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USE OF ESSENTIAL OIL OF *LAVENDER ANGUSTIFOLY* TO IMPROVE SLEEP QUALITY

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Abstract: Aromatherapy is an integrative and complementary practice practiced for centuries, which uses essential oils for therapeutic purposes. These substances are products of volatile concentration from a plant-derived source and can be applied topically, inhaled and orally. The *Lavander angustifolia* It is used to improve sleep quality for its anxiolytic and sedative properties. Thus, the objective of this work is to verify the use of essential oil of *Lavander angustifolia* with aromatherapy, in improving sleep quality. A bibliographic review was carried out. The selection of research sources was based on publications found in databases such as PUBMED, Google academic and SciELO. Among the articles found, those dated between 2012 and 2022, and published in Portuguese and English, were selected. Some studies show positive results from the use of lavender essential oil in the quality of sleep due to the simple way of application and no adverse effects.
Keywords: Aromatherapy; Lavender angustifolia; sleep quality.

INTRODUCTION

Integrative and Complementary Practices are consistent with what the World Health Organization calls traditional medicine and complementary/alternative medicine (CARVALHO et al., 2018). These practices were inserted into the Unified Health System from the National Policy on Complementary Integrative Practices, authorized by Ordinance Number 971 of May 3, 2006, and are intended to promote health, quality of life and effectiveness and rational use and medication insurance (DA SILVA et al., 2022). Professionals who work with integrative practices encourage individuals to find their well-being and balance, as they understand that the body, as well as nature, has the ability to seek a balance of well-being and, thus, improve the quality of life. (FREITAG et al., 2014), which can lead to some proven benefits for the health of the user, such as: reduction of anxiety, stress, migraine, colds, reduction of pain and muscle tension and improvement in sleep quality (DA SILVA et al., 2014). al., 2022).

Aromatherapy can be conceived as a complementary practice proposed as an alternative to treat various health problems, since the worldwide growth of scientific research indicates the effectiveness of the use of essential oils through their rational and sustainable use, demonstrating positive perspectives to help to alleviate health problems and improve the quality of life in general (MONTIBELER et al., 2018).

This practice uses essential oils as main therapeutic agents, which are highly concentrated substances extracted from flowers, leaves, stems, fruits and roots, and also distilled from resins (DUNNING, 2013). Aromatherapy uses the application of essential oils or other substances to any part of the body for the purpose of inhaling or absorbing the oil into the skin to treat or alleviate physical and emotional symptoms. It may provide a useful therapeutic option, particularly when the alternative is to have no treatment at all.

Lavender has been suggested as an excellent natural remedy to treat insomnia and improve sleep quality (KOULIVAND et al., 2013), in addition to having several beneficial effects, the use of lavender essential oil has few contraindications and side effects. The Lamiaceae family contains many aromatic and medicinal plants, one of which is the genus *Lavander*, covering valuable herbs, being considered the *Lavander angustifolia* most important of this genre. Its essential oil is highly valued for its attractive fragrance, low camphor content and for its yield. It has several pharmacological effects described in the literature, such as anticonvulsant,

anxiolytic, antioxidant, anti-inflammatory and antimicrobial activity. In addition to being considered the true lavender oil and being used in cosmetics, food and medicinal products. It is often recommended for oral administration, whose composition is linalool and linalyl acetate, used in inhalation aromatherapy and aromatherapy massage (POKAJEWICZ et al., 2021; CARDIA et al., 2018).

