

Aromatherapy as a tool for self-care, prevention and complementary treatment of depression and anxiety symptoms

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Opinion

In the last 5 years, one in eight people (970 million) worldwide were affected by a mental health disorder¹ and almost one in two (44%) will experience a mental health disorder in their lifetime.² Depression is the leading cause of mental health-related disease burden,³ while anxiety is the most prevalent mental health disorder. The annual global costs of mental health disorders have been estimated at \$2.5 trillion (USD), which is projected to increase to \$6 trillion (USD) by 2030.

Depression symptoms (DSs) is a multifactorial mental disorder caused by complex interrelationships among genetic, biological, environmental and psychological factors and negatively affects the health, well-being and behavior of individuals.⁴ Factors such as age, income, lifestyle and adiposity and possible relationship an individual has with his or her work influence the occurrence of DSs.⁵⁻⁷ Such illness has also been associated with the depression is common, costly, debilitating, and associated with increased risk of suicide.⁸ It is one of the leading global public health problems worldwide.

Anxiety, in turn, is a characteristic of modern times, whose prevalence has increased in response to political, social, economic and environmental changes.⁹ The etiology of anxiety disorders (ADs) encompasses a set of psychosocial factors, such as stress, adversity or trauma in childhood, in addition to the presence of a genetic vulnerability, observed in neurobiological and neuropsychological dysfunctions.¹⁰ Such ADs are often comorbid with other ADs, major depression, or substance abuse.¹¹

Although existing available pharmacological treatments can be effective, their onset of action can take up to 6 weeks, side-effects are common, and recovery can require treatment with multiple different agents⁸. Furthermore, long-term drug therapies can result in reduced therapeutic effect, tolerance, drug abuse, as well as cases of dependence. In this scenario, it is important to invest in new pharmacological therapies,⁸ as well as in disseminating and encouraging the use of Integrative and Complementary Health Practices (IChP), that can support emotional balance and mood modulation, such as Aromatherapy.¹²

With good acceptance around the world, Aromatherapy uses essential oils (EO),¹³ compounds extracted from plants, flowers, stems, leaves, roots and fruits of a multitude of plants through the

Through inhalation, a percentage of EO, captured by the olfactory nerves (direct inhalation, spraying, air diffusion), reaches the Limbic System, responsible for signaling primary emotions, in addition to helping to control impulses and instinctive reactions, memory and sexuality.¹³ The volatile chemicals present in EO stimulate neurons and help in the production and release of neurotransmitters, providing

distillation process. It has been used for thousands of years and was even defended by Hypocrites, who argued that aromatic baths and massages were essential for maintaining health.¹⁴ The Figure 1 points out the main ways of using EO.



Figure 1 Different ways to use essential oils.

Source: Authors, 2024.

calming and energizing effects (Figure 2). Another part travels through the respiratory system to the bloodstream. In topical use (compresses, baths and massages), the molecules are absorbed and transported through the circulation to the organs and tissues. The oral use, mouthwashes and gargles are also indicated.

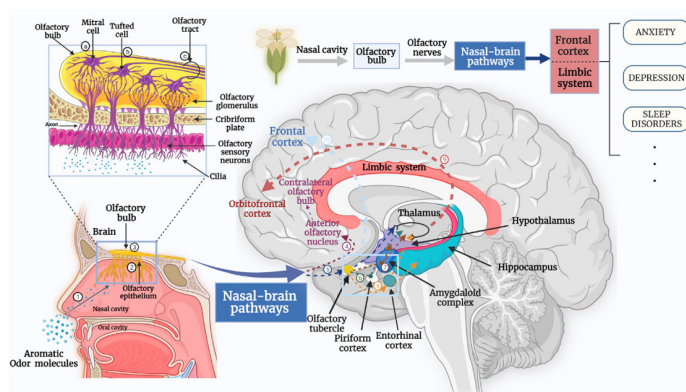


Figure 2 Inhalation Aromatherapy via brain-target nasal delivery for mood disorders.

