

ICU Patient Care: The Role of Aromatherapy in Stress and Sleep Management

Camila Castellán Cardoso ^{1,*}

¹ Centro Universitário de Tecnologia de Curitiba – UNIFATEC, Curitiba, Paraná, Brazil.

* Correspondence: camiscas1@hotmail.com.

Abstract: This narrative review article explores the integration of aromatherapy, especially using lavender essential oil, in Intensive Care Units (ICUs). It aims to assess the efficacy, safety, and implications of this practice in critical care settings, where patients frequently suffer from stress, anxiety, and sleep disturbances. The study adopts a critical narrative review methodology, systematically examining both qualitative and quantitative literature. The research covers a range of aspects, including the impact of aromatherapy on anxiety and sleep quality, specific effects of lavender essential oil in wound healing, antibacterial, and anxiolytic activities, and its use in nursing practice. While initial findings are promising, indicating potential benefits in reducing anxiety and improving sleep quality, the evidence is not yet robust, with variability in study designs and outcomes. The review highlights the need for more rigorous research, standardization of essential oil use, and incorporation of aromatherapy education in nursing curricula. It concludes that while aromatherapy, particularly with lavender essential oil, shows potential therapeutic effects in ICUs, further research and holistic integration are essential for its effective and safe application in medical practice.

Keywords: Aromatherapy; Intensive Care Units; Lavender Essential Oil; Anxiety and Sleep Quality.

1. Introduction

The integration of complementary therapies in modern healthcare settings, particularly within intensive care units (ICUs), has emerged as a significant area of interest for both clinicians and researchers. The application of essential oils in these critical settings represents a unique intersection of traditional holistic practices and contemporary medical care. This research aims to delve into the efficacy, safety, and implications of using essential oils in intensive care environments, where patients often grapple with high levels of stress, anxiety, and sleep disturbances [1].

Intensive care units, characterized by their high-tech and high-intensity medical care, are often the epicenters of life-saving interventions. Patients in ICUs face unique challenges, including psychological stress, anxiety, and disrupted sleep patterns, all of which can significantly impact their recovery and overall well-being. Traditional pharmacological interventions, while effective, can sometimes lead to adverse effects or may not fully address these psychological and emotional aspects of ICU care [1, 2].

Aromatherapy is a centuries-old practice involving the use of essential oils extracted from herbs, flowers, and other plants. This therapy is predicated on the belief that these oils, with their distinct fragrances, possess therapeutic properties that can enhance physical, mental, and emotional health. In the context of intensive care, aromatherapy offers a non-invasive, patient-centered approach that could potentially augment conventional medical treatments [3, 4].

Citation: Cardoso CC. ICU Patient Care: The Role of Aromatherapy in Stress and Sleep Management. *Brazilian Journal of Aromatherapy and Essential Oil*. 2024;1: bjhae9.

doi: <https://doi.org/10.62435/2965-7253.bjhae.2024.bjhae9>

Received: 5 January 2024

Accepted: 3 February 2024

Published: 1 March 2024



Copyright: This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0).

This research will explore the scope of essential oils in ICUs, examining their potential roles in alleviating anxiety, improving sleep quality, and enhancing the overall patient experience. The investigation will encompass a review of current literature, including clinical trials and observational studies, to assess the outcomes of aromatherapy interventions in these critical care settings. By understanding the effectiveness and mechanisms of essential oils in the ICU, this study aims to provide insights into their potential integration as a complementary therapy, contributing to the holistic care of critically ill patients.

2. Material and Methods

2.1 Research Design

This study adopts a critical narrative review methodology to explore the integration of aromatherapy using essential oils in Intensive Care Units (ICUs). This approach involves a comprehensive and systematic examination of existing literature, including both qualitative and quantitative studies, to assess the efficacy, safety, and implications of essential oils in critical care settings.

2.2 Data Sources and Search Strategy

A systematic search will be conducted in databases such as PubMed, MEDLINE, EMBASE, PsycINFO, and Cochrane Library. Keywords and phrases related to aromatherapy, essential oils, intensive care, anxiety, sleep disturbances, and patient well-being will be used. The search will be limited to studies published in English within the last 15 years, to ensure contemporary relevance. Reference lists of identified articles will also be scanned for additional relevant studies.