Sleep is one of the basic physiological needs and its deprivation has adverse effects on humans (EMAMI-SIGAROUDI et al., 2021). Thus, sleep disorder can be accompanied by various health problems, such as insomnia, anxiety, depression, among others (KHADIVZADEH et al., 2018; ZHAO et al., 2020). Insomnia is characterized as dissatisfaction with sleep, either qualitatively or quantitatively, being associated with difficulty initiating sleep, maintaining sleep and waking up (PATEL et al., 2018). Different pharmaceutical and non-pharmaceutical therapies are used to solve sleep disorders such as the use of essential oil (EO) of *Lavander angustifolia* which has been gaining great interest in non-pharmacological treatment, especially in inhalation, due to the stimulation of the olfactory sense, which directly affect the central nervous system responsible for controlling physiological and emotional functions (CHEONG et al., 2021; EMAMI-SIGAROUDI et al, 2021). Lavender EO, for example, has an extensive anecdotal history of anxiolytic benefit that has been supported by clinical efficacy studies (SANCHES; SILVA, 2012). Thus, the objective of this work is to verify the use of *Lavander angustifolia* essential oil with aromatherapy, in improving sleep quality.

LITERATURE REVIEW

The PNPIC is of paramount importance, as it is responsible for defining the institutional responsibilities for the implementation and implementation of practices and guides the states, federal district and municipalities to institute their own rules that provide the SUS with practices that meet regional needs. This policy has made great strides in accessing and approaching the Health Care Network, with more than 5,000 establishments offering these practices (BRASIL, Ministério da Saúde, 2018).

Aromatherapy is considered a practice where volatile concentrations are used, which can also be called essential oils (EO), as they are commonly known. These oils are substances that have a therapeutic effect to balance emotions, improve physical and mental well-being and can act in different ways in the body, being possible to be absorbed by inhalation, topical use or absorption (GANTTA, DORNELLAS, SILVA; 2011). Research shows that, in terms of depression and anxiety, aromatherapy is effective after seeing the reduction of these symptoms through the use of these medications with the use of essential oils in different groups of society (LYRA, NAKAI, MARQUES, 2010).

Aromatherapy is an Integrative and Complementary Practice that aims to promote the health and well-being of the body, mind and emotions, through the therapeutic use of the natural aroma of plants through their essential oils (BRITO et al, 2013). This technique has been used for thousands of years by Hippocrates, the father of modern medicine, who advocated the use of this technique because he believed that aromatic baths and scented massages were fundamental to good health. Essential oil leaders have emerged, supporting aromatherapy as a credible therapy for mind, body and spirit (FARRAR; FARRAR, 2020). This complementary technique has been used for centuries for various purposes due to its low cost and minimal side effects (LAKHAN et al, 2016).

Aromatic plants are so named because they possess and synthesize essences in individual secretory cells forming structures such as ducts or channels, distributed throughout the plant. (SUNDAY; BRAGA, 2013).

Essential oils are used every day for their aromatic aromas through cosmetics and spices to flavor foods. They are substances also used in herbalists and over-the-counter, they can be added to medicines to add a pleasant taste to bitter medicines (FARRAR; FARRAR, 2020). They are also complex, volatile substances produced by the secondary metabolism of plants, they are extracted from the non-woody part (flowers, seeds, leaves, fruits and roots) with the purpose of acting on various diseases (SAPORITO et al., 2017), being produced mainly by the families Lauraceae, Myrtaceae, Labiateae, Rutaceae, Umbeliferaceae, among others (BRITO et al, 2013) and can be obtained by distillation of plant samples, except for some in which the essences are used without any type of extraction (DOMINGO; BRAGA, 2013).

EO are often used in aromatherapy and are exposed as products of great therapeutic and pharmacological potential due to their varied possibilities and effects, aromatherapy approves an individual and personalized treatment, as long as it is accompanied by a professional (GNATTA et al., 2016) these compounds have numerous effects on the body, they work by invigorating energies in the emotional and physical aspects, in addition to complementing conventional therapies and alternative therapies (SACCO et al, 2015). They have therapeutic properties such as: analgesic, sedative, anesthetic, bactericidal or even anti-inflammatory (DA SILVA et al., 2020).