Source: Cui et al., 2022.¹³

Aromatherapy is defined according to the prescription of the specialist professional, taking into account the substance to be used, concentration of the EOs, the patient's pathology and clinical history, in addition to of the biochemical characteristics of the active ingredient in the EOs. Before starting treatment, it is important to check the expiration date of the EOs and, 24 hours before starting any application, carry out an allergy test by applying the oil together with a carrier vehicle on the skin, which can be a neutral cream or vegetable oil.¹⁴

Authors highlights that Aromatherapy presents a gentler holistic treatment alternative for the body and mind without adverse effects, with good acceptance by the population, especially due to the immense range of side effects and adverse reactions that conventional treatment can offer. In first world countries, the practice is already used successfully in work environments and hospitals for therapeutic purposes, due to its effectiveness and benefits in various health settings.¹⁵

For the treatment of DS's and anxiety, the most rated EOs in the literature were Bergamot, Roman Chamomile, Geranium, Lavender, Melissa, Sandalwood, Wild Orange and Lemon.^{13,16,17} Inhalation of extracts from these aromatic plants sends signals directly to the olfactory system, where the aroma molecules direct therapeutic principles to the brain tissue through the nasal-brain canals, promoting neurogenesis and dendritic plasticity and the release of serotonin, the neurotransmitter responsible for the sensation of well-being and happiness.^{18,19}

To assess anxiety, 67 women were randomized into a control group and another intervention group, with an improvement in their sleep pattern and a decrease in heart rate (HR). The intervention group underwent 12 inhalation sessions with lavender EO, one per week, while the control group did not undergo any procedure. A decrease in parasympathetic activity was observed within the first 20 minutes after the start of the sessions.²⁰

In other studies, patients diagnosed with Generalized Anxiety Disorder (GAD) used an oral preparation with lavender EO, known as Silexan, administered at a dose of 80mg/day. The intervention group showed a reduction in restlessness, sleep disorders, somatic complaints, in addition to improvements in general well-being and quality of life. It has also been demonstrated that 80mg/day of this solution is equivalent to the therapeutic effects of 0.5mg/day of Lorazepam.²¹⁻²³

Aromatherapy was also a support tool for the anxiety and stress of teachers and administrative staff at a higher education school. For this evaluation, inhalation of bergamot EO (*Citrus bergamia*) was used for 10 minutes, weekly, with a statistical decrease in respiratory frequency (RF)²⁴ and, consequently, in symptoms of anxiety and stress. In this same study, however, lavender EO was used for the same purpose and some participants did not adapt to the aroma, with reports that lavender itself makes a strong presence.

Despite these reports, the literature review of this research and the data that emerged from the intervention did not confirm this finding. The good tolerance to the aroma of lavender and geranium, as well as the safety of not developing allergic reactions, was unanimous both in the research and in the articles referenced in the review.²⁵ In a controlled clinical study, using *Citrus aurantium* EO via inhalation, at a concentration of 8% during labor, a statistically significant decrease in the level of anxiety was observed in the intervention group when compared to the control group during 3 to 4 cm and 6 to 8 cm of uterine dilation.²⁵

Sleep disturbance, one of the complaints of both anxious and depressed people, can be prevented with inhalation Aromatherapy. The use of EO tends to reduce sleep time latency and prolong sleep time, with low sedative and hypnotic potential, which allows controlling insomnia and preventing the triggering of anxiety and DS's.^{19,20}

To test the effect of Aromatherapy on patients admitted to an intensive care unit for anxiety, sleep and blood pressure in patients with coronary insufficiency, undergoing hemodynamic intervention, an aromatic preparation composed of the EOs of *Lavandula angustifolia*, *Chamaemelum nobile* was used. *Citrus aurantium amara*, by inhalation, at concentrations of 6, 2 and 0.5%, respectively. Its results point to a statistically significant decrease in the level of anxiety accessed through the State-Trait Anxiety Inventory, State subscale (STAI-State), as well as an improvement in sleep quality and stability in diastolic pressure.²⁵

