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A Mini-Review on Insomnia Management

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ABSTRACT

Insomnia, a prevalent sleep problem, poses a public health issue because of its potential to cause physical and mental fatigue; numerous psychiatric conditions, including anxiety disorders and depression, have demonstrated a significant correlation with insomnia. In today's competitive and hectic environment, robust health and enhanced immunity are essential. Quality sleep can alter hormones, thereby increasing immunity. The ramifications of sleeplessness extend beyond ordinary deficits in concentration and focus. Symptoms may encompass blurred vision, pain, altered appetite, memory deficits, fatigue, poor motor function, and irritability. Insufficient sleep results in detrimental impacts on bodily systems. Insomnia can be managed by aromatherapy. Aromatherapy is the utilization of essential oils derived from aromatic plant extracts for therapeutic purposes. The French chemist René Maurice Gattefosse coined the term aromatherapy in 1910. Aromatherapy activates olfactory receptors in the nasal cavity, which transmit signals via the neurological system to the limbic system, a brain region responsible for regulating emotions. A health professional must adhere to all safety protocols regarding essential oils in aromatherapy.

INTRODUCTION

Sleep is a fundamental requirement for human beings and is crucial for the sustainment of both physical and mental health [1]. Insomnia is a sleep disorder marked by frequent occurrences. Challenges in initiating and sustaining sleep can result in a lack of satisfaction with sleep quality [2]. Epidemiological studies indicate that 45.4% of respondents in China have experienced varying degrees of insomnia in the past month, with 10%–15% of adults meeting the diagnostic criteria for insomnia. The symptoms experienced by almost 50% of patients suffering from severe insomnia may persist for over a decade [3,4]. A significant body of research indicates that insomnia has a profound impact on health and overall quality of life, leading to various issues such as memory impairment, depression, irritability, and cardiovascular as well as cerebrovascular diseases [5-7]. Consequently, seeking effective methods to enhance sleep quality positively impacts both individual and societal health.

Nowadays, the most popular treatments for insomnia are medication therapy, psychotherapy, physical therapy, and cognitive behavioral therapy (CBTI) [8]. However, more practical insomnia therapies are required as the number of insomnia patients rises quickly. Lately, an increasing number of studies have discovered.

Aromatherapy is one of the non-pharmacological ways to enhance the quality of sleep. China has a long history and has used aromatherapy for centuries to alleviate illnesses and strengthen the body. Aromatherapy applies aromatic compounds to the human body through inhalation, massage, bathing, and other methods. Aromatherapy is less expensive, easier to use, and has fewer adverse effects than medication therapy. People frequently use it to treat anxiety, depression, and other conditions, as well as to reduce stress and improve sleep issues. In diabetic patients with insomnia, Nasiri Lari et al. discovered that inhaled lavender can enhance mood, quality of life, and the quantity and quality of sleep.[9] Lavender aromatherapy may be a useful sleep aid, according to Lytle et al.'s randomized controlled trial of 50 insomniac patients in an intermediate care unit [10].The intervention group scored higher on the Sleep Questionnaire (48.25) than the control group (40.10). Sources: Nasiri et al., 2016.

At present, there are no mini-reviews on understanding insomnia and the efficacy of aromatherapy in the treatment of insomnia. Therefore, this paper gives a brief of insomnia types and the therapeutic effect of aromapathy on insomnia.

Definition, types and risk factors of Insomnia:

Definition: "Insomnia" refers to problems falling asleep, staying asleep, or waking up early that are linked to problems during the day, such as diminished cognitive function, exhaustion, or mood swings [11].

Types of insomnia:

Specifically, there are two types of insomnia

1] Acute insomnia

2] Chronic insomnia

1] **Acute insomnia:**

Acute insomnia is a type of short-term sleeplessness that might persist for a few days or weeks. Acute insomnia causes you to struggle to fall asleep for a brief period. And eventually, everyone has occasional insomnia. Acute inso - mnia is not associated with any other medical conditions or issues.

2] **Chronic insomnia:**

More severe forms of insomnia include chronic insomnia which lasts for three months and causes trouble sleeping three or more days a week. People who suffer from chronic insomnia may lament their inability to focus on tasks, pay attention, or function normally during the day.