The most used oil to improve sleep quality is lavada *angustifolia* alone or in the form of EO mixtures, the so-called Blends by inhalation or with relaxing massages. In addition, lavender oil can be used in the treatment of anxiety, depression and sleep quality (SONG et al., 2021). This EO can increase sleepiness, improve mood and relax, in addition to having few side effects (SANCHES; SILVA, 2012). It has sedative or sleep-enhancing properties, so its inhalation can reduce the stress level and help maintain a regular sleep cycle (KANDHALYAZHINI, et al., 2020). Analgesic, anti-inflammatory, anxiolytic, antioxidant, anti-depressant and anti-depressant activity are integrated into the choice (CARDIA et al., 2018; MALCOLM; TALLIAN, 2017)

Although the physiological mechanism of action of essential oils and, consequently, of Aromatherapy is not well established, it is reported that these molecules implement a system capable of releasing neurotransmitter stimuli, such as enkephalin and endorphins, which constitute an analgesic effect and produce an impression of welfare. However, the aromatherapy effects of essential oils are not well supported by scientific clinical studies (GNATTA et al., 2016). The aromatherapeutic action of an oil is related to the way in which its molecules are administered.

Essential oils once inhaled instigate the olfactory nerve cells and stimulate the limbic system. Consequently, they are responsible for feelings, memories, impulses and emotions. In addition, they can be used by the cutaneous route when reaching the bloodstream, being carried to the tissues and organs of the body, promoting the desired psychophysiological effects of the oils (DA SILVA et al., 2020; PESSOA et al., 2021). In this way the body absorbs through the skin, respiratory system or gastrointestinal system, thus improving body function and balance of mind and body (SONG et al., 2021). When ingested, its molecules enter the intestinal mucosa, attract the bloodstream and are distributed throughout the body (GNATTA et al., 2016).

These oils are applied topically in diluted form, often with a carrier oil as part of massage therapy to manipulate the soft tissues of the body or to exhale aromas using a censer. Essential oils can be inhaled by adding a few drops to boiling water and then using a nebulizer or humidifier to spread the aroma throughout the room. Certain aromatic oils can also be ingested through tea, while others can be added to bath water or pillows, or used to make ointments, creams, and compresses. Much of the research on aromatherapy has investigated its use for the management of symptoms of depression, anxiety, as well as muscle tension, sleep disturbances, nausea, and pain (BOEHM et al., 2012).

Lavender is used in pharmacy, herbal medicine and aromatherapy to treat central nervous system disorders such as anxiety, stress and sleep disorders.

Lavender essential oil is one of the best-selling natural remedies and a common therapeutic tool for physical therapists and chiropractors. Regardless that there are many different types of aromatherapy oils, lavender oil is one of the most common (AKGÜL et al., 2021). Lavender belongs to a flowering plant of the Labuatae family (Lamiaceae) (SOURI et al., 2018), it is native to the mountainous regions of the Mediterranean, with many therapeutic properties and biological activities, it has been extensively used in traditional medicine for centuries as a remedy. herbal (CARDIA et al., 2018).

The essential oils from *Lavander angustifolia*, which contains linalool and linalyl acetate among the chemical ingredients, have a calming effect. These two substances inhibit the cholinergic effect by altering the functioning of ion channels at neuromuscular junctions, and also promote inhibition of central nervous system (CNS) tension by affecting the action of the neurotransmitter gamma aminobutyric acid (GABA) and the dopaminergic system (SUNDAYS; BRAGA, 2015). The chemical compounds linalyl acetate (3,7-dimethyl-1,6-octadien-3-yl acetate), linalool (3,7-dimethylocta-1,6-dien-3-ol). Linalool contains sedative and sleep aiding properties, while linalyl acetate has narcotic properties. These are the main components related to hypnotic and anxiolytic effects.

The scent of lavender has been studied, and linalool and linalyl acetate were found to excite the parasympathetic nervous system (CUI et al., 2022). Inhaling the scent of lavender calms the patient and improves physiological indicators, reducing the secretion of cortisol from the adrenal gland, reducing the activity of the sympathetic system and increasing the activity of the parasympathetic system. Lavender prevents the release of acetylcholine and linalool acetate can relax the smooth muscles of the arteries. In addition, lavender calms the nervous system because of the presence of ester (DAVARI et al, 2021).

