychological health of the patient, and helping the patient to adapt to the conditions and anxiety caused by it is one of the important responsibilities of nurses [11]. Both drug and non-drug methods are used to reduce anxiety in patients. All drug treatments to reduce anxiety need a doctor's prescription and include the use of anti-anxiety drugs such as benzodiazepines and sedatives. Non-drug methods or complementary methods mostly have few side effects and risks and can be used alone or together with other methods. Many of the non-drug methods that are used today are in the category of complementary medicine treatments. Aromatherapy is one of the treatments that has seen significant growth in recent years in most countries compared to other complementary medicine treatments. Among the nurses, this treatment is the second complementary medicine treatment that is most used in the bedside [12].

Aromatherapy or aromatherapy refers to the use of volatile oils or aromas extracted from aromatic plants for therapeutic purposes [13]. The use of aromatic plant oil has been used for the treatment of various diseases since thousands of years ago in Egypt and India [14]. Nurses in more than 30 countries are licensed to use complementary medicine treatments, including aromatherapy, in holistic nursing care [15,16]. Various researches have shown that aromatherapy can be effective in reducing anxiety, pain, fatigue, and healing skin wounds. But these effects have not been proven precisely and the exact mechanism of how aromatherapy works is not fully known. In general, aromatherapy is performed through inhalation, inhalation and massage. One of the aromatic plant essential oils that is widely used in aromatherapy is the oil obtained from the rose or Rosa damascena plant [17]. This study aims to systematically review the effects of aromatherapy with rose essential oil in patients undergoing various types of surgery.

Methods

Search Strategy

The work was based on the to the 06-PRISMA guideline [18] through the English databases such as Google Scholar, PubMed, Scopus, Web of Science, and ScienceDirect for finding papers related to the the effects of aromatherapy with rose essential oil in patients undergoing surgery with no time limitation. Keywords used in this work were "Rose", "Rosa damascene", "aromatherapy", "surgery", "anxiety", and "stress".

Article Selection

All papers which evaluated the effects of aromatherapy with rose in patients undergoing surgery were studies. After discarding duplicate papers, the title and abstract of the publications were checked and the eligible paper that satisfactorily encountered the inclusion criteria were selected for additional analysis. As the exclusion criteria, papers with the poor data, papers searched as the abstract in congresses and conferences with no full text were excluded (Figure 1). The required data for analysis were authors name, publication year, and type of surgery, dosage, intervention procedure, results, and reference.

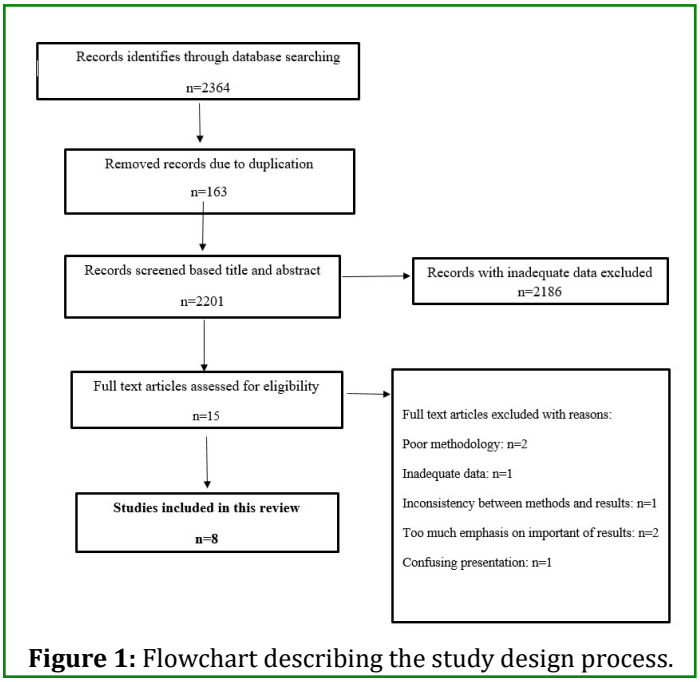

Figure 1: Flowchart describing the study design process.

Results and Discussion

From 2364 papers, 80 articles up to January 2022, met the inclusion criteria for analysis in the current systematic review (Table 1). The most studies were carried out on the effect of aromatherapy with rose essential oil in patients with surgery were open heart (25%), abdominal (25%), inguinal hernia repair (12.5%), otorhinolaryngology (12.5%), percutaneouss nephrolithotomy (12.5%), and rhinoplasty (12.5%), respectively.