Risk factors of Insomnia:

Risk factors for developing insomnia include a familial history of insomnia, a history of insomnia in the past, and a tendency to wake up from sleep more quickly. Envir onmental factors such as light, temperature, noise, techn ological devices, and uncomfortable sleeping positions can all contribute to insomnia. Substance addiction and dependence on alcohol, cocaine, nicotine, and caffeine exacerbate insomnia. One of the most significant factors linked to sleep alterations is aging. Discomfort, depression, and other pregnancy related issues frequently trigger insomnia in pregnant women. Medical ailments such as cancer, gastrointestinal issues, respiratory disorders, cardi ovascular disease, neurological disorders, and some medi - cations used to treat these symptoms can cause insomnia. Table I displays a list of medications associated with insomnia.[12-15]

Table 1: Medication Associated with Insomnia

Alpha-blockers	**Tamsulosin**
Beta-blockers	Propranolol, Metoprolol
Beta-agonists	Salbutamol, Salmeterol
Corticosteroids	Prednisone
Diuretics	Furosemide, Hydrochlorothiazide
Dopamine receptor agonists	Levodopa
Monoamine oxidase inhibitors	Phenelzine, tranlycypromine
Selective serotonin reuptake inhibitors (SSRIs)	Citalopram, fluoxetine,Sertraline, Fluvoxamine
Central nervous system	Amphetamine, cocaine, ephedrine, caffeine, modafinil

Aromatherapy:

Aromatherapy derives its name from "aroma," meaning fragrance, and "therapy," meaning treatment. This practice serves as a natural method for healing the mind, body, and soul. Numerous ancient civilizations, including Egypt, China, and India, have utilized it as a prominent comple mentary and alternative therapy for at least 6,000 years. Aromatherapy has proven effective for a variety of comp - lications and conditions. A review of the literature indicates that this therapy garnered significant attention in the late 20th century and remains highly popular in the 21st century, leading to its recognition as aroma science therapy[16-18].

Essential oils have acquired significance in medicinal, cosmetic, aromatic, fragrant, and spiritual applications.

Aromatherapy employs essential oils as primary therapeutic agents, which are highly concentrated chemicals derived from flowers, leaves, stems, fruits, and roots, and distilled from resins. Essential oils comprise a combination of saturated and unsaturated hydrocarbons, alcohols, aldehydes, esters, ethers, ketones, oxides, phenols, and terpenes, which can provide distinct aromas. They are colorless, pleasantly aromatic liquids with a high refractive index. These oils are highly powerful and concentrated, effectively targeting pressure spots and promoting rejuvenation. Essential oils in plants are located in many regions, including pockets and rese rvoirs, glandular hairs, specialized cells, or inter cellular gaps. The evaporation of essences from plants protects

hem from bacterial attacks and provides a thermal layer that safeguards against temperature variations. They are supplied through various techniques in modest quantities, such as inhalation, massage, or topical application, and infrequently, they are ingested internally [19-24].

Methods of Aromatherapy:

1] Diffusion: You can use a diffuser to spread the scent of essential oil throughout the room.

2] Massage: combining aromatherapy and massage is a great way to relax and ease the stress. But care should be taken that essential oil should not be directly applied on the skin. Instead mix with them with massage oils.

3] Bath: Before going to bed, take a warm water bath evenly mixed with essential oil.

4] Direct inhalation of the essential oils before going to sleep.

Aromatherapy's application in holistic medicine has significantly advanced in recent years [21]. An examination of the literature on this therapy reveals that various studies have investigated its effects on the human brain and emotions. The function of mood, alertness, and mental stress in healthy individuals has recently been a subject of intense dispute within the scientific community. Certain researchers endeavored to examine the impacts on work capacity, response time, and other spontaneous behaviors in the brain by electroencephalographic patterns and functional imaging examinations. This therapy was determined to be superior in comparison to synthetic scents. Synthetic scents typically comprise irritants, such as solvents and propellants, which may provoke irritation in certain individuals [25]. Arom - atherapists assert that synthetic fragrances lack the signi - ficance of essential oils due to their absence of natural or living energy; yet, this remains a contentious issue among odor psychologists and biochemists [26].

Mechanism of Aromatherapy :

People have recognized essential oils for millennia as fragrances with therapeutic potential for the body, mind, and soul. These aromatic molecules are highly effective organic plant compounds that render the environment devoid of disease, bacteria, viruses, and fungi. Numerous scientists have well-documented their multifaceted properties, which include antibacterial, antiviral, and anti-inflammatory effects, immunological enhancement, hormonal regulation, emotional stability, circulatory improvement, soothing influence, and enhancement of memory and alertness [27,28]. Researchers have conducted numerous pilot projects and research on humans to understand their nature and role in disease and disorder [29]. People recognize these oils for their unique energy properties, which maintain their efficacy over time. The stimulating characteristics of these oils derive from their structure, which closely resembles that of genuine hormones [30]. The ability of these oils to penetrate and reach subcutaneous tissues is a significant characteristic of this therapy. Their impacts are intricate and nuanced owing to their elaborate structure and chemical characteristics. Their mode of action entails the incorp - oration of essential oils into the biological signaling of the receptor cells in the nasal cavity upon inhalation. The olfactory bulb conveys the signal to the limbic system and hypothalamus. These impulses prompt the brain to release neurotransmitters such as serotonin and endorphins, connecting our nerves and other bodily systems to facilitate a desired change and provide a sensation of relaxation. Serotonin, endorphins, and noradrenaline are released from soothing, euphoric, and activating oils, respectively, to provide the anticipated effects on the mind and body.