The effect of lavender essential oil along with sleep hygiene was evaluated in some students with sleep complaints. As a result, both groups (lavender essential oil and sleep hygiene alone) showed significant improvement after the two-week intervention. In the group with sleep hygiene alone, there was an improvement in sleep quality, but to a lesser extent. Furthermore, participants who took the inhalation clinically reported that they felt more refreshed after awakening (LILLEHEI et al., 2015). Specifically in women, some studies have already evaluated lavender essential oil for improving sleep and menopausal symptoms. In the study, 60 women aged 45-55 years with insomnia complaints were selected to assess the improvement after 12 weeks of inhalation. After the intervention, a significant improvement in sleep quality was observed (CHIEN et al, 2012).

Sleep is essential to sustain physiological and psychological well-being. Several

Figure 1: Lavander angustifolia.

Source: Utah Botanical Garden

https://jb.utad.pt/especie/Lavander_angustifolia. Accessed on August 15, 2022.

Reference	Summary of main results
CHIEN et al, 2012.	The results indicated that women with insomnia complaints showed an improvement in sleep quality through inhalation of lavender OE.
CONRAD; ADAMS, 2012.	The use of aromatherapy with lavender EO showed a considerable improvement in anxiety and depression in puerperal patients.
DAVARI et al, 2021.	By inhaling the scent of lavender, patients show improvements in physiological indicators and calms down.
DONELLI et al.,2019.	The study shows that lavender has anxiolytic property and can be used in interventions for anxiety.
GREENBERG; SLYER, 2018.	It was noticed that the use of *Lavander angustifolia* essential oil can improve sleep without having adverse or side effects of drugs prescribed by doctors.
HAJHASHEMI; SAFAEI, 2015.	Rodents used lavender by oral administration, showing a decrease in the inability to fall asleep and a significant increase in sleep duration.
KOULIVAND et al., 2013.	Reports that some animal studies show that the anxiolytic effect of lavender is compared to diazepam ®.
LARI et al., 2020	Research reveals that patients who inhaled lavender showed positive results in improving sleep quality and quantity.
LILLEHEI et al., 2015.	It was shown that sleep hygiene along with the use of the lavender EO showed an improvement in sleep quality, in addition to the students feeling more refreshed after awakening.
OZLU *et al.,* 2017.	Aromatherapy massage improved sleep quality in surgical intensive care unit patients.
ROOZBEHet al., 2018.	Lavender plays a sedative role analogous to narcotics. with the blockade of acetylcholine secretion and the interaction of aminobutyric acid in the central nervous system.
ZHONG, Y. et al, 2019.	The use of essential oils can be a safe and effective treatment for treating anxiety and its symptoms such as insomnia, which can decrease medication overuse and reduce the risk of sleep disorders affecting the health of the individual as a whole.

Table 1. Main results of the studies examined, the table is based on Katz (2009) containing: references/ source of scientific articles: text of 10 to 50 words with the most relevant information.

Source: Authors themselves, 2022.

mental disorders and sleep disorders show a bidirectional relationship. Patients who suffer from anxiety, depression, insomnia and other mood disorders have constant difficulties in getting a good night's sleep. Sleep disorders are capable of contributing to the risk of mental illness (CUI et al., 2022). Poor sleep quality can have several negative effects on physical and mental health (MOLLER, 2018), such as anxiety, depression, stress, decreased quality of life (CHENG et al., 2022). Thus, the intervention seems necessary to improve sleep quality.

Insomnia is the biggest complaint for the sleep disorder, being characterized by two main constructs: sleep latency (the inability to fall asleep) and sleep duration (difficulty staying asleep or waking up too early without getting enough sleep) which results in a Deficiency in sleep quality being the biggest "villain" of insomnia is caused by anxiety (GREENBERG; SLYER, 2018). Some pharmacological treatments for insomnia include the use of benzodiazepines, non-benzodiazepines, antidepressants, melatonin agonists, antihistamines, antipsychotic anticonvulsants, in addition to natural products such as valerian, chamomile, Kava-Kava, lemon balm, passionflower. Treatment is recommended depending on the type of insomnia, its severity and comorbidity (ASNIS et al, 2015; FEIZI, 2019).

