



AROMATHERAPY AS A NON-PHARMACOLOGICAL INTERVENTION FOR ANXIETY REDUCTION IN UNIVERSITY STUDENTS: A LITERATURE REVIEW

Delvi Jasyanti¹, Dessy Abdullah*², Betty Fitriyasti³

^{1,2,3}Universitas Baiturrahmah

*Email: dessyabdullah@fk.unbrah.ac.id

Abstract

University students face various psychological challenges, one of which is anxiety. Anxiety can interfere with their academic performance and daily activities. Non-pharmacological therapies, such as aromatherapy, have been explored as potential treatments for reducing anxiety. This study employs a literature review approach to examine the impact of aromatherapy on anxiety reduction among university students. Articles were collected using Google Scholar, following the PICO-S framework. The review included studies published in the last five years in Indonesian, focusing on the effects of aromatherapy on anxiety in students. A total of six studies were selected, and all indicated that aromatherapy had a significant effect in reducing anxiety levels in university students. Essential oils such as lavender and peppermint were commonly used and showed positive outcomes. Aromatherapy is an effective non-pharmacological intervention for anxiety, providing an alternative to pharmacological treatments. The results suggest that essential oils can help alleviate the stress and anxiety caused by academic pressures, with lavender and peppermint being particularly effective. Further research is recommended to explore the long-term effects and other essential oils in this context. Aromatherapy has been proven to be an effective therapy for reducing anxiety in university students, offering a natural, side-effect-free alternative to medication.

Keywords: Aromatherapy, Anxiety, University Students, Non-Pharmacological Therapy, Literature Review

INTRODUCTION

Students are particularly susceptible to experiencing anxiety¹. According to the World Health Organization, 450 million people worldwide suffer from anxiety-related disorders. The American College Health Association reported that 25.9% of university students experience anxiety². Anxiety refers to an uncomfortable feeling or worry, often originating from vague or undefined sources. While anxiety is a normal response, it becomes problematic when it is excessive, leading to discomfort, disrupting daily activities, and causing individuals to avoid social interaction, thus contributing to stress.³

Various challenges in university life can trigger psychological issues, including anxiety. Students are expected to be independent and responsible for completing academic tasks⁴. Anxiety among students often arises due to increasing workloads, the pressure to complete final assignments (theses), public speaking anxiety during presentations, or exam stress⁵.

This anxiety negatively impacts behavior, making it hard to concentrate, leading to irritability, poor emotional control, and loss of appetite. Students, particularly those in their final year, may experience anxiety while working on their theses, leading to discomfort, restlessness, and mood swings, which interfere with

their concentration and problem-solving abilities during the process.²

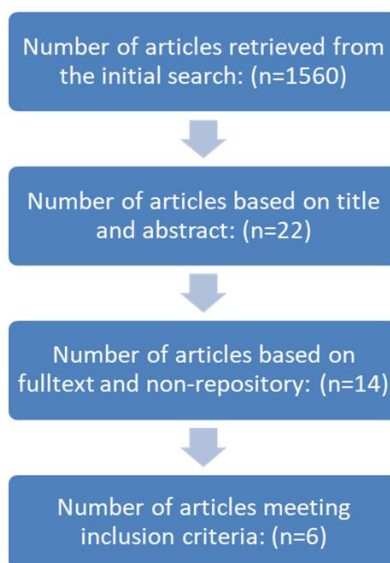
There are several methods to manage anxiety, including pharmacological and non-pharmacological therapies. Pharmacological treatments, such as selective serotonin reuptake inhibitors (SSRIs), are commonly used to treat anxiety, but some individuals cannot use these medications due to their side effects. Today, various non-pharmacological therapies, including aromatherapy, are widely used to reduce anxiety.⁶ Aromatherapy is a complementary therapy that primarily involves the use of essential oils, and other forms such as incense, candles, essential oil burners, and soaps are also used. These essential oils are extracted from flowers, leaves, stems, fruits, roots, and resins. Some plants commonly used for aromatherapy include rosemary, sandalwood, jasmine, orange, basil, ginger, lemon, tea tree, and ylang-ylang. Aromatherapy can be applied via inhalation or topical use.^{7,8}

When inhaled, aromatherapy works by stimulating the brain and nervous system through the olfactory nerves. This response enhances neurotransmitter activity, which positively affects mental conditions such as emotions, thoughts, and anxiety^{7,8}. Based on this information, the author is interested in reviewing the literature on the influence of aromatherapy as an anxiety treatment for students.

METHODS

This study employs a literature review approach by gathering existing research regarding the effects of aromatherapy as an anxiety treatment for students. The studies were collected using Google Scholar, applying specific keywords derived from the PICO-S framework. The following keywords were used: (1) University students, (2) Aromatherapy effects, (3) Therapy, (4) Anxiety disorders. Inclusion Criteria: Studies were selected based on the following criteria: 1) Populations: Studies focusing on the use of aromatherapy for treating anxiety disorders in students; 2) Outcomes: Studies addressing the effect of aromatherapy on anxiety reduction; 3) Language: Studies written in Indonesian. Exclusion Criteria: 1) Studies that did not meet the following criteria were excluded; 2) Studies that did not explain the use of aromatherapy for anxiety treatment in students; 3) Studies that did not report on the effects of aromatherapy on anxiety; 4) Studies whose title, abstract, or content were not relevant, not available in full text, or lacked proper repository access; 5) Studies published more than 5 years ago; 6) Studies not written in Indonesian.