Studies on the chemical constitution of EOs from *Lavandula angustifolia* and *Pelargonium graveolens*, EOs with a high concentration of ester, point to the presence of substances such as linalyl acetate, linalool, lavandulol, limonene, geranyl acetate, menthone and citronellol, whose tranquilizing properties and calming are indicated for anxiogenic situations.^{13,25}

At a concentration of 0.5%, the EOs were diluted in a neutral gel for application during massage, which was chosen due to its chemical neutrality and the pleasant sensorial aspects they provide.^{15,26} After 19 minutes of dermal application, linalyl acetate and linalool were detected in the patients' plasma. These two substances have been associated with protective actions of the central nervous system (CNS), as inhibitors of cholinergic action with control of the functioning of ion channels in neuromuscular junctions, in addition to inhibitors of CNS tone, by interacting in the action of gamma-acid aminobutyric acid (GABA) and dopamine neurotransmitters.²⁷

This study reinforces data from other pharmacological studies in animals and humans on the underlying mechanism of action of specific compounds that have also been carried out. The benzyl benzoate in Ylang-Ylang activated the dopaminergic and serotonergic pathways, which produced an anxiety-reducing effect. Compounds such as linalool and β -pinene had an effect through interaction with the GABAergic pathway. Bergamot and lavender EOs also contain linalool, acting on GABA receptors to claim an antidepressant and anxiolytic effect,²⁸ balancing emotions and reducing feelings

of melancholy. Furthermore, by inhibiting the release of pro-inflammatory cytokines, cinnamon EO also has an anxiolytic effect. Concentration differences may vary in the effectiveness of rose, lavender and sweet orange EOs, which produce a sedative effect by reducing the accumulation of cortisol in the serum through interaction with the hypothalamic-pituitary-adrenal (HPA) axis.²⁹

Likewise, when the patient is experiencing a high level of stress and depression, the best choice is to opt for an oil that has a sedative action,¹⁵ among which are Bergamot (*Citrus Bergamia*), Roman chamomile (*Anthemis Nobilis*), Geranium (*Pelargonium Graveolens*), Lavender (*Lavandula Angustifolia*), lemon (Citrus Limon), Melissa (*Melissa Officinalis*), Sandalwood (*Santalum Album*).^{13,15} Severe attacks of depression, which can be accompanied by apathy, irregular sleeping patterns, loss of appetite and generalized fatigue, can have serious effects on health, and Aromatherapy treatment can be highly therapeutic, as long as the patient is receptive mind and accepting to use the EOs.

Studies have shown that the stimulus olfactory produces changes in some parameters, such as blood pressure and change in skin temperature,³⁰ anxiety reduction with massage and Aromatherapy in patients with breast cancer,³¹ and in healthcare professionals,³² in addition to positive effects on anxiety and self-esteem in elderly women with the use of massage, Aromatherapy and music.³³

In addition to these, several other studies indicate different forms and concentrations of EO for daily use, in order to modulate mood and reduce the central and peripheral effects of the aforementioned disorders, with significant results in sample groups of different ages and clinical conditions, suggesting that the Aromatherapy can be an alternative for maintaining balance and preventing diseases.¹⁵ Based on this, Aromatherapy is considered an important ICHP and, as such, the properties of EO can be used to promote self-care, prevention and complementary health treatment, especially for symptoms of depression and anxiety.³⁴

Due to differences in administration, duration of the treatment session, method, frequency of treatment, total number of sessions and forms of essential oils (i.e., single, mixed or diluted form), it is hasty to make a comparison of the effectiveness of treatment in different studies taking into account only the type of EO, making it necessary to evaluate a complete context to obtain reliable results.^{34,35}

It is also worth highlighting, as peculiarities of Aromatherapy, the lack of standardized concentration of EOs and their different forms of application, which requires monitoring by a professional in the field; in addition to little popular knowledge about because it is an alternative practice, which culturally already suffers from prejudice. In view of this, there is a need to develop new, methodologically more elaborate studies, with a significant, randomized and controlled population sample, in order to analyze the results and disseminate them for the benefit of preventive health and complementary and integrative treatment in favor of the patient.

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Conflicts of interest

The author declares there is no conflict of interest.

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