Authors	Year	Surgery type	Factor	Measurement scale	Intervention process	Results	Ref
Amini, et al.	2020	Inguinal hernia repair	Pain intensity	Visual analog scale	1 drops for 20 minutes in 4, 8, and 12 h after surgery	Aromatherapy with R. damascena essential oil was effective in relieving mild to moderated postoperative pain.	[19]
Babatabar Darzi, et al.	2020	Abdominal	Extubation time, surgical site pain severity, and anxiety	The visual analog scale and Spielberger State Anxiety questionnaire	3 drops after triggering of the first inspiration	Aromatherapy can reduce extubation time, surgical site pain severity, and anxiety in patients undergoing OHS	[20]
Dagli, et al.	2019	otorhinolaryngology	Anxiety	Spielberger State Anxiety questionnaire	15 min before surgery	The anxiety and stress was significantly reduced after intervention	[21]
Emami-Sigaroudi, et al.	2021	Open heart	Sleep quality	Demographic-clinical and Beck Depression Inventory (BDI) questionnaire	2 drops every night for 5 consecutive nights at 22:00.	Although a relative improvement of sleep quality in intervention groups compared to the control group, but no significant effect was observed on any of delayed sleep, sleep duration, sleep efficiency, sleep disturbances, and use of sleep medications.	[22]
Farzaneh, et al.	2021	Percutaneouss nephrolithotomy	Anxiety	Spielberger State Anxiety questionnaire	3 drops for 10 minutes one night and one hour before surgery	Aromatherapy with rose essential reduced the patient's anxiety.	[23]
Fazlollahpour-Rokni, et al.	2019	Open heart	Anxiety	Spielberger State Anxiety questionnaire	3 drops for 10 minutes one night and one hour before surgery	Aromatherapy with rose essential oil did not cause any significant differences in state anxiety (P = 0.41), trait anxiety (P = 0.90), and total anxiety (P = 0.69).	[24]

Shirzad, et al.	2021	Rhinoplasty	Anxiety, postoperative com plication and hemodynamim status	Spielberger State questionnaire	3 drops for 20 minutes	The level of anxiety, systolic, diastolic pressure blood was significantly decreased.	[25]
Zamenkani, et al.	2021	Abdominal	Abdominal pain severity	Visual analog scale	3 breathing for 30 minutes	At 12 hours after the intervention, pain was significantly declined	[26]

Table 1: Some studies on the effect of aromatherapy on patients with surgery.

Aromatherapy is one of the most common non-pharmacological methods for reducing pain and anxiety in patients, where natural products such as lavender, rosemary, bergamot and mint are used [27]. In folk medicine, aromatherapy is used as A complementary, cheap, non-invasive method with no chemical side effects has been recommended to reduce anxiety, mental relaxation and hemodynamic stability [28]. Although scientific research has not proven its effectiveness 100%, it is believed that aromatherapy can have the same effect as drugs [29]. Among different scents, rose is one of the most useful plants whose essential oil contains steric, ketone, aldehyde and terpenic compounds. is that anxiety by stimulating the olfactory center of the brain [30,31]. Some studies have reported the soothing, hypnotic, anticonvulsant and relaxing effects of rose essential oil [32-34]. The results of our study showed that the most studies were carried out on the effect of aromatherapy with rose essential oil in patients with surgery were open heart (25%), abdominal (25%), inguinal hernia repair (12.5%), otorhinolaryngology (12.5%), percutaneouss nephrolithotomy (12.5%), and rhinoplasty (12.5%), respectively. According to some researchers, during aromatherapy, the smell of plants can activate the olfactory nerve cells and ultimately the limbic system, and depending on the type of smell, the nerve cells release different neurotransmitters such as enkephalin, endorphin, noradrenaline and release serotonin, which can have a quick effect on reducing the level of anxiety and increasing the comfort of patients [30-32].

Conclusion

The results of the present systematic review showed that aromatherapy with rose essential oil reduces the anxiety and pain in patients with surgery, and therefore, due to the convenience of using this method and the lack of reports of any complications and also the stability of hemodynamic status of patients in this method, it is recommended to use it before surgery procedure.

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