The literature selection process involved screening titles and abstracts for relevance, and full-text availability. The selection process is illustrated in Figure 1.



RESULTS AND DISCUSSION

Based on the literature review, 1,560 studies were retrieved using the search keywords in Indonesian. Of these, 6 studies met the inclusion and exclusion criteria and focused on the effect of aromatherapy on reducing anxiety in students. The characteristics of these studies are summarized in the table below.

No	Title	Authors	Year	Method & Data Collection	Results
1	The Effect of Lavender Aromatherapy on Anxiety Levels Before Block Exams in Medical Students ⁸	Monica et al.	2023	True experimental design with posttest-only control group	Significant effect of lavender aromatherapy on reducing anxiety before block exams.
2	The Effectiveness of Deep Breathing and Aromatherapy on Anxiety in Nursing Students ¹	Triwahyuni et al.	2021	Quasi-experimental with pretest and posttest design	Lavender aromatherapy and deep breathing effectively reduce anxiety.
3	The Effect of Aromatherapy on Anxiety During the COVID-19 Pandemic in Nursing Students ⁹	Khouw et al.	2021	Pre-experimental with one-group pretest-posttest design	Aromatherapy significantly reduced anxiety in nursing students during the pandemic.
4	Academic Anxiety Interventions for Health Students: A Literature Review ⁵	Indria et al.	2023	Literature review with meta-synthesis	Found various methods to reduce academic anxiety, including lavender

No	Title	Authors	Year	Method & Data Collection	Results
5	Non-pharmacological Interventions for Anxiety in Students: A Narrative Review ⁶	Gerliandi et al.	2021	Narrative review	aromatherapy. Aromatherapy, including peppermint, is effective in reducing anxiety.
6	Literature Review: Interventions to Reduce Anxiety in Students ³	Amira et al.	2021	Literature review	Combining aromatherapy with music therapy reduces anxiety.

The findings from this literature review highlight the significant role of aromatherapy as an effective non-pharmacological intervention for anxiety reduction in university students.¹⁰ The studies reviewed consistently demonstrate that essential oils, particularly lavender and peppermint, have calming and stress-relieving properties that can reduce anxiety levels. Aromatherapy works by stimulating the olfactory system, which in turn influences the brain and central nervous system, leading to a decrease in the physiological symptoms of anxiety, such as increased heart rate and muscle tension.⁷

Lavender oil, in particular, has been widely studied for its ability to promote relaxation and alleviate stress, making it especially beneficial for students experiencing exam-related anxiety^{11,15}. The calming effects of lavender are believed to be linked to its ability to influence neurotransmitter activity in the brain, such as increasing the levels of serotonin, a neurotransmitter that contributes to mood regulation.⁸ Several studies have shown that lavender aromatherapy not only reduces anxiety but also improves sleep quality, which is often disrupted in anxious individuals.⁹

Peppermint oil, known for its invigorating and soothing properties, has also been shown to reduce anxiety symptoms by enhancing mental clarity and focus. While lavender is primarily associated with relaxation, peppermint's stimulating effects help boost concentration, which may be particularly helpful for students facing academic pressures. Additionally, peppermint is believed to possess analgesic properties, which can relieve the physical discomfort associated with anxiety, such as headaches and digestive issues.⁶

The combination of both essential oils in aromatherapy has the potential to provide a well-rounded solution for managing anxiety, addressing both the emotional and physical symptoms that students experience. Aromatherapy offers a significant advantage over pharmacological treatments because it does not carry the risk of side effects that are often associated with prescription medications.⁵ Furthermore, aromatherapy is accessible, cost-effective, and can be easily integrated into students' daily routines.²

However, despite the promising results, there are several limitations in the current research that should be addressed in future studies. Many of the studies reviewed had small sample sizes or limited generalizability, as they focused on

specific student populations or institutions. Future research should include larger, more diverse samples to confirm the efficacy of aromatherapy across different student groups and academic contexts.¹² Additionally, more longitudinal studies are needed to assess the long-term effects of aromatherapy on anxiety, as most of the studies in this review were short-term.^{1,13}

Furthermore, while lavender and peppermint have been identified as the most effective oils, it would be beneficial to explore the effects of other essential oils, such as chamomile or sandalwood, which may also contribute to anxiety reduction. The combination of aromatherapy with other relaxation techniques, such as deep breathing exercises or meditation, could also enhance its effectiveness and provide a more holistic approach to anxiety management^{1,14}

In conclusion, aromatherapy represents a promising and accessible method for reducing anxiety in university students. As an adjunct to other therapeutic approaches, it can help manage the stressors of academic life without the adverse effects commonly associated with pharmacological treatments. Further research is needed to explore the full potential of aromatherapy, including the exploration of additional essential oils and the integration of aromatherapy with other psychological interventions.

CONCLUSIONS & RECOMMENDATIONS

Based on the review of six articles, it is concluded that aromatherapy is an effective non-pharmacological therapy for reducing anxiety in students. Various essential oils, including lavender, peppermint, and chamomile, can be used for this purpose. Aromatherapy provides an alternative to pharmacological treatments and could potentially reduce the need for medications with side effects.

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