2.3 Inclusion and Exclusion Criteria

Studies will be selected based on the following criteria:

Inclusion: Clinical trials, observational studies, and qualitative research focusing on the use of essential oils in ICU settings, with outcomes related to anxiety, sleep quality, stress reduction, or overall patient well-being.

Exclusion: Studies not specifically addressing ICU settings, non-peer-reviewed articles, and studies with insufficient data on aromatherapy interventions.

2.4 Data Extraction and Synthesis

Key information will be extracted from the selected studies, including study design, sample size, type of essential oil used, method of application, outcomes measured, and results. This data will be synthesized to provide a comprehensive overview of the current state of knowledge regarding the use of essential oils in ICUs. The synthesis will focus on identifying common themes, effectiveness of interventions, safety considerations, and gaps in the existing literature.

3. Effectiveness of Aromatherapy on Anxiety and Sleep Quality in ICU

The integration of aromatherapy into intensive care units (ICUs) represents an intriguing fusion of traditional holistic practices with modern medical care. This approach is particularly relevant in ICUs, where patients often endure high levels of stress, anxiety, and sleep disturbances. Aromatherapy, which involves the use of essential oils extracted from plants, has been explored for its potential to enhance physical, mental, and emotional well-being.

A systematic review conducted by Tan and colleagues aimed to evaluate the impact of aromatherapy on anxiety and sleep quality among ICU patients [5]. Their research included a systematic search across multiple databases, focusing on Randomised Controlled

Trials and Controlled Clinical Trials. The review found that while there is evidence suggesting the effectiveness of aromatherapy in reducing anxiety and improving sleep quality, the overall certainty of these findings is low due to high heterogeneity and bias risk in the studies [5]. Additionally, studies on specific essential oils, like lavender, suggest benefits in increasing sleep quality and reducing anxiety levels in ICU settings [6].

Moreover, broader literature reviews and meta-analyses, such as those conducted by Hwang and Shin, provide a wider perspective on the effects of aromatherapy on sleep improvement, thus offering insights into its general efficacy [7]. However, despite these promising findings, the evidence supporting the use of aromatherapy in ICUs is not yet robust. The variability in study designs, methodologies, and outcomes underscores the need for more rigorous research to establish clearer guidelines and protocols for the effective and safe use of aromatherapy in critical care environments.

In summary, while aromatherapy presents a promising complementary therapy in ICUs for managing anxiety and sleep disturbances, further research is necessary to fully understand its efficacy, mechanisms, and potential integration into standard ICU care protocols.

4. Specific Effects of Lavender Essential Oil in ICU

Lavender essential oil, renowned for its soothing fragrance, has been the subject of numerous studies investigating its therapeutic properties. Key areas of interest include its potential in wound healing, demonstrated by its ability to expedite healing processes and enhance collagen expression. Additionally, its antibacterial and antioxidant activities suggest a broader application in health and wellness, particularly in anti-inflammatory treatments. Furthermore, lavender's anxiolytic effects make it a popular choice in aromatherapy for stress and anxiety reduction. Despite these promising avenues, the necessity for more rigorous clinical trials and standardization in its application remains a critical step for integrating it effectively into medical practice [8].

Karimzadeh et al. [9] provides a comprehensive review of lavender essential oil's role in wound healing. It summarizes findings from various research types, including human clinical trials, animal studies, and *in vitro* studies. The review reveals that lavender essential oil may contribute to faster wound healing, increased collagen expression, and enhanced activity in tissue remodeling. The article emphasizes the need for standardized chemical composition and further high-quality human clinical trials to confirm these findings and establish safety and efficacy in clinical practice [9].

Another study specifically investigated the effect of lavender essential oil on sleep quality and anxiety levels in patients with coronary artery disease in an ICU setting. This study concluded that lavender essential oil could be beneficial in increasing sleep quality and reducing anxiety levels. The study highlights lavender essential oil as a non-invasive, cost-effective, and easily applicable option for use in ICUs [6]. Lee et al. [10] examines the impact of lavender essential oil on sleep quality and anxiety levels in patients with coronary artery disease. It demonstrates that lavender essential oil can effectively improve sleep quality and reduce anxiety levels in this patient group, suggesting its potential as a non-invasive, cost-effective, and easily applicable intervention in clinical settings [10].