Since medicines are not always effective and can cause drug abuse, dependence and tolerance, you can use the essential oil of *Lavander angustifolia* as it has anxiolytic properties that can improve sleep quality, reduce time to fall asleep, increase second stage sleep, reduce eye movement stage and reduce anxiety without the adverse or side effects of conventional hypnotics and anxiolytics such as sedation and abstinence. Compared to sleep medications prescribed by medical professionals, lavender has no potential for abuse or withdrawal side effects. One such drug-free sleep aid is lavender essential oil, which can be used through integrative and complementary practices or orally (GREENBERG; SLYER, 2018; EMAMI-SIGAROUDI et al., 2021).

METHODOLOGICAL PROCEDURE

For the execution of the present work, a bibliographic review was carried out. The selection of research sources was based on publications found in databases such as PUBMED, Google academic and SciELO. Among the articles found, those dated between 2012 and 2022 were selected, without taking into account the time frame of relevant documents published in Portuguese and English. To search for scientific articles, the following descriptors were used: Aromatherapy, *Lavender angustifolia* and sleep quality.

DATA PRESENTATION AND ANALYSIS

Table 1 was developed to present the results. It was based on the guidelines contained in the scientific writing book by Katz (2009).

This bibliographic review study evidenced the use of *Lavander angustifolia* essential oil to improve sleep quality. The results found showed that it is possible to perceive anxiolytic activity, sedative is common in almost all results, whether it is more relevant or not. Lavander angustifolia also has many studies on anxiety. In a meta-analysis, lavender showed positive results in reducing the level of anxiety. (DONELLI et al., 2019), in addition to demonstrating improvements in anxiety and/or depression in postpartum women (CONRAD; ADAMS, 2012).

Lavender has beneficial effects on sleep, both direct and indirect. The indirect effect may be related to other properties of lavender, as previous studies have shown the

effectiveness of lavender to reduce cancer complications (MARDANI et al., 2022), in women who are in the menopause period (ROOZBEH et al., 2018) in cardiovascular diseases (ALMOHAMMED et al., 2022), pain relief (BAGHERI-NESAMI et al., 2014).

Because the composition of Lavender EO has sedative effects and marked narcotic actions, being respectively represented by linalool and linalyl acetate, they are responsible for reassuring patients who use lavender on the pillow, improving sleep disorder, anxiety, well-being. There are several ways of administering the oil, being inhalation and application the most used, with the purpose of dealing with mental and physical balance. Through inhalation, the oil acts on the olfactory nerves of the nose until it reaches the brain (BARBAR et al., 2015; CUI et al., 2022).

Sleep disorder impacts quality of life, so strategies need to be developed to alleviate these symptoms, such as increasing life expectancy. Aromatherapy is used through EO uses that can serve as a complementary therapy to this treatment, due to the simple method, low cost and excellent results, the therapeutic use of EO can affect a person's mood and health. In addition to being non-invasive, it has minimal side effects, can be applied in various ways and is a non-pharmacological treatment (CHEONG et al., 2021; LAKHAN et al, 2016; WOTMAN et al., 2017).

FINAL CONSIDERATIONS

The results of this study point to the application of essential oils as an important ally in the fight against poor sleep quality, in view of its conception as a holistic alternative. Aromatherapy is easy to use, fast acting and can be used in a variety of interventions. In the present bibliographic review it was possible to verify that the use of essential oil of *Lavander angustifolia* in aromatherapy is an alternative as a practice for improving sleep. It was found that this integrative practice is used as a non-pharmacological complementary method. Particularly, the inhalation of lavender essential oil has also been shown to be effective in improving the quality and quantity of sleep, but more studies will be needed to have more conclusive evidence about this therapeutic purpose.

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