Essential oils used in Aromatherapy

1] Bergamot oil:

The scientific name of Bergamot is Citrus bergamia. It is a plant that belongs to the Rutaceae family. Citrus fruit peels yield bergamot oil. Bergamot oil has a relaxing and calming effect, and its aroma fosters tranquility and serenity, thereby promoting a sense of quiet and harmony that is conducive to sleep. The therapeutic characteristics of bergamot include analgesic, antidepressant, antibiotic, antispasmodic, antis eptic, and disinfecting effects. Bergamot may facilitate sleep by reducing heart rate and lowering blood pressure. Bergamot oil alleviates stress and anxiety and exhibits calming properties. Studies indicate that bergamot oil helps alleviate chronic pain. Before applying it directly to the skin, mix it with a carrier oil like coconut or mineral oil. You can also dissolve it in water and then use it.[31]

2] Lavender oil:

The scientific designation for lavender oil is lavender. Lavender is a member of the Lamiaceae family. The components include camphor, terpinen 4 ol, linalool, linalyl acetate, and 1,8-cineole. Linalool possesses calming prop erties, while linalyl exhibits narcotic effects, hence enha ncing sleep quality; consequently, lavender is highly effective in addressing insomnia. Lavender oil exhibits antidepressant, sedative, and tranquilizing effects. The del - icate, floral scent of lavender oil fosters an atmosphere suitable for restful slumber.[32]

3] Ylang Ylang oil:

The scientific name for Ylang Ylang is Cananga odorata. It belongs to the apple family, Annonaceae. The components of Ylang Ylang oil include linalool, cary ophyllene, germacrene-D, geranyl acetate, benzyl acetate, and benzyl benzoate. The characteristics of Ylang Ylang oil include antidepressant, euphoric, and calming qualities. The application of Ylang Ylang oil alleviates sadness, sleeplessness, and tension while also soothing the nervous system. Incorporating 15 drops of Ylang Ylang oil into a carrier oil and massaging the feet and hands before sleep promotes relaxation of the body and mind, resulting in improved sleep quality. The combination of lavender and bergamot oil decreases blood pressure, pulse rate, stress, and anxiety.The rich, floral fragrance of ylang ylang oil may -

alleviate tension by creating a peaceful atmosphere.[33]

4] **Cedarwood oil:**

The scientific designation for cedarwood is Cedrus. It belongs to the family Pinaceae. The primary components of cedarwood oil are a-cedrene, b-cedrene, thujone, and cedral. It possesses a gentle woody aroma reminiscent of pencil shavings. Cedarwood oil possesses antiseptic, anti-inflammatory, antispasmodic, diuretic, and antifungal effects. Inhaling cedarwood stimulates the release of sero tonin in the brain, which subsequently transforms into melatonin. The aromatic, earthy fragrance of cedarwood oil fosters a tranquil ambiance conducive to mental and physical relaxation before sleep.[34].

5] Marjoram oil:

The scientific name for marjoram is Origanum marjor-ana.It belongs to the mint family, Lamiaceae. The comp onents of marjoram include terpinene 4 ol, cis-sabinene hydrate, and gamma-terpinene. Marjoram oil induces tranquility in an agitated mind and alleviates incessant thinking. The primary properties of marjoram oil in clude analgesic, antibacterial, antispasmodic, antiviral, and sedative effects. Marjoram oil possesses a warm, pleasant, and tranquil essence that facilitates undisturbed sleep. Marjoram oil may assist in alleviating nervous tension, anxiety, stress, and headaches. [35]

Preventive Measures of using Aromatherapy Oil:

The safety of aromatherapy and essential oils depends on various factors which include[36]

- Age
- Underlying health conditions
- Medication and supplement use.

And when it comes to oil, it is important to check for

- Chemical composition of oils
- Methods of use
- Dosage

Safety Precautions of Aromatherapy oil [37,38]:

- Before application of oil, wash your hands properly before and after.
- Keep essentials away from children
- Make sure you are diluting oil in a well-ventilated area or room.
- Many citrus essential oils increase photosensitivity which if you apply them before sun exposure, may cause serious skin burns.
- Keep all essential oils away from flames as they are highly flammable.
- The aromatherapy room should be well-ventilated.
- Take case history of allergies or sensitivities of an individual before application of oil.

CONCLUSION

Aromatherapy can enhance mood and overall well-being, proving beneficial for people experiencing stress, anxiety, and insomnia. Applying essential oils to the skin requires adequate dilution. Handle essential oils with caution and utilize them under the appropriate supervision of a physician. Avoid using products with artificial aromas. Before using aromatherapy, you must rigorously adhere to all safety protocols.

Conflicts of Interest

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