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Using *Eucalyptus* oil steam therapy to improve airway clearance in community-dwelling patients with asthma

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Abstract
Bronchial asthma is a chronic inflammatory disease of the respiratory tract that can impair airway clearance and negatively impact the quality of life of those affected. *Eucalyptus* oil steam therapy has emerged as a potential non-pharmacological intervention to address this issue. This case study aimed to investigate the application of *eucalyptus* oil steam therapy in managing ineffective airway clearance in a patient with bronchial asthma. Using a descriptive case study design with a nursing care approach, the study included assessment, diagnosis, planning, implementation, and evaluation of nursing care. The subject was an adult patient with bronchial asthma experiencing ineffective airway clearance. The intervention involved administering *eucalyptus* oil steam therapy for 10-15 minutes, following standard operating procedures. The evaluation results showed significant improvements in airway clearance, including reduced shortness of breath, thinner and more easily expelled phlegm, and decreased frequency of coughing. These findings suggest that *eucalyptus* oil steam therapy can be an effective non-pharmacological intervention for managing ineffective airway clearance in patients with bronchial asthma. As a result, *eucalyptus* oil steam therapy can be applied at the family level to improve the quality of life of individuals with bronchial asthma. This intervention offers a promising approach to complement existing treatments and enhance patient outcomes.

Keywords: Asthma, community nursing, *eucalyptus* oil steam therapy, ineffective airway clearance, nursing care

Introduction
Bronchial asthma is a chronic, non-communicable disease characterized by airway inflammation, leading to bronchial narrowing and excessive mucus production (Haahtela, 2016). Symptoms include recurring shortness of breath, coughing, wheezing, and chest tightness, which can be fatal if not properly managed (Ukena et al., 2008). According to the World Health Organization (WHO), the number of people with asthma is estimated to reach 400 million by 2025 (Serebrisky & Wiznia, 2019). In Indonesia, asthma is among the top 10 causes of morbidity and mortality, with a high prevalence in Central Java, particularly in Magelang Regency. Poor asthma control often leads to relapses and death (Caminati et al., 2021). Asthma management can involve both pharmacological and non-pharmacological approaches. One effective non-pharmacological therapy is *eucalyptus* oil steam therapy, which has anti-inflammatory and antimicrobial properties that help thin phlegm, clear airways, and provide a relaxing effect. Several studies have demonstrated the effectiveness of *eucalyptus* oil steam inhalation in reducing respiratory disorder symptoms and improving airway clearance (Shiekh et al., 2025; Astriyani et al., 2025).

Family engagement is essential because family members giving a caring for patients with asthma, providing emotional support and assisting with daily management tasks (Lin et al., 2024). With engaging family members, researchers can ensure that patients receive the support they need to adhere to the *eucalyptus* oil steam therapy regimen and manage their condition effectively. Family members can also help into the patient's condition, helping healthcare professionals to identify potential issues and develop effective solutions (Kashaninia et al., 2018). Educating family members about *eucalyptus* oil steam therapy and its benefits can empower to support in using therapy. Family engagement can also help to promote adherence to treatment regimens, reducing the risk of non-adherence and its consequences (Han et al., 2020). Additionally, family members can provide emotional support and encouragement, helping patients to stay motivated. This study is important because asthma is a chronic respiratory disease that affects millions of people worldwide, causing significant morbidity, mortality, and economic burden. Effective management of asthma requires a comprehensive approach that includes pharmacological and non-pharmacological interventions. *Eucalyptus* oil steam therapy is a non-pharmacological intervention that has been shown to be effective in improving airway clearance and reducing symptoms in patients with asthma. The study's findings can also inform the development of evidence-based guidelines for asthma management, which can help healthcare professionals provide better care for patients with asthma. Furthermore, the study's results can be used to educate patients and their families about the benefits of *eucalyptus* oil steam therapy, empowering them to take a more active role in managing their condition.