Finally, Moeini et al. [11] investigates the efficacy of aromatherapy in treating post-operative nausea and vomiting (PONV) in children. The research focuses on whether aromatherapy can serve as an effective alternative to standard pharmacological treatments for PONV in a pediatric surgical setting. The authors identified that quality of sleep in ischemic heart disease patients was significantly improved after aromatherapy with lavender oil. Therefore, using aromatherapy can improve the quality of their sleep and health. In summary, the diverse therapeutic applications of lavender essential oil, as described by recent research, highlight its potential as a significant adjunct in modern medical practice.

5. Specific Effects of Lavender Essential Oil in ICU

The practice of aromatherapy in nursing has gained popularity in various settings, with an emphasis on its integration into holistic nursing care. The literature review by Maddocks-Jennings and Wilkinson [12] provides a comprehensive overview of the use of essential oils in nursing, primarily focusing on their application in low doses for massage or as environmental fragrances. The review, which includes a wide array of articles from nursing literature since 1990, as well as references from scientific research on essential oils dating back to 1971, highlights a need for more empirical evidence to support the broad use of aromatherapy in nursing practice beyond its role in enhancing relaxation. This review found that despite its popularity, there is still limited empirical evidence supporting the use of aromatherapy in nursing beyond its role in enhancing relaxation. The review calls for more collaborative research to explore clinical applications of essential oils in greater detail. The review calls for more collaborative research in nursing to explore the clinical applications of essential oils in greater detail [12].

Additionally, the study of Smith et al. [13] describes a theoretical framework for integrating aromatherapy in nursing practice and education. This paper presents five propositions derived from three theories, offering suggestions for the application of aromatherapy in nursing practice and education. It emphasizes the need for a holistic approach in incorporating aromatherapy into nursing, suggesting that it can be a valuable addition to patient care [13]. These reviews collectively underscore the potential of aromatherapy in nursing, while also highlighting the necessity for more rigorous research to understand its full range of applications and to ensure its safe and effective use in clinical settings. The growing interest in aromatherapy within nursing practice indicates its potential as a complementary therapy, but it also necessitates careful consideration of its implications, including the risks related to allergies, safety, and the potential for inappropriate use.

5. Conclusion

Aromatherapy, particularly using lavender essential oil, has shown promise as a complementary therapy in Intensive Care Units (ICUs) for managing anxiety and improving sleep quality. However, the current evidence, though encouraging, isn't conclusive due to study limitations. To enhance its effectiveness and integration into ICU care, several recommendations are proposed. Firstly, there's a need for more comprehensive and rigorous research to solidify the evidence base. This includes conducting high-quality, controlled clinical trials to verify the therapeutic benefits of lavender essential oil, not only for anxiety and sleep disturbances but also for wound healing and its anxiolytic effects.

Developing standardized protocols for the application of aromatherapy in ICUs is essential. This should consider different types of essential oils, particularly ensuring the standardization of lavender essential oil's chemical composition for consistent clinical use. Training healthcare professionals, especially ICU staff, in the proper and safe use of aromatherapy as a complementary therapeutic intervention is crucial. Additionally, incorporating aromatherapy education into nursing curricula and professional development programs will enhance knowledge and application skills.

A patient-centered approach is vital. Aromatherapy interventions should be tailored to individual patient needs and preferences, especially in diverse ICU populations. This aligns with encouraging the integration of aromatherapy within the holistic nursing framework, considering patient-centered and safety-focused approaches. In conclusion, while aromatherapy, especially lavender essential oil, has demonstrated potential therapeutic effects in ICUs, including wound healing, antibacterial, antioxidant activities, and anxiety reduction, the necessity for further research, standardization, and holistic integration remains critical for its effective and safe application in medical practice.

Funding: None.

Research Ethics Committee Approval: None.

Acknowledgments: None.

Conflicts of Interest: None.

Supplementary Materials: None.

