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Scented Solutions: Aromatherapy's Effect on Anxiety and Sleep Disorder

Jared Sneed

Plants and their byproducts have been used throughout history for a myriad of health conditions. One such practice is using essential oils as aromatherapy, a type of therapy where patients inhale the scent of the oils for therapeutic benefits. Aromatherapy has long been utilized to help with conditions such as insomnia and anxiety, and with all the advancements in science and clinical research that we have today, there is now data that supports their use for certain conditions. Several studies have been published over the past 20 years on the therapeutic effects of aromatherapy for anxiety and insomnia, especially with lavender and chamomile oil. Understanding this data will allow medical providers to consider these longstanding natural therapies as potential add-ons to traditional pharmacologic treatments.

Keywords: *aromatherapy, essential oil, insomnia, anxiety, lavender, chamomile*

Long before today's modern medicine, plants and their byproducts were the mainstay of therapy worldwide, with essential oils being a major part. Records of use found in ancient civilizations such as Egypt, India, and China, suggest that essential oils have long been used for a myriad of illnesses. With the prevalence of conditions such as anxiety and insomnia in modern society, many people are looking back to the history books for natural solutions to assist with these problems. The use of essential oils for medical conditions is steadily increasing. Therefore, an understanding of their effectiveness is vital to determine its place in therapy as potential add-on treatment for insomnia and anxiety.

The mechanism by which essential oil aromatherapy works is complex due to the chemical structures and pathophysiologic properties of the essential oils. Aromatherapy stimulates the nervous system. When inhaled, the molecules of the scent are transferred from receptor cells to the olfactory bulb.[1] The olfactory bulb then sends electrical impulses to the amygdala, the region of the brain responsible for emotions. The connection between this area of the brain and the limbic system is thought to be the reason why smells trigger emotions and cause mind-body responses that are associated with the use of essential oils.[1]

The most popular essential oil purchased on the market today is lavender, which has documented scientific studies and usage dating back to the early 1900s. It has evidence in a variety of patient populations for its effectiveness in treating anxiety and sleep disorders. A randomized controlled trial done by Arslan and colleagues in 2020 assessed whether lavender oil inhalation affects anxiety and perception of pain in dental pediatric patients.[2] The treatment group inhaled natural lavender oil prior to tooth extraction procedure while the control group received nothing. Scales measuring behavioral changes, anxiety and pain were used to assess if there was a difference between children who received lavender aromatherapy and those who did not. At the conclusion of the study, a statistically significant decrease in pain and anxiety was found in patients who received lavender aromatherapy prior to the dental procedure. Researchers concluded that lavender oil can be used routinely as a calming agent in pediatric dentistry.[2]

Another control trial conducted by Lillehei and colleagues tested the effectiveness of lavender on sleep quantity and quality as an addition to proper sleep hygiene in American college students.[3] Students who enrolled in the trial received suggestions for improving sleep hygiene with or without lavender aromatherapy. After two weeks, a follow up was scheduled with each student to assess their sleep quality and quantity. The results showed lavender had increased effects on improving sleep quality and quantity without safety concerns. The investigators concluded that lavender has sufficient safety and efficacy profiles to potentially support its use for this chronic condition.[3] Lavender's effectiveness over these two widely different patient populations shows its potential for use in anxiety and sleep disorders and explains its prevalence in the marketplace today.

Lavender is not the only essential oil that is effective for sleep and anxiety. Another therapy that has been studied extensively is chamomile, a flower native to Europe. Chamomile has been used for centuries in a variety of ways, ranging from wound healing to use as a sedative.[4] Chamomile is often consumed as a tea that has shown benefit in improving sleep quality, but it is also available as an essential oil with effectiveness as an anxiolytic.[4] In 2021, Pourshaikhian and colleagues

conducted a randomized control trial at Quazin University in Iran to test the effectiveness of chamomile aromatherapy for anxiety in patients with acute coronary syndrome, a severe emergency condition that can cause patients acute stress and anxiety.[5] When comparing chamomile to placebo in this study, patients in the chamomile group had significantly lower anxiety scores, blood pressure and heart rates.[5] The positive effects seen on blood pressure speaks to chamomile's potential for use in a wide variety of conditions. Furthermore, the improved anxiety scores suggest benefit with aromatherapy for yet another patient population to help manage anxiety.