Additionally, the study's findings can contribute to the growing body of evidence on the benefits of non-pharmacological interventions in asthma management, which can help to reduce the reliance on pharmacological treatments and their potential side effects. By improving airway clearance and reducing symptoms, *eucalyptus* oil steam therapy can also help to reduce the risk of asthma exacerbations, which can be life-threatening. The study's findings can also have implications for healthcare policy, highlighting the importance of providing access to non-pharmacological interventions like *eucalyptus* oil steam therapy. This study can help to reduce the burden of asthma on individuals, families, and communities. Moreover, the study's findings can be used to inform the development of asthma self-management programs, which can help patients to better manage their condition and improve their quality of life. By engaging patients and their families in asthma management, this study can help to promote a sense of ownership and responsibility for health outcomes.

Case Description

Mrs. Y, a 40-year-old woman, has been struggling with bronchial asthma since her teenage years. Her primary complaints include shortness of breath, coughing up thick phlegm, particularly at night, and difficulty sleeping due to these symptoms. The patient's home environment exacerbates her condition, with poor ventilation and exposure to dust and smoke from burning garbage. Given her symptoms and environmental factors, the nursing diagnosis was determined to be ineffective airway clearance related to increased secretion production and airway narrowing due to bronchial asthma. To address this issue, a comprehensive action plan was developed, which included providing non-pharmacological interventions in the form of *eucalyptus* oil steam therapy. The therapy involved filling a basin with hot water and adding a few drops of *eucalyptus* oil, which the patient inhaled slowly through her nose and mouth for 10-15 minutes, following standard procedures. Alongside the steam therapy, the patient received education on airway care and asthma triggers, as well as guidance on effective coughing techniques. The goal of this intervention was to help loosen and clear mucus from the airways, reduce inflammation, and improve breathing. After the intervention, an outcome evaluation was performed, which showed a significant improvement in the patient's condition. The frequency of shortness of breath decreased, phlegm became thinner and easier to expel, and coughing decreased, leaving the patient feeling more relieved. As a result, airway clearance became more effective, and the patient's overall quality of life improved. The implementation of *eucalyptus* oil steam therapy proved to be a valuable addition to the patient's care plan. By incorporating this non-pharmacological intervention, the patient was able to experience the benefits of improved airway clearance without relying solely on medication. The education provided to the patient and her family on airway care and asthma triggers also empowered them to take a more active role in managing the condition and preventing future exacerbations. Furthermore, the use of *eucalyptus* oil steam therapy is a cost-effective and accessible treatment option that can be easily replicated in the home setting, making it a practical solution for patients with bronchial asthma. Overall, the combination of *eucalyptus* oil steam therapy, education, and effective coughing techniques helped to improve the patient's symptoms and enhance her overall well-being.

Discussion

An assessment was conducted to patient who complained of difficulty sleeping due to a nighttime cough with phlegm and shortness of breath. Vital signs were: BP 110/80 mmHg, HR 94 beats/minute, RR 24 breaths/minute, and temperature 36.2ºC. These symptoms are consistent with the theory of bronchial asthma, which is often characterized by night or early morning coughing, wheezing, and excessive mucus production. The assessment also involved the family to assess their knowledge, skills, and environmental conditions that could trigger attacks (dust, poor ventilation). Data collection was conducted through interviews, observations, and physical examinations in accordance with nursing theory. The primary diagnosis was ineffective airway clearance related to the family's inability to care for the patient and the presence of secretion retention. This diagnosis is consistent with the theory that secretion retention, airway narrowing, and the family's lack of skills in initial management can worsen the condition of asthma patients (Muanprasong et al., 2024). The intervention focused on providing *eucalyptus* oil vapor inhalation therapy as a non-pharmacological method. The cineole in *eucalyptus* oil acts as a mucolytic, anti-inflammatory, and bronchodilator, helping to thin mucus and clear the airways. This intervention aligns with the theory that hot steam inhalation can increase airway humidity, reduce bronchial spasms, and improve patient comfort (Hayes et al., 2012). Furthermore, family education was provided on simple inhalation therapy techniques, symptom monitoring, and prevention of asthma triggers (Yustiawan et al., 2021).