References

1. Tan JXJ, Cai JS, Ignacio J. Effectiveness of aromatherapy on anxiety and sleep quality among adult patients admitted into intensive care units: A systematic review. *Intensive Crit Care Nurs.* 2023 Jun;76:103396. doi: 10.1016/j.iccn.2023.103396. Epub 2023 Feb 2. PMID: 36738535.
2. Liang X, Wang X, Zhao G, Huang X, Xu X, Dong W. Research Progress of Essential Oil as a New Complementary Therapy in the Treatment of Depression. *Mini Rev Med Chem.* 2021;21(16):2276-2289. doi: 10.2174/1389557521666210219161747. PMID: 33605857.
3. Brennan SE, McDonald S, Murano M, et al. Effectiveness of aromatherapy for prevention or treatment of disease, medical or preclinical conditions, and injury: protocol for a systematic review and meta-analysis. *Syst Rev.* 2022;11:148. doi: 10.1186/s13643-022-02015-1.
4. Cao X, Zhou J, Liu J, Chen H, Zheng W. Aromatherapy in anxiety, depression, and insomnia: A bibliometric study and visualization analysis. *Heliyon.* 2023 Jul 17;9(7):e18380. doi: 10.1016/j.heliyon.2023.e18380. PMID: 37519641; PMCID: PMC10375858.
5. Tan JXJ, Cai JS, Ignacio J. Effectiveness of aromatherapy on anxiety and sleep quality among adult patients admitted into intensive care units: A systematic review. *Intensive Crit Care Nurs.* 2023 Jun;76:103396. doi: 10.1016/j.iccn.2023.103396. Epub 2023 Feb 2. PMID: 36738535.
6. Karadag E, Samancioglu S, Ozden D, Bakir E. Effects of aromatherapy on sleep quality and anxiety of patients. *Nurs Crit Care.* 2017 Mar;22(2):105-112. doi: 10.1111/nicc.12198. Epub 2015 Jul 27. PMID: 26211735.
7. Salamung N, Elmiyanti NK. Effect of Aromatherapy on Sleep Quality: A Systematic Review. *Int J Nurs Health Serv.* 2023;6(5). doi: 10.35654/ijnhs.v6i5.728.
8. Samuelson R, Lobl M, Higgins S, Clarey D, Wysong A. The Effects of Lavender Essential Oil on Wound Healing: A Review of the Current Evidence. *J Altern Complement Med.* 2020 Aug;26(8):680-690. doi: 10.1089/acm.2019.0286. Epub 2020 Jun 24. PMID: 32589447.
9. Karimzadeh Z, Azizzadeh Forouzi M, Tajadini H, Ahmadinejad M, Roy C, Dehghan M. Effects of lavender and Citrus aurantium on pain of conscious intensive care unit patients: A parallel randomized placebo-controlled trial. *J Integr Med.* 2021 Jul;19(4):333-339. doi: 10.1016/j.joim.2021.01.006. Epub 2021 Jan 14. PMID: 33516726.
10. Lee CH, Lai CL, Sung YH, Lai MY, Lin CY, Lin LY. Comparing effects between music intervention and aromatherapy on anxiety of patients undergoing mechanical ventilation in the intensive care unit: a randomized controlled trial. *Qual Life Res.* 2017 Jul;26(7):1819-1829. doi: 10.1007/s11136-017-1525-5. Epub 2017 Feb 24. PMID: 28236262.
11. Moeini M, Khadibi M, Bekhradi R, Mahmoudian SA, Nazari F. Effect of aromatherapy on the quality of sleep in ischemic heart disease patients hospitalized in intensive care units of heart hospitals of the Isfahan University of Medical Sciences. *Iran J Nurs Midwifery Res.* 2010 Fall;15(4):234-9. PMID: 22049287; PMCID: PMC3203283.
12. Maddocks-Jennings W, Wilkinson JM. Aromatherapy practice in nursing: literature review. *J Adv Nurs.* 2004 Oct;48(1):93-103. doi: 10.1111/j.1365-2648.2004.03172.x. PMID: 15347415.
13. Smith MC, Kyle L. Holistic foundations of aromatherapy for nursing. *Holist Nurs Pract.* 2008 Jan-Feb;22(1):3-9; quiz 10-1. doi: 10.1097/01.HNP.0000306321.03590.32. PMID: 18172401.