While lavender and chamomile are well-known aromatherapies with the most clinical support behind their use, studies have shown some efficacy for other essential oils as potential remedies for anxiety. In 2022, Tan and colleagues conducted a meta-analysis on the effectiveness of 10 different essential oils in reducing anxiety levels, measured by State Anxiety Inventory and Trait Anxiety Inventory scores.[6] Although lavender was the essential oil with the highest mean change in anxiety scores (chamomile was not tested), other essential oils had moderate results that are worth mentioning. Lower State Anxiety Inventory scores were noted with the use of jasmine, citrus, and damask rose, while significant changes were also seen with lemon oil.[6] Although these results might not equate to the extent of data supporting lavender and chamomile, it shows that other essential oils may be considered when managing anxiety.

The findings from these studies have led to more research where these established aromatherapy approaches are combined with other nontraditional routes of care in hopes of seeing additional benefits. One such combination that has been tested in the recent past is aromatherapy plus music therapy. Music is used to achieve certain therapeutic goals, such as stress relief, pain management, and many others. In 2019, Zamanifar and colleagues began to explore the combined effects of music plus aromatherapy in nurses and whether the combination helps alleviate anxiety in their high-pressure work environment. Nurses at the Besat Hospital in Iran received either music therapy, aromatherapy with chamomile and lavender, both, or neither. Their anxiety levels were then assessed using the Beck Anxiety Inventory after three completed shifts. The data collected from this study showed that both the music therapy and aromatherapy approaches were effective for reducing anxiety in these patients, but the combination of both treatments had the most effect in reducing anxiety scores.[7] Also in 2019, but in Korea, Son and colleagues tested the effectiveness of combined aromatherapy and music therapy in nursing students.[8] However, this study assessed the effectiveness in reducing anxiety with the use of a test anxiety scale and by grading their performance on nursing skills. Both studies yielded similar conclusions, where combination aromatherapy and music therapy were superior at reducing anxiety compared to each individual intervention.[7,8] As a result, using a combined therapy approach is beginning to gain traction as a potential add-on treatment for anxiety.

With many different studies showing positive results throughout the recent past, aromatherapy now has data supporting its use for both anxiety and sleep disorders. The benefit of aromatherapy is further bolstered by the worldwide nature of this research, with positive study outcomes being reported not only in the United States, but Europe, Iran, and Korea. While clinical evidence has not yet reached a point where aromatherapy can be prioritized over traditional medications for anxiety or insomnia, the vast amount of data shows effectiveness as an add-on therapy for patients with these conditions. Data will only continue to expand over the near future, and lead to an increased use in aromatherapy. Providers and patients alike should be aware of the potential benefits of aromatherapy and consider it as a way to help manage not only sleep and anxiety, but other medical conditions.

REFERENCES

1. Ali B, Al-Wabel NA, Shams S, Ahamad A, Khan SA, Anwar F. Essential oils used in aromatherapy: a systemic review. *Asian Pac J Trop Biomed*. 2015;5(8):601-611. doi:10.1016/j.apjtb.2015.05.007
2. Arslan I, Aydinoglu S, Karan NB. Can lavender oil inhalation help to overcome dental anxiety and pain in children? A randomized clinical trial. *Eur J Pediatr*. 2020;179(6):985-992. doi:10.1007/s00431-020-03595-7
3. Lillehei AS, Halcón LL, Savik K, Reis R. Effect of inhaled lavender and sleep hygiene on self-reported sleep issues: a randomized controlled trial. *J Altern Complement Med*. 2015;21(7):430-438. Doi:10.1089/acm.2014.0327
4. Srivastava JK, Shankar E, Gupta S. Chamomile: A herbal medicine of the past with bright future. *Mol Med Rep*. 2010;3(6):895-901. doi:10.3892/mmr.2010.377
5. Pourshaikhian M, Moghadamnia MT, Kazemnezhad Leyli E, Shafiei Kisomi Z. Effects of aromatherapy with Matricaria chamomile essential oil on anxiety and hemodynamic indices in patients with acute coronary syndrome, 2021: a randomized controlled trial. *BMC Complement Med Ther*. 2024;24(1):17. doi:10.1186/s12906-023-04326-9

6. Tan L, Liao FF, Long LZ, et al. Essential oils for treating anxiety: a systematic review of randomized controlled trials and network meta-analysis. *Front Public Health*. 2023;11:1144404. doi:10.3389/fpubh.2023.1144404
7. Zamanifar S, Bagheri-Saveh MI, Nezakati A, Mohammadi R, Seidi J. The effect of music therapy and aromatherapy with chamomile-lavender essential oil on the anxiety of clinical nurses: a randomized and double-blind clinical trial. *J Med Life.* 2020;13(1):87-93. doi:10.25122/jml-2019-0105
8. Son HK, So WY, Kim M. Effects of aromatherapy combined with music therapy on anxiety, stress, and fundamental nursing skills in nursing students: a randomized controlled trial. *Int J Environ Res Public Health*. 2019;16(21):4185. doi:10.3390/ijerph16214185