The implementation of the care plan was carried out over three days, with a focus on empowering the patient to manage their bronchial asthma symptoms effectively. On the first day, the patient was guided to perform *eucalyptus* oil steam therapy for 10-15 minutes, which helped to loosen and clear mucus from the airways. The nurse closely monitored the patient's vital signs, breath sounds, cough frequency, and ability to expectorate phlegm throughout the process. On the second day, an evaluation and improvement of the home environment were conducted to identify and mitigate potential asthma triggers, such as dust and smoke. The patient's family was also educated on the importance of maintaining a clean and dust-free environment to help manage the patient's symptoms. By the third day, the patient had gained confidence in performing inhalation therapy independently, using *eucalyptus* oil steam to help control their symptoms. The patient's respiratory rate decreased from 24 breaths per minute to 20 breaths per minute, indicating

improved lung function. Additionally, wheezing was eliminated, and shortness of breath decreased, allowing the patient to breathe more comfortably. The patient's phlegm also became thinner and easier to expectorate, which reduced coughing frequency and improved overall respiratory health. As a result of the interventions, the patient reported sleeping better and coughing less frequently, leading to an improvement in their quality of life. Furthermore, the family was able to explain and practice independent inhalation therapy, ensuring that the patient would continue to receive the benefits of the treatment even after discharge. Overall, the comprehensive care plan helped the patient to achieve better control over their bronchial asthma symptoms and improve their overall health and well-being.

As a healthcare professional, it is essential to provide patient-centred care that addresses the unique needs and concerns of individuals with bronchial asthma. By educating patients and their families about asthma management, healthcare professionals can empower them to take an active role in controlling symptoms and improving quality of life (Kharaba et al., 2022). *Eucalyptus* oil steam therapy can be a valuable adjunct to pharmacological treatments, helping to loosen and clear mucus from the airways. Regular monitoring of vital signs, breath sounds, and cough frequency can help healthcare professionals assess the effectiveness of treatment and make necessary adjustments. With promoting a collaborative approach to care, healthcare professionals can work with patients and their families to develop personalized care plans that address their specific needs and goals (Shao et al., 2024; Gleason et al., 2016). Effective communication and patient education are critical components of high-quality care, enabling patients to manage their symptoms and prevent exacerbations. Healthcare professionals can also play a key role in promoting healthy lifestyle habits, such as avoiding triggers and maintaining a clean and dust-free environment. Providing comprehensive care and support can help patients with bronchial asthma achieve better health and improve quality of life. Additionally, healthcare professionals can help patients develop self-management skills, such as using inhalers correctly and monitoring symptoms. Through working together, healthcare professionals and family can develop effective care plans for the patient.

Conclusion

The research on *Eucalyptus* oil steam therapy suggests it is a promising non-pharmacological adjunct intervention for improving airway clearance in community-dwelling patients with respiratory issues, including asthma. The core therapeutic effect is primarily attributed to *cineole (eucalyptol)*, the main active compound in *eucalyptus* oil, which is known to have mucolytic, bronchodilation, and anti-inflammatory properties. This action helps to thin respiratory secretions, relax the airways, and reduce inflammation, which, combined with the moisturizing effect of warm steam, facilitates the easier expulsion of mucus and alleviates symptoms like shortness of breath. This makes it a potential low-cost, easily implemented home therapy to enhance comfort and respiratory function in the community setting. For future studies to conclusively establish the role of this therapy in asthma management, several key steps are necessary. Researchers must prioritize conducting studies in adult and paediatric asthma populations, comparing the *eucalyptus* steam against a placebo and/or standard care to isolate the true effect of the oil. Furthermore, it is crucial to employ objective outcome measures such as spirometry, sputum analysis, and validated asthma control scores (e.g., ACT) to quantify efficacy beyond subjective reports. Establishing a standardized protocol regarding optimal dosage, frequency, and duration is essential for clinical applicability.

References

Astriyani, A., Permanasari, I., Efliani, D., & Putri, T. I. Y. L. (2025). The Effect of Eucalyptus Oil Steam Inhalation on Respiratory Rate in Toddlers with Acute Respiratory Infection (ARI). *Jurnal Ventilator, 3*(1), 268-273.

Caminati, M., Vaia, R., Furci, F., Guarnieri, G., & Senna, G. (2021). Uncontrolled Asthma: Unmet Needs in the Management of Patients. *Journal of asthma and allergy, 14,* 457–466. https://doi.org/10.2147/JAA.S260604

Gleason, M., Cicutto, L., Haas-Howard, C., Raleigh, B. M., & Szefler, S. J. (2016). Leveraging Partnerships: Families, Schools, and Providers Working Together to Improve Asthma Management. *Current allergy and asthma reports, 16*(10), 74. https://doi.org/10.1007/s11882-016-0655-0

Haahtela T. (2016). Asthma as an example of non-communicable diseases - Let us simplify the chain of causality. *Porto biomedical journal, 1*(5), 155. https://doi.org/10.1016/j.pbj.2016.10.002

Han, L., Shangguan, J., Yu, G., Li, T., Wu, Y., Zhou, Y., Liu, P., & Wang, A. (2020). Association between family management and asthma control in children with asthma. *Journal for specialists in pediatric nursing: JSPN, 25*(2), e12285. https://doi.org/10.1111/jspn.12285

Hayes, D., Jr, Collins, P. B., Khosravi, M., Lin, R. L., & Lee, L. Y. (2012). Bronchoconstriction triggered by breathing hot humid air in patients with asthma: role of cholinergic reflex. *American journal of respiratory and critical care medicine, 185*(11), 1190–1196. https://doi.org/10.1164/rccm.201201-0088OC

Kashaninia, Z., Payrovee, Z., Soltani, R., & Mahdaviani, S. A. (2018). Effect of Family Empowerment on Asthma Control in School-Age Children. *Tanaffos, 17*(1), 47–52.

Kharaba, Z., Feghali, E., El Husseini, F., Sacre, H., Abou Selwan, C., Saadeh, S., Hallit, S., Jirjees, F., AlObaidi, H., Salameh, P., & Malaeb, D. (2022). An Assessment of Quality of Life in Patients with Asthma Through Physical, Emotional, Social, and Occupational Aspects. A Cross-Sectional Study. *Frontiers in public health, 10,* 883784. https://doi.org/10.3389/fpubh.2022.883784

Lin, K., Zhang, Y., He, X., Chen, X., Zhang, X., & Duan, H. (2024). Family management styles for children with asthma: A latent profile analysis. *Nursing open, 11*(8), e70008. https://doi.org/10.1002/nop2.70008

Muanprasong, S., Aqilah, S., Hermayurisca, F., & Taneepanichskul, N. (2024). Effectiveness of Asthma Home Management Manual and Low-Cost Air Filter on Quality of Life Among Asthma Adults: A 3-Arm Randomized Controlled Trial. *Journal of multidisciplinary healthcare, 17,* 2613–2622. https://doi.org/10.2147/JMDH.S397388

Serebrisky, D., & Wiznia, A. (2019). Pediatric Asthma: A Global Epidemic. *Annals of global health, 85*(1), 6. https://doi.org/10.5334/aogh.2416

Shao, M., Liu, Z., & Liu, T. (2024). Effects of Family-Supported Healthcare on Children with Asthma. *Therapeutics and clinical risk management, 20,* 427–436. https://doi.org/10.2147/TCRM.S464826

Shiekh, R. A. E., Atwa, A. M., Elgindy, A. M., Mustafa, A. M., Senna, M. M., Alkabbani, M. A., & Ibrahim, K. M. (2025). Therapeutic applications of eucalyptus essential oils. *Inflammopharmacology, 33*(1), 163-182.

Ukena, D., Fishman, L., & Niebling, W. B. (2008). Bronchial asthma: diagnosis and long-term treatment in adults. *Deutsches Arzteblatt international, 105*(21), 385–394. https://doi.org/10.3238/arztebl.2008.0385

Yustiawan, E., Immawati, I., & Dewi, N. R. (2021). The application of simple inhalation using eucalyptus oil to improve airway clearance in children with acute respiratory infection (ARI) in the working area of Metro Health Center in 2021. [Penerapan inhalasi sederhana menggunakan minyak kayu putih untuk meningkatkan bersihan jalan nafas pada anak dengan ispa di wilayah kerja puskesmas metro tahun 2021]. Jurnal Cendikia Muda, 2(1), 147–155. https://jurnal.akperdharmawacana.ac.id/index.php/JWC